May 10, 2018

Air Division, Permits Office (Air-3)
U.S. EPA, Region 9
75 Hawthorne Street
San Francisco, CA 94105

RE: Federal Minor New Source Review Application for Indian Country, Yocha Dehe Wintun Nation

The Yocha Dehe Wintun Nation ("Tribe") is a federally recognized Native American Tribe located in Yolo County, California. The Tribe is submitting this application under EPA's Federal Minor New Source Review ("NSR") Program in Indian Country, regarding the sources at the Cache Creek Casino Resort, located at 14455 State Highway 16, in Brooks, California.

Attached are the *U.S. EPA Region 9 Federal Minor New Source Review Program in Indian Country Application for New Construction (EPA Form No. 5900-248)* and the *Application for Synthetic Minor Limit (EPA Form No. 5900-246)*, with supporting documentation.

Should you have any questions, please contact the Yocha Dehe Environmental Department directly at 530-796-0176.

Emily Drewek
Director, Environmental Department
Yocha Dehe Wintun Nation

OMB Control No. 2060-0003
Approval expires 04/30/2017

United States Environmental Protection Agency
Pacific Southwest – Region 9
Federal Minor New Source Review Program in Indian Country

Application for New Construction

Please check all that apply to show how you are using this form:

- ☐ Proposed Construction of a New Source
- X Proposed Construction of New Equipment at an Existing Source
- ☐ Proposed Modification of an Existing Source
- ☐ Other – Please Explain_____

Please submit information to:

U.S. EPA at:

Air Division, Permits Office (Air-3)
U.S. EPA, Region 9
75 Hawthorne Street
San Francisco, CA 94105

For more information:
http://www.epa.gov/caa-permitting/tribal-nsr-permits-region-9, call (415) 972-3974, or email R9AirPermits@epa.gov.

Tribe:

The Tribal Environmental Contact for the specific reservation:

Please contact EPA Region 9 if you need assistance in identifying the appropriate Tribal Environmental Contact and address.

A. General Source Information

1. Company Name Cache Creek Casino Resort		**2. Source Name** Cache Creek Casino Resort	
3. Type of Operation Gaming Facility		**4. Portable Source?** Yes X No **5. Temporary Source?** Yes X No	
6. NAICS Code 713210		**7. SIC Code** 7999	
8. Physical Address (home base for portable sources) 14455 CA-16, Brooks, CA 95606			
9. Reservation* Yocha Dehe Wintun Nation	**10. County*** Yolo	**11a. Latitude*** 38°44'3.89"N	**11b. Longitude*** 122° 8'32.14"W
12a. Quarter-Quarter Section*	**12b. Section*** Unsectioned	**12c. Township*** 10N	**12d. Range*** 3W

* Provide all locations of operation for portable sources

B. Contact Information

1. Owner Name Yocha Dehe Wintun Nation	Title
Mailing Address P.O. Box 18, Brooks CA 95606	
Email Address	
Telephone Number 530-796-3400	Facsimile Number 530-796-2143
2. Operator Name (if different from owner) Cache Creek Casino Resort	Title
Mailing Address P.O. Box 65, Brooks, CA 95606-0065	
Email Address	
Telephone Number	Facsimile Number
3. Source Contact Mike Hill	Title Facilities Engineering Manager
Mailing Address Cache Creek Casino Resort, P.O. Box 65, Brooks, CA 95606-0065	
Email Address mhill@cachecreek.com	
Telephone Number 530-796-5276	Facsimile Number 530-796-5277
4. Compliance Contact Emily Drewek	Title Director, Environmental Department
Mailing Address Yocha Dehe Wintun Nation, P.O. Box 18, Brooks CA 95606	
Email Address edrewek@yochadehe-nsn.gov	
Telephone Number 530-796-0176	Facsimile Number 530-796-2143

C. PREVIOUS PERMIT ACTIONS (Provide information in this format for each permit that has been issued to this source. Provide as an attachment if additional space is necessary)

Facility Name on the Permit NO PERMITS ISSUED
Permit Number
Date of the Permit Action A permit application was submitted May 9, 2017, but is now being retracted and replaced by this current permit application.

Facility Name on the Permit
Permit Number
Date of the Permit Action

Facility Name on the Permit
Permit Number
Date of the Permit Action

Facility Name on the Permit
Permit Number
Date of the Permit Action

Facility Name on the Permit
Permit Number
Date of the Permit Action

D. Attachments

Include all of the following information as attachments to this form

X FORM SYNMIN - New Source Review Synthetic Minor Limit Request Form, if synthetic minor limits are being requested.

X Narrative description of the proposed production processes. This description should follow the flow of the process flow diagram to be submitted with this application.

X Process flow chart identifying all proposed processing, combustion, handling, storage, and emission control equipment.

X A list and descriptions of all proposed emission units and air pollution-generating activities.

X Type and quantity of fuels, including sulfur content of fuels, proposed to be used on a daily, annual and maximum hourly basis.

X Type and quantity of raw materials used or final product produced proposed to be used on a daily, annual and maximum hourly basis.

X Proposed operating schedule, including number of hours per day, number of days per week and number of weeks per year.

X A list and description of all proposed emission controls, control efficiencies, emission limits, and monitoring for each emission unit and air pollution generating activity.

X Criteria Pollutant Emissions - Estimates of Current Actual Emissions, Current Allowable Emissions, Post-Change Uncontrolled Emissions, and Post-Change Allowable Emissions for the following air pollutants: particulate matter, PM_{10}, $PM_{2.5}$, sulfur oxides (SOx), nitrogen oxides (NOx), carbon monoxide (CO), volatile organic compound (VOC), lead (Pb) and lead compounds, fluorides (gaseous and particulate), sulfuric acid mist (H_2SO_4), hydrogen sulfide (H_2S), total reduced sulfur (TRS) and reduced sulfur compounds, including all calculations for the estimates.

These estimates are to be made for each emission unit, emission generating activity, and the project/source in total. Note, there are no insignificant emission units or activities in this permitting program, only exempted units and activities. Please see the regulation for a list of exempted units and activities.

X Air Quality Review – See Attached Discussion.

X ESA (Endangered Species Act) – See Attached Discussion.

X NHPA (National Historic Preservation Act) – See Attached Discussion.

E. TABLE OF ESTIMATED EMISSIONS

The following estimates of the total emissions in tons/year for all pollutants contained in your worksheet stated above should be provided.

Pollutant	Total Actual Proposed Allowable Emissions (tpy)	Total Allowable or Potential Emissions (TPY)	
PM	2.56	3.51	PM - Particulate Matter PM_{10} - Particulate Matter less than 10 microns in size $PM_{2.5}$ - Particulate Matter less than 2.5 microns in size SO_2 - Sulfur Oxides NOx - Nitrogen Oxides CO - Carbon Monoxide VOC - Volatile Organic Compound Pb - Lead and lead compounds Fluorides - Gaseous and particulates H_2SO_4 - Sulfuric Acid Mist H_2S - Hydrogen Sulfide TRS - Total Reduced Sulfur RSC - Reduced Sulfur Compounds
PM_{10}	2.56	3.51	
$PM_{2.5}$	2.56	3.51	
SO_x	0.14	0.25	
NO_x	18.05	27.6	
CO	38.85	57.66	
VOC	10.18	12.84	
Pb	0	0	
NH_3	0	0	
Fluorides	0	0	
H_2SO_4	0	0	
H_2S	0	0	
TRS	0	0	
RSC	0	0	

Emissions calculations must include fugitive emissions if the source is one the following listed sources, pursuant to CAA Section 302(j):

(a) Coal cleaning plants (with thermal dryers);
(b) Kraft pulp mills;
(c) Portland cement plants;
(d) Primary zinc smelters;
(e) Iron and steel mills;
(f) Primary aluminum ore reduction plants;
(g) Primary copper smelters;
(h) Municipal incinerators capable of charging more than 250 tons of refuse per day;
(i) Hydrofluoric, sulfuric, or nitric acid plants;
(j) Petroleum refineries;
(k) Lime plants;
(l) Phosphate rock processing plants;
(m) Coke oven batteries;
(n) Sulfur recovery plants;
(o) Carbon black plants (furnace process);
(p) Primary lead smelters;
(q) Fuel conversion plants;
(r) Sintering plants;
(s) Secondary metal production plants;
(t) Chemical process plants
(u) Fossil-fuel boilers (or combination thereof) totaling more than 250 million British thermal units per hour heat input;
(v) Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;
(w) Taconite ore processing plants;
(x) Glass fiber processing plants;
(y) Charcoal production plants;
(z) Fossil fuel-fired steam electric plants of more that 250 million British thermal units per hour heat input, and

(aa) Any other stationary source category which, as of August 7, 1980, is being regulated under section 111 or 112 of the Act

E(ii) – Proposed New Construction at an Existing Source or Modification of an Existing Source

Pollutant	Current Actual Emissions (tpy)	Current Allowable Emissions (tpy)	Post-Change Potential Emissions (tpy)	Post-Change Allowable Emissions (tpy)
PM	0.39		3.51	2.56
PM_{10}	0.39		3.51	2.56
$PM_{2.5}$	0.39		3.51	2.56
SO_2	0.02		0.25	0.14
NO_x	13.84		27.6	18.05
CO	4.59		57.66	38.85
VOC	0.33		12.84	10.18
Pb	0		0	0
Fluorides	0		0	0
H_2SO_4	0		0	0
H_2S	0		0	0
TRS	0		0	0
RSC	0		0	0

PM - Particulate Matter
PM_{10} - Particulate Matter less than 10 microns in size
$PM_{2.5}$ - Particulate Matter less than 2.5 microns in size
SO_2 - Sulfur Oxides
NOx - Nitrogen Oxides
CO - Carbon Monoxide
VOC - Volatile Organic Compound
Pb - Lead and lead compounds
Fluorides - Gaseous and particulates
H_2SO_4 - Sulfuric Acid Mist
H_2S - Hydrogen Sulfide
TRS - Total Reduced Sulfur
RSC - Reduced Sulfur Compounds

The public reporting and recordkeeping burden for this collection of information is estimated to average 20 hours per response, unless a modeling analysis is required. If a modeling analysis is required, the public reporting and recordkeeping burden for this collection of information is estimated to average 60 hours per response .Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed form to this address.

Instructions

(Please do not include a copy of these instructions in the application you submit to us.)

Use of This Form

- Proposed new construction or modifications should first be evaluated to determine if the change is major under the major NSR program using the procedures at 40 CFR 52.21 (i.e., baseline actual to projected actual applicability test). If the proposed construction does not qualify as a major under that test, then it may be subject to the requirements of the minor NSR rule at 40 CFR 49.151.

Helpful Definitions from the Federal Minor NSR Rule (40 CFR 49) – This is not a comprehensive list.

- *40 CFR 49.152(d) - Modification* means any physical or operational change at a source that would cause an increase in the allowable emissions of the affected emissions units for any regulated NSR pollutant or that would cause the emission of any regulated NSR pollutant not previously emitted.

  The following exemptions apply:

  (1) A physical or operational change does not include routine maintenance, repair, or replacement.

  (2) An increase in the hours of operation or in the production rate is not considered an operational change unless such increase is prohibited under any federally-enforceable permit condition or other permit condition that is enforceable as a practical matter.

  (3) A change in ownership at a source is not considered a modification.

- *40 CFR 49.152(d) - Allowable emissions* means "allowable emissions" as defined in §52.21(b)(16), except that the allowable emissions for any emissions unit are calculated considering any emission limitations that are enforceable as a practical matter on the emissions unit's potential to emit.

- *52.21(b)(16) - Allowable emissions* means the emissions rate of a stationary source calculated using the maximum rated capacity of the source (unless the source is subject to federally enforceable limits which restrict the operating rate, or hours of operation, or both) and the most stringent of the following:

  (i) The applicable standards as set forth in 40 CFR parts 60 and 61;

  (ii) The applicable State Implementation Plan emissions limitation, including those with a future compliance date; or

(iii) The emissions rate specified as a federally enforceable permit condition, including those with a future compliance date.

A. General Facility Information

1. Company Name & Operator Name (if the operator of the facility is different than the owner, please provide this information): Provide the complete company and operator names. For corporations, include divisions or subsidiary names, if any.

2. Facility Name: Provide the facility name. Please note that a facility is a site, place, location, etc... that may contain one or more air pollution emitting units.

3. Type of Operation: Indicate the generally accepted name for the operation (i.e., asphalt plant, gas station, dry cleaner, sand & gravel mining, oil and gas wellsite, tank battery, etc.).

4. Portable Source: Will this facility operate in more than one location? Some examples of portable sources include asphalt batch plants and concrete batch plants.

5. Temporary Source: A temporary source, in general, would have emissions that are expected last less than 12 months.

6. NAICS Code: North American Industry Classification System. The NAICS Code for your facility can be found at the following link → North American Industry Classification System (http://www.census.gov/epcd/naics/nsic2ndx.htm#S1).

7. SIC Code: Standard Industrial Classification Code. Although the new North American Industry Classification System (NAICS) has replaced the SIC codes, much of the Clean Air Act permitting processes continue to use these codes. The SIC Code for your facility can be found at the following link → Standard Industrial Classification Code (http://www.osha.gov/pls/imis/sic_manual.html).

8. Physical Address: Provide the actual address of where you are proposing to construct the new facility, not the mailing address. Include the State and the ZIP Code.

9. Reservation: Provide the name of the Indian reservation within which the facility will be constructed.

10. County: Provide the County within which the source will be constructed.

11a & 11b. Latitude & Longitude: These are GPS (global positioning system) coordinates.

12a – 12d. Section-Township-Range: Please provide these coordinates in 1/4 Section/Section/Township/Range. (e.g., SW ¼, NE ¼ S36/T10N/R21E).

B. Contact Information

Please provide the information, requested, in full.

1. Company Contact: Provide the full name of the primary contact for the company that owns the facility.

2. Operator Contact: Provide the name of the primary contact for the company that operates the facility if the company operating the facility is different from the company that owns the facility.

3. Permitting Contact: Provide the name of primary contact, for permitting decisions, at the company that owns the facility or the company that operates the facility.

4. Compliance Contact: Provide the name of primary contact, responsible for compliance of the facility, at the company that owns the facility or the company that operates the facility. If this is the same as the Permitting Contact please note this on the form.

B. Current Permit Information

Provide a list of all air quality permits that have been issued for this facility. This should include any Federal Minor New Source Review (MNSR), Prevention of Significant Deterioration (PSD) or Non-Attainment New Source Review (NA NSR) permits, in addition to the most recent Part 71 permit. The permit number must be included with each permit identified.

C. Attachments

This section lists the information needed to complete the requested approval. This information should be accompanied by the supporting information listed on the form and described below. The information should be presented in enough detail to document how the facility is currently operating and/or how it is proposed to be operated.

☐ **FORM SYNMIN**

If synthetic minor limits are being requested, a synthetic Minor Limit Application should be included with this application.

☐ Narrative description of the proposed production processes.

1. The narrative description should follow the flow of the process flow diagram to be submitted with this application. This needs to be as comprehensive as possible to help in understanding the proposed facility and how it will be operated. For example:

What are the raw materials?
What are the properties of the raw materials?
Does the production process include heating, drying, the application of chemicals, etc?
How will the raw materials be affected by this process?
What are the out puts from each step of the process (i.e., crushed ore, dry gas, water, etc...)?
Etc....

2. The proposed operating schedule presented in terms of hours per day, days per week, and weeks per year.
3. A list of the type and quantity of fuels and/or raw materials used. Each fuel and raw material should be described in enough detail to indicate its basic chemical components.

☐ A process flow chart identifying all proposed processing, combustion, handling, storage, and emission control equipment. This flow chart should illustrate the detailed narrative description requested above.

☐ List and describe all proposed units, emission units and air pollution-generating activities. At a minimum, provide the following:

1. The hourly, daily and annual maximum operating rates for each operating unit, production process, and activity.
2. The hourly, daily and annual maximum firing rates for each fuel and combustion equipment.
3. The capacity for storage units and the hourly, daily and annual maximum throughput of material in the storage units.
4. Material and product handling equipment and the hourly, daily and annual maximum throughput of material and product.
5. Tank designs, tank storage capacities, hourly, daily and annual maximum throughput of material and product.

☐ Type and quantity of fuels, including sulfur content of fuels, proposed to be used on a daily, annual and maximum hourly basis.

☐ Type and quantity of raw materials used or final product produced proposed to be used on a daily, annual and maximum hourly basis.

☐ Proposed operating schedule, including number of hours per day, number of days per week and number of weeks per year.

☐ A list and description of all proposed emission controls, control efficiencies, emission limits, and monitoring for each emission unit and air pollution generating activity.

1. Include manufacturer specifications and guarantees for each control device.

Criteria Pollutant Emissions Estimates

☐ Estimates of Current Actual Emissions, Current Allowable Emissions, Post-Change Uncontrolled Emissions, and Post-Change Allowable Emissions for the following air pollutants: particulate matter, PM_{10}, $PM_{2.5}$, sulfur oxides (SO_2), nitrogen oxides (NOx), carbon monoxide (CO), volatile organic compound (VOC), lead (Pb) and lead compounds, ammonia (NH_3), fluorides (gaseous and particulate), sulfuric acid mist (H_2SO_4), hydrogen sulfide (H_2S), total reduced sulfur (TRS) and reduced sulfur compounds, including all calculations for the estimates.

1. These estimates are to be made for each emission unit, emission generating activity, in addition to total emissions.

2. The information should include all of the supporting calculations, assumptions and references. Emission estimates must address all emission units and pollutants proposed and/or affected by the limitation and be presented in short term (e.g. pounds per hour) as well as annual (tons per year) units.

3. Any emission estimates submitted to the Regional Administrator must be verifiable using currently accepted engineering criteria. The following procedures are generally acceptable for estimating emissions from air pollution sources:

   - Unit-specific emission tests;
   - Mass balance calculations;
   - Published, verifiable emission factors that are applicable to the unit. (i.e. manufacturer specifications)
   - Other engineering calculations; or
   - Other procedures to estimate emissions specifically approved by the Regional Administrator.

4. Guidance for estimating emissions can be found at http://www.epa.gov/ttn/chief/efpac/index.html.

Current Actual Emissions: Current actual emissions for a pollutant is expressed in tpy and generally is calculated by multiplying the actual hourly emissions rate in pounds per hour (lbs/hr) times actual hours operated (which is the number of hours in a year) and dividing by 2,000 (which is the number of pounds in a ton).

1. For an **existing air pollution source (permitted and unpermitted)** that operated prior to the application submittal, the current actual emissions are the actual rate of emissions for the preceding calendar year and must be calculated using the actual operating hours, production rates, in-place control equipment, and types of materials processed, stored, or combusted during the preceding calendar year. The emission estimates must be based upon actual test data or, in the absence of such data, upon procedures acceptable to the Regional Administrator.

Current Allowable Emissions: Current allowable emissions for a pollutant is expressed in tpy and generally is calculated by multiplying the allowed hourly emissions rate in pounds per hour (lbs/hr) times allowed hours (which is the number of hours in a year) and dividing by 2,000 (which is the number of pounds in a ton).

1. "Allowed" means the source is restricted by permit conditions that limit its emissions and are enforceable as a practical matter (i.e., allowable emissions). The allowable emissions for any

emissions unit are calculated considering any emissions limitations that are enforceable as a practical matter on the unit's PTE.

2. For an **existing permitted air pollution source** that operated prior to the application submittal, the current allowable emissions are the allowable rate of emissions for the preceding calendar year and must be calculated using the permitted operating hours, production rates, in-place control equipment, and types of materials processed, stored, or combusted during the preceding calendar year.

3. For an **existing air pollution source** that does not have an established allowable emissions level prior to the modification must report the pre-change uncontrolled emissions.

Post-Change Potential Emissions (Potential uncontrolled emissions from proposed project): This is the maximum capacity of a source to emit a pollutant under its physical and operational design. This is expressed in tpy and generally is calculated by multiplying the maximum hourly emissions rate in pounds per hour (lbs/hr) times 8,760 hours (which is the number of hours in a year) and dividing by 2,000 (which is the number of pounds in a ton).

Post-Change Allowable Emissions: A source's allowable emissions for a pollutant is expressed in tpy and generally is calculated by multiplying the allowed hourly emissions rate in pounds per hour (lbs/hr) times allowed hours (which is the number of hours in a year) and dividing by 2,000 (which is the number of pounds in a ton).

1. Unless the source is restricted by permit conditions or other requirements that are enforceable as a practical matter, the post-change allowable emissions would be equivalent to post-change uncontrolled emissions. For the post-change allowable emissions a lower level of allowable emissions may be proposed.

2. For physical or operational changes at minor sources and for minor physical or operational changes at major sources, the total increase in allowable emissions resulting from your proposed change would be the sum of following:

   - For each new emissions unit that is to be added, the emissions increase would be the potential to emit of each unit.
   - For each emissions unit with an allowable emissions limit that is to be changed or replaced, the emissions increase would be the allowable emissions of the emissions unit after the change or replacement minus the allowable emissions prior to the change or replacement. However, this may not be a negative value. If the allowable emissions of an emissions unit would be reduced as a result of the change or replacement, use zero in the calculation.
   - For each unpermitted emissions unit (i.e., a unit without any emissions limitations before the change) that is to be changed or replaced, the emissions increase would be the allowable emissions of the unit after the change or replacement minus the potential to emit prior to the change or replacement. However, this may not be a negative value. If

the allowable emissions of an emissions unit would be reduced as a result of the change or replacement, use zero in the calculation.

☐ **Air Quality Review**

Provide a narrative description of the current air quality conditions and the expected impact the permitted source would have on that air quality. Factors to include in the qualitative discussion are meteorology, terrain, elevation, distance to ambient air, expected emissions, stack heights, etc...

Your reviewing authority may require you to provide additional information used to determine impacts that may result from your new source or modification. You may be required to conduct and submit an Air Quality Impact Analysis (AQIA) using dispersion modeling in accordance with 40 CFR part 51, Appendix W. If required, and the AQIA demonstrates that construction of your source or modification would cause or contribute to a NAAQS or PSD increment violation, you will also required to further reduce its impact before you could obtain a permit.

☐ **ESA**

The Endangered Species Act requires us, in consultation with the U.S. Fish and Wildlife Service and/or the NOAA Fisheries Service, to ensure that actions we authorize are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species.

To expedite the approval of your proposed construction, we encourage you to identify any listed species that you may be readily aware of that could be affected by your proposal. The following website has been provided to assist you: http://www.fws.gov/endangered/

Simply enter the State and County in which you propose to construct to obtain a general listing.

☐ **NHPA**

The National Historic Preservation Act requires us, in consultation with State and/or Tribal Historic Preservation Officers to ensure that actions we authorize are not likely to affect cultural resources.

To expedite the approval of your proposed construction, we encourage you to identify any cultural resources that you may be readily aware of that could be affected by your proposal. The following website has been provided to assist you:
http://nrhp.focus.nps.gov/natreghome.do?searchtype=natreghome

Simply enter the State and County in which you propose to construct to obtain a general listing.

OMB Control No. 2060-0003
Approval expires 04/30/2017

United States Environmental Protection Agency
Pacific Southwest - Region 9
Federal Minor New Source Review Program in Indian Country

Application for Synthetic Minor Limit

Please submit information to:

U.S. EPA at:

Air Division, Permits Office (Air-3)
U.S. EPA, Region 9
75 Hawthorne Street
San Francisco, CA 94105

For more information:
http://www.epa.gov/caa-permitting/tribal-nsr-permits-region-9, call (415) 972-3974, or email R9AirPermits@epa.gov.

Tribe:

Yocha Dehe Environmental Department
PO Box 18
Brooks, CA 95606

(530) 796-0176
edrewek@yochadehe-nsn.gov

A. General Source Information

Company Name Yocha Dehe Wintun Nation
Source Name Cache Creek Casino Resort
Contact Information (name, title, phone number, email) Mike Hill Facilities Engineering Manager, Cache Creek Casino Resort 530-796-5276 mhill@cachecreek.com
Mailing Address P.O. Box 65 Brooks, CA 95606-0065

B. Attachments

For each criteria air pollutant, hazardous air pollutant and for all emission units and air pollutant-generating activities to be covered by a limitation, include the following:

X Item 1 - The proposed limitation and a description of its effect on current actual, allowable and the potential to emit. **See Attachment 4.**
X Item 2 - The proposed testing, monitoring, recordkeeping, and reporting requirements to be used to demonstrate and assure compliance with the proposed limitation. **See Narrative Description.**
X Item 3 - A description of estimated efficiency of air pollution control equipment under present or anticipated operating conditions, including documentation of the manufacturer specifications and guarantees. **N/A.**
X Item 4 - Estimates of the Post-Change Allowable Emissions that would result from compliance with the proposed limitation, including all calculations for the estimates. **N/A.**
X Item 5 – Estimates of the potential emissions of Greenhouse Gas (GHG) pollutants. **See Attachment 4.**

The public reporting and recordkeeping burden for this collection of information is estimated to average 6 hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed form to this address.

Instructions

Submit this form in addition to FORM NEW.

1. Who Can Request Federally-Enforceable Limitations Under the Tribal NSR Authority?

The Tribal NSR Rule applies only to sources located within the exterior boundaries of an Indian reservation in the United States of America or other lands as specified in 40 CFR part 49, collectively referred to as "Indian country". So, to use the authority in the Tribal NSR Rule to create federally-enforceable limitations, a source must be located within Indian country. Land ownership status (for example, whether the land is owned by a Tribal member or whether the land is owned in fee or in trust) does not affect how the rule applies.

2. Who Might Want to Request Federally-Enforceable Limitations?

The primary reason for requesting federally-enforceable limitations is to avoid an otherwise applicable federal Clean Air Act program, rule or requirement. Many federal Clean Air Act programs use a source's "potential to emit" (PTE) air pollution to determine which rules or requirements apply. A source's PTE is based on the maximum annual operational (production, throughput, etc) rate of the source taking into consideration the capacity and configuration of the equipment and operations. Emission or operational limits can also be taken into consideration as maximums if they are federally enforceable. So, using a synthetic minor NSR permit to establish federally enforceable limitations can lower a source's PTE and possibly allow the source to avoid certain federal Clean Air Act requirements.

Three examples of federal Clean Air Act programs that use PTE to determine whether they apply are (1) the Prevention of Significant Deterioration (PSD) construction permitting program, (2) the Title V operating permit program, and (3) the Maximum Achievable Control Technology (MACT) program. For example, existing sources that are considered "major" for Title V (meaning they have the potential to emit air pollution at levels defined in that rule as "major") must apply for a Title V operating permit. If a source accepts a federally-enforceable limitation through a synthetic minor NSR permit that reduces their PTE to below the "major" threshold, and the source does not meet any of the other requirements that would trigger applicability to the part 71 program, then the source no longer needs a Title V operating permit. When planning for the construction of a new source or expansion of an existing source, a source can also accept limitations on PTE (using a synthetic minor NSR permit) that allow the source to avoid PSD. Limitations on PTE can similarly help a source to avoid new MACT standards that would otherwise apply to the source.

3. Section B. Attachments

This section lists the information that must be attached to the application form for each requested limitation. The requested limitation(s) must be described for each affected emissions unit (or pollutant-generating activity) and pollutant and must be accompanied by the supporting information listed on the form and described below. Note that applicability of many federal Clean Air Act requirements (such as Title V, PSD and MACT) is often based on source-wide emission levels of specific pollutants. In that case, all emissions units at a source and all pollutants regulated by that given rule or regulation must be addressed by this section of the application form.

Item 1 – The requested limitation and its effect on actual emissions or potential to emit must be presented in enough detail to document how the limitation will limit the source's actual or potential emissions as a legal and practical matter and, if applicable, will allow the source to avoid an otherwise applicable requirement. The information presented must clearly explain how the limitation affects each emission unit and each air pollutant from that emission unit. Use the information provided in response to Item 4 below to explain how the limitation affects emissions before and after the limitation is in effect.

Item 2 – For each requested limitation, the application must include proposed testing, monitoring, recordkeeping and reporting that will be used to demonstrate and assure compliance with the limitation. Testing approaches should incorporate and reference appropriate EPA reference methods where applicable. Monitoring should describe the emission, control or process parameters that will be relied on and should address frequency, methods, and quality assurance.

Item 3 – The application must include a description and estimated efficiency of air pollution control equipment under present or anticipated operating conditions. For control equipment that is not proposed to be modified to meet the requested limit, simply note that fact; however, for equipment that is proposed to be modified (e.g. improved efficiency) or newly installed to meet the proposed limit, address both current and future descriptions and efficiencies. Include manufacturer specifications and guarantees for each control device.

Items 4 – Any emission estimates submitted to the Reviewing Authority must be verifiable using currently accepted engineering criteria. The following procedures are generally acceptable for estimating emissions from air pollution sources:

(i) Source-specific emission tests;
(ii) Mass balance calculations;
(iii) Published, verifiable emission factors that are applicable to the source. (i.e., manufacturer specifications).
(iv) Other engineering calculations; or
(v) Other procedures to estimate emissions specifically approved by the Reviewing Authority.

Post-Change Allowable Emissions: A source's allowable emissions for a pollutant is expressed in tpy and generally is calculated by multiplying the allowed hourly emissions rate in pounds per hour (lbs/hr) times allowed hours (which is the number of hours in a year) and dividing by 2,000 (which is the number of pounds in a ton).

Federal Minor New Source Review Program in Indian Country
Application for Synthetic Minor Limit

Submitted by:
Yocha Dehe Environmental Department
P.O. Box 18
Brooks, CA 95606

On behalf of:
Cache Creek Casino Resort
14455 State Highway 16
Brooks, CA 95606

May 10, 2018

Air Division, Permits Office (Air-3)
U.S. EPA, Region 9
75 Hawthorne Street
San Francisco, CA 94105

RE: Federal Minor New Source Review Application for Indian Country, Yocha Dehe Wintun Nation

The Yocha Dehe Wintun Nation ("Tribe") is a federally recognized Native American Tribe located in Yolo County, California. The Tribe is submitting this application under EPA's Federal Minor New Source Review ("NSR") Program in Indian Country, regarding the sources at the Cache Creek Casino Resort, located at 14455 State Highway 16, in Brooks, California.

Attached are the *U.S. EPA Region 9 Federal Minor New Source Review Program in Indian Country Application for New Construction (EPA Form No. 5900-248)* and the *Application for Synthetic Minor Limit (EPA Form No. 5900-246)*, with supporting documentation.

Should you have any questions, please contact the Yocha Dehe Environmental Department directly at 530-796-0176.

Emily Drewek
Director, Environmental Department
Yocha Dehe Wintun Nation

NARRATIVE DESCRIPTION

The Yocha Dehe Wintun Nation (Tribe) owns and operates Cache Creek Casino Resort (CCCR), on federally owned land in Yolo County that is held in trust for the Tribe by the United States of America. CCCR is located in the Sacramento Valley Air Basin (SVAB), which includes Yolo, Sacramento, Yuba, Sutter, Butte, Tehama, Shasta, Glen, Colusa, and parts of Placer and Solano counties. Non-tribal lands in Yolo County fall under the jurisdiction of the Yolo-Solano Air Quality Management District (YSAQMD). The area monitored by YSAQMD is designated as severe nonattainment for 8-hour ozone, and the major source threshold for oxides of nitrogen (NOx) is 25 tons per year (tpy).

1. FORMS

The Application for New Construction (**Attachment 1**) is being submitted along with an Application for Synthetic Minor Limit (**Attachment 2**). The units are a combination of new and existing sources.

The Tribe previously submitted an application for a synthetic minor limit on May 9, 2017 for the existing standby diesel engines and natural gas-fired boilers at CCCR. The Tribe is withdrawing that application and submitting this application in its place. This revised application includes proposed new emission units and operational changes.

2. EMISSIONS UNITS

CCCR is proposing to install three new natural gas generators to provide onsite power. The existing standby diesel generators will remain operational as emergency engines.

CCCR currently operates, or is proposing to operate, the emission sources listed in the tables below, all of which are subject to the EPA's Federal Minor New Source Review Program in Indian Country. **Table 1** includes the units at the Generator Plant (GP) that will be used for onsite power generation and emergency backup and the hot water boilers that will serve CCCR.

Table 2 includes all units that constitute the CCCR Emergency Backup System. The units in **Table 2** are not anticipated to be operated outside of routine maintenance. They are included in the application for informational purposes, but are not factored into the total Potential to Emit (PTE) emissions calculations for the facility.

Table 1. CCCR Proposed New and Existing Emissions Units

Unit	Make	Model	Model Year	Engine Power / Output	EPA Certification / Control Technology	Status	Use
Continuous Natural Gas Generator	Caterpillar	G3520H	2018	2,483 kW	SCR exhaust after treatment	New	Prime Power
Continuous Natural Gas Generator	Caterpillar	G3520H	2018	2,483 kW	SCR exhaust after treatment	New	Prime Power
Continuous Natural Gas Generator	Caterpillar	G3520H	2018	2,483 kW	SCR exhaust after treatment	New	Prime Power
Standby Generator	Caterpillar	C175-16	2009	3,100 kW	Tier 2	Existing	Emergency
Standby Generator	Caterpillar	C175-16	2009	3,100 kW	Tier 2	Existing	Emergency
Emergency Generator	Caterpillar	3516BDITA	2000	2,000 kW	Tier 1	Existing	Emergency
Natural Gas-Fired Boiler	Unilux	ZF 700 W	2003	7.2 MMBtu/hr	-	Existing	Hot water
Natural Gas-Fired Boiler	Unilux	ZF 700 W	2003	7.2 MMBtu/hr	-	Existing	Hot water
Natural Gas-Fired Boiler	Camus Advantus	AVNH2500	2017	2.5 MMBtu/hr	-	New	Hot water
Natural Gas-Fired Boiler	Camus Advantus	AVNH2500	2017	2.5 MMBtu/hr	-	New	Hot water
Natural Gas-Fired Boiler	Camus Advantus	AVNH2500	2017	2.5 MMBtu/hr	-	New	Hot water
Natural Gas-Fired Boiler	Camus Advantus	AVNH2500	2017	2.5 MMBtu/hr	-	New	Hot water

Notes:
kW = kilowatts; MMBtu/hr = million British thermal units per hour
SCR = Selective Catalytic Reduction

Table 2. Emergency Backup System Units – Included for Informational Purposes Only

Unit	Make	Model	Model Year	Engine Power/ Output	EPA Certification	Status	Use
Standby Generator	Caterpillar	C175-16	2009	3,100 kW	Tier 2	Existing	Emergency
Standby Generator	Caterpillar	C175-16	2009	3,100 kW	Tier 2	Existing	Emergency
Emergency Generator	Spectrum Detroit Diesel	750DS4	2001	750 kW	-	New*	Emergency
Emergency Generator	Spectrum Detroit Diesel	750DS	2001	635 kW	-	New*	Emergency

Notes:
kW = kilowatts; MMBtu/hr = million British thermal units per hour
* The Spectrum Detroit Diesel emergency generators are existing, but not currently in use. They will be brought online as part of the Emergency Backup System.

Generator Plant Facility

The GP facility, commissioned in 2011, currently houses four 3,100 kW Tier 2 rated standby diesel generators. Under current operations, the four diesel generators are used for standby power generation during outages and for participation in two demand response (DR) programs with Pacific Gas & Electric (PG&E). After October 2018, CCCR will no longer participate in these DR programs. Around the same time, CCCR is planning to install three new natural gas generators for continuous onsite power generation.

The three new 2,483 kW natural gas generators and two of the existing 3,100 kW standby diesel generators will be located in the GP. The existing 2,000 kW emergency generator is located just outside the GP building. The other two 3,100 kW diesel engines currently in the GP will be relocated to the area indicated in **Figure 1** as part of the Emergency Backup System.

The 7.45-megawatt (MW) GP will provide a centralized system for 24-hour energy supply, providing power throughout CCCR, including auxiliary support and commercial facilities. The GP is designed to meet the anticipated average energy demand of 4.8 MW for CCCR with completion in 2019 of the current hotel expansion project (HEP). Peak energy demand is estimated to be 8 MW with the completed HEP. The transition to onsite power production will coincide with a larger facility-wide energy conservation program. Energy conservation measures will include shifting energy-intense operations to off-peak hours, LED lighting retrofits, and the installation of new photovoltaic solar panels on the CCCR property. This will reduce the overall energy demand at CCCR and offset the use of the natural gas generators.

The natural gas generators are four-cycle lean burn engines and will be equipped with a Selective Catalytic Reduction (SCR) and oxidation catalyst emission control system. The SCR will reduce NOx emissions by 95.7% and carbon monoxide (CO) emissions by 75%. The emissions control system proposal is included as part of **Attachment 4**. The natural gas generators will be operational year-round, except for during scheduled maintenance and/or equipment failure. Maintenance activities will be sequenced such that only one generator will be offline at a time, allowing the other two to supply uninterrupted power to the facility.

CCCR will remain connected to the electric grid and purchase electricity from PG&E. PG&E will supply power to CCCR when peak energy demand exceeds onsite energy generation from the solar panels and natural gas generators, or when the generators are non-operational, such as during scheduled maintenance or equipment failure. Contractually, PG&E will provide up to 6 MW of power. In the event the GP fails and onsite energy demand after load shedding exceeds the 6 MW provided by PG&E (or if PG&E fails), an additional Emergency Backup System will provide onsite power.

Two 3,100 kW standby diesel generators will be located in the GP as backups to the natural gas generators, and will only be operational during failures or regular maintenance of the natural gas generators. These standby generators are the first line of emergency backup in the event that the natural gas generators shut down. Running these, or any of the diesel generators, is more expensive than purchasing power from PG&E. Therefore, they will not be used for continuous power supply, but will provide standby power until PG&E takes over. The standby generators are driven by diesel-fueled reciprocating internal combustion engines (RICE).

Golf Course Dr
New Emergency Backup System:
2 Diesel generators relocated to here in self-contained units with diesel fuel.
Existing Generator Plant Facility:
- 2 Diesel generators removed/relocated
- 3 Natural gas generators w/ SCR installed
- 3 Existing diesel generators remain
Google Earth
© 2018 Google
© SPOT IMAGE
N
300 ft

Emergency Backup System

PG&E will provide up to 6 MW of power from the grid. In order to be able to purchase standby power from PG&E, CCCR entered into an agreement with PG&E and must demonstrate capacity to generate onsite power in the unlikely event the GP fails and PG&E power is not available. To this end, CCCR has designed a 7.5 MW Emergency Backup System to the GP. Two of the existing 3,100 kW standby diesel generators will be relocated as indicated in **Figure 1** and housed each in a self-contained steel box with a 5,000 gallon day tank of diesel fuel incorporated into each enclosure. A 635 kW and a 750 kW emergency diesel generator located at the casino will provide additional emergency backup. Together, these four diesel units will constitute the Emergency Backup System required by PG&E.

The Emergency Backup System would operate in the rare instances when onsite power generation and PG&E cannot meet demand. This may occur when peak demand exceeds PG&E's 6 MW of power OR there is a PG&E outage AND one of the following scenarios occurs:

1) A loss of natural gas supply renders the natural gas generators inoperable and the standby diesel generators in the GP cannot meet demand; or
2) The entire GP facility is destroyed/inoperable.

With the implementation of energy conservation measures and new onsite solar power to reduce peak load, this scenario is considered unlikely. During an emergency, CCCR may also load shed or reduce operations to limit the use of the emergency engines. The emergency engines are not anticipated to be operated outside of routine maintenance, which is expected to be approximately one hour per month per unit.

Boilers

The two existing 7.2 MMBtu/hr boilers are natural gas-fired. In 2017 they operated an average of 5,992 hours each. This number was used to calculate emissions estimates. Four new 2.5 MMBtu/hr natural gas-fired boilers will be added to CCCR as part of the hotel expansion project, and are anticipated to operate 6 hours per day, year-round.

3. FUELS

The natural gas generators and six boilers will use natural gas purchased from PG&E, which is provided via an existing pipeline. The generators are driven by diesel-fueled RICE and use ultra-low sulfur (0.0015% sulfur content) diesel. Diesel fuel is stored in two 20,000-gallon aboveground storage tanks and one 200-gallon day tank within the GP. Two 5,000-gallon day tanks will be installed inside the enclosures containing the two relocated diesel generators. All fuel storage tanks and an oil storage area are dual-walled for spill containment.

4. PROPOSED OPERATING SCHEDULE

The three 2,483 kW natural gas units will supply onsite power to CCCR. The average energy demand of CCCR once the HEP is complete is expected to be 4.8 MW. The generators will annually operate an average of 7,121 hours each to meet that demand. Actual annual run-time hours may be less, once the new energy conservation measures and solar arrays start offsetting energy demands.

In 2017, the four 3,100 kW diesel generators operated a combined total of 334 hours. Based on this number, the two diesel generators that will remain in the GP facility are estimated to operate an average of 167 hours each annually. However, in 2017, CCCR participated in two DR programs with PG&E that will be phased out by the fall of 2018. The actual annual run time of the diesel generators is expected to be significantly less than 167 hours. They will only be operated during emergency power outages and for maintenance. The other 2,000 kW diesel emergency generator will continue to be used as needed during emergencies. All emergency engines will be limited to a maximum of 100 hours per year of operation for testing and maintenance.

The existing 7.2 MMBtu/hr boilers are expected to operate at the same rate they do now, which is an average of 5,992 hours each per year. The new 2.5 MMBtu/hr boilers will operate 6 hours a day for hot water, which amounts to an average of 2,190 hours each per year.

5. CRITERIA POLLUTANT EMISSIONS ESTIMATES

The criteria pollutant estimates for allowable and PTE emissions for all emissions units are included as **Attachment 3**. The estimates for PTE and proposed allowable emissions are based on AP-42 emissions factors, Engine Specification Sheets provided by the manufacturer (**Attachment 4**), and run-time data from 2017. The PTE would be the emissions calculated with a worst-case assumption that all of the non-emergency engines and the boilers operated at 100% load for 8,760 hours per year, and the emergency engines operated at 200 hours per year.

The estimates for allowable emissions are based on the three natural gas generators operating at 100% load for 7,121 hours each per year; 167 hours per year each for the two standby diesel engines; 19 hours per year for the emergency diesel engine; 5,992 hours per year each for the two 7.2 MMBtu/hr boilers; and 2,190 hours per year each for the four 2.5 MMBtu/hr boilers. Using the most conservative emissions factors from the manufacturer's specification sheets, the worst-case emissions under these operational limits would be 18.05 tpy of NOx.

6. RECORD KEEPING

CCCR will keep records on site to demonstrate that emissions are below the major source thresholds. These records will include hours of operation for each generator and fuel usage.

7. OPERATING AND FIRING RATES

The proposed operating and firing rates are provided in **Attachment 3**.

8. MODELING ANALYSIS

An air quality modeling analysis is not provided since (1) some of these are existing sources and (2) it is not believed that these sources cause adverse air quality effects.

9. ENDANGERED SPECIES ACT

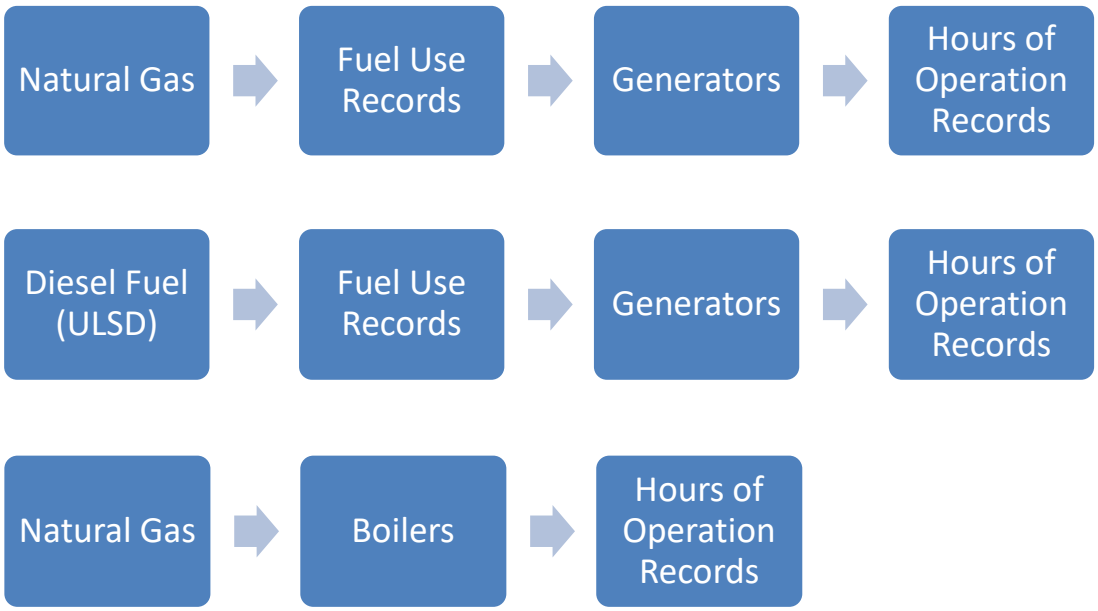
A portion of the units are existing sources, and will not have an effect on listed species or designated critical habitat. New units will be installed in existing buildings and facilities, so there will be no jeopardization to the continued existence of any listed species or the destruction or adverse modification of designated critical habitat of such species. Prior to construction of CCCR, an Environmental Evaluation (dated October 2002) was prepared. In January 2017, a Final Tribal Environmental Impact Report (TEIR) for the Yocha Dehe Wintun Nation Cache Creek Hotel Expansion Project was prepared. The cover sheets of both documents and the Final TEIR are included as **Attachment 5**.

10. NATIONAL HISTORIC PRESERVATION ACT

Since sources are either existing or will be installed in the existing CCCR facilities, there will be no effect on cultural resources. See **Attachment 5**.

11. PROCESS FLOW DIAGRAMS

The Process Flow Diagrams for CCCR's fuel burning equipment is as follows



ATTACHMENT 1

APPLICATION FOR NEW CONSTRUCTION: EPA FORM NO. 5900-248

OMB Control No. 2060-0003
Approval expires 04/30/2017

United States Environmental Protection Agency
Pacific Southwest – Region 9
Federal Minor New Source Review Program in Indian Country

Application for New Construction

Please check all that apply to show how you are using this form:

☐ Proposed Construction of a New Source
X Proposed Construction of New Equipment at an Existing Source
☐ Proposed Modification of an Existing Source
☐ Other – Please Explain_____

Please submit information to:

U.S. EPA at:

Air Division, Permits Office (Air-3)
U.S. EPA, Region 9
75 Hawthorne Street
San Francisco, CA 94105

For more information: http://www.epa.gov/caa-permitting/tribal-nsr-permits-region-9, call (415) 972-3974, or email R9AirPermits@epa.gov.

Tribe:

The Tribal Environmental Contact for the specific reservation:

Please contact EPA Region 9 if you need assistance in identifying the appropriate Tribal Environmental Contact and address.

A. General Source Information

1. Company Name Cache Creek Casino Resort		**2. Source Name** Cache Creek Casino Resort	
3. Type of Operation Gaming Facility		**4. Portable Source?** ☐ **Yes** **X No** **5. Temporary Source?** ☐ **Yes** **X No**	
6. NAICS Code 713210		**7. SIC Code** 7999	
8. Physical Address (home base for portable sources) 14455 CA-16, Brooks, CA 95606			
9. Reservation* Yocha Dehe Wintun Nation	**10. County*** Yolo	**11a. Latitude*** 38°44'3.89"N	**11b. Longitude*** 122° 8'32.14"W
12a. Quarter-Quarter Section*	**12b. Section*** Unsectioned	**12c. Township*** 10N	**12d. Range*** 3W

* Provide all locations of operation for portable sources

B. Contact Information

1. Owner Name Yocha Dehe Wintun Nation	Title
Mailing Address P.O. Box 18, Brooks CA 95606	
Email Address	
Telephone Number 530-796-3400	Facsimile Number 530-796-2143
2. Operator Name (if different from owner) Cache Creek Casino Resort	Title
Mailing Address P.O. Box 65, Brooks, CA 95606-0065	
Email Address	
Telephone Number	Facsimile Number
3. Source Contact Mike Hill	Title Facilities Engineering Manager
Mailing Address Cache Creek Casino Resort, P.O. Box 65, Brooks, CA 95606-0065	
Email Address mhill@cachecreek.com	
Telephone Number 530-796-5276	Facsimile Number 530-796-5277
4. Compliance Contact Emily Drewek	Title Director, Environmental Department
Mailing Address Yocha Dehe Wintun Nation, P.O. Box 18, Brooks CA 95606	
Email Address edrewek@yochadehe-nsn.gov	
Telephone Number 530-796-0176	Facsimile Number 530-796-2143

C. PREVIOUS PERMIT ACTIONS (Provide information in this format for each permit that has been issued to this source. Provide as an attachment if additional space is necessary)

Facility Name on the Permit NO PERMITS ISSUED
Permit Number
Date of the Permit Action A permit application was submitted May 9, 2017, but is now being retracted and replaced by this current permit application.

Facility Name on the Permit
Permit Number
Date of the Permit Action

Facility Name on the Permit
Permit Number
Date of the Permit Action

Facility Name on the Permit
Permit Number
Date of the Permit Action

Facility Name on the Permit
Permit Number
Date of the Permit Action

D. Attachments

Include all of the following information as attachments to this form

X FORM SYNMIN - New Source Review Synthetic Minor Limit Request Form, if synthetic minor limits are being requested.

X Narrative description of the proposed production processes. This description should follow the flow of the process flow diagram to be submitted with this application.

X Process flow chart identifying all proposed processing, combustion, handling, storage, and emission control equipment.

X A list and descriptions of all proposed emission units and air pollution-generating activities.

X Type and quantity of fuels, including sulfur content of fuels, proposed to be used on a daily, annual and maximum hourly basis.

X Type and quantity of raw materials used or final product produced proposed to be used on a daily, annual and maximum hourly basis.

X Proposed operating schedule, including number of hours per day, number of days per week and number of weeks per year.

X A list and description of all proposed emission controls, control efficiencies, emission limits, and monitoring for each emission unit and air pollution generating activity.

X Criteria Pollutant Emissions - Estimates of Current Actual Emissions, Current Allowable Emissions, Post-Change Uncontrolled Emissions, and Post-Change Allowable Emissions for the following air pollutants: particulate matter, PM_{10}, $PM_{2.5}$, sulfur oxides (SOx), nitrogen oxides (NOx), carbon monoxide (CO), volatile organic compound (VOC), lead (Pb) and lead compounds, fluorides (gaseous and particulate), sulfuric acid mist (H_2SO_4), hydrogen sulfide (H_2S), total reduced sulfur (TRS) and reduced sulfur compounds, including all calculations for the estimates.

These estimates are to be made for each emission unit, emission generating activity, and the project/source in total. Note, there are no insignificant emission units or activities in this permitting program, only exempted units and activities. Please see the regulation for a list of exempted units and activities.

X Air Quality Review – See Attached Discussion.

X ESA (Endangered Species Act) – See Attached Discussion.

X NHPA (National Historic Preservation Act) – See Attached Discussion.

E. TABLE OF ESTIMATED EMISSIONS

The following estimates of the total emissions in tons/year for all pollutants contained in your worksheet stated above should be provided.

Pollutant	Total Actual Proposed Allowable Emissions (tpy)	Total Allowable or Potential Emissions (TPY)	
PM	**2.56**	**3.51**	PM - Particulate Matter PM_{10} - Particulate Matter less than 10 microns in size $PM_{2.5}$ - Particulate Matter less than 2.5 microns in size SO_2 - Sulfur Oxides NOx - Nitrogen Oxides CO - Carbon Monoxide VOC - Volatile Organic Compound Pb - Lead and lead compounds Fluorides - Gaseous and particulates H_2SO_4 - Sulfuric Acid Mist H_2S - Hydrogen Sulfide TRS - Total Reduced Sulfur RSC - Reduced Sulfur Compounds
PM_{10}	**2.56**	**3.51**	
$PM_{2.5}$	**2.56**	**3.51**	
SO_x	**0.14**	**0.25**	
NO_x	**18.05**	**27.6**	
CO	**38.85**	**57.66**	
VOC	**10.18**	**12.84**	
Pb	**0**	**0**	
NH_3	**0**	**0**	
Fluorides	**0**	**0**	
H_2SO_4	**0**	**0**	
H_2S	**0**	**0**	
TRS	**0**	**0**	
RSC	**0**	**0**	

Emissions calculations must include fugitive emissions if the source is one the following listed sources, pursuant to CAA Section 302(j):

(a) Coal cleaning plants (with thermal dryers);
(b) Kraft pulp mills;
(c) Portland cement plants;
(d) Primary zinc smelters;
(e) Iron and steel mills;
(f) Primary aluminum ore reduction plants;
(g) Primary copper smelters;
(h) Municipal incinerators capable of charging more than 250 tons of refuse per day;
(i) Hydrofluoric, sulfuric, or nitric acid plants;
(j) Petroleum refineries;
(k) Lime plants;
(l) Phosphate rock processing plants;
(m) Coke oven batteries;
(n) Sulfur recovery plants;
(o) Carbon black plants (furnace process);
(p) Primary lead smelters;
(q) Fuel conversion plants;
(r) Sintering plants;
(s) Secondary metal production plants;
(t) Chemical process plants
(u) Fossil-fuel boilers (or combination thereof) totaling more than 250 million British thermal units per hour heat input;
(v) Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;
(w) Taconite ore processing plants;
(x) Glass fiber processing plants;
(y) Charcoal production plants;
(z) Fossil fuel-fired steam electric plants of more that 250 million British thermal units per hour heat input, and

(aa) Any other stationary source category which, as of August 7, 1980, is being regulated under section 111 or 112 of the Act

E(ii) – Proposed New Construction at an Existing Source or Modification of an Existing Source

Pollutant	Current Actual Emissions (tpy)	Current Allowable Emissions (tpy)	Post-Change Potential Emissions (tpy)	Post-Change Allowable Emissions (tpy)
PM	0.39		3.51	2.56
PM_{10}	0.39		3.51	2.56
$PM_{2.5}$	0.39		3.51	2.56
SO_2	0.02		0.25	0.14
NO_x	13.84		27.6	18.05
CO	4.59		57.66	38.85
VOC	0.33		12.84	10.18
Pb	0		0	0
Fluorides	0		0	0
H_2SO_4	0		0	0
H_2S	0		0	0
TRS	0		0	0
RSC	0		0	0

PM - Particulate Matter
PM_{10} - Particulate Matter less than 10 microns in size
$PM_{2.5}$ - Particulate Matter less than 2.5 microns in size
SO_2 - Sulfur Oxides
NOx - Nitrogen Oxides
CO - Carbon Monoxide
VOC - Volatile Organic Compound
Pb - Lead and lead compounds
Fluorides - Gaseous and particulates
H_2SO_4 - Sulfuric Acid Mist
H_2S - Hydrogen Sulfide
TRS - Total Reduced Sulfur
RSC - Reduced Sulfur Compounds

The public reporting and recordkeeping burden for this collection of information is estimated to average 20 hours per response, unless a modeling analysis is required. If a modeling analysis is required, the public reporting and recordkeeping burden for this collection of information is estimated to average 60 hours per response .Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed form to this address.

Instructions

(Please do not include a copy of these instructions in the application you submit to us.)

Use of This Form

- Proposed new construction or modifications should first be evaluated to determine if the change is major under the major NSR program using the procedures at 40 CFR 52.21 (i.e., baseline actual to projected actual applicability test). If the proposed construction does not qualify as a major under that test, then it may be subject to the requirements of the minor NSR rule at 40 CFR 49.151.

Helpful Definitions from the Federal Minor NSR Rule (40 CFR 49) – This is not a comprehensive list.

- *40 CFR 49.152(d) - Modification* means any physical or operational change at a source that would cause an increase in the allowable emissions of the affected emissions units for any regulated NSR pollutant or that would cause the emission of any regulated NSR pollutant not previously emitted.

  The following exemptions apply:

  (1) A physical or operational change does not include routine maintenance, repair, or replacement.

  (2) An increase in the hours of operation or in the production rate is not considered an operational change unless such increase is prohibited under any federally-enforceable permit condition or other permit condition that is enforceable as a practical matter.

  (3) A change in ownership at a source is not considered a modification.

- *40 CFR 49.152(d) - Allowable emissions* means ‘‘allowable emissions’’ as defined in §52.21(b)(16), except that the allowable emissions for any emissions unit are calculated considering any emission limitations that are enforceable as a practical matter on the emissions unit’s potential to emit.

- *52.21(b)(16) - Allowable emissions* means the emissions rate of a stationary source calculated using the maximum rated capacity of the source (unless the source is subject to federally enforceable limits which restrict the operating rate, or hours of operation, or both) and the most stringent of the following:

  (i) The applicable standards as set forth in 40 CFR parts 60 and 61;

  (ii) The applicable State Implementation Plan emissions limitation, including those with a future compliance date; or

(iii) The emissions rate specified as a federally enforceable permit condition, including those with a future compliance date.

A. General Facility Information

1. Company Name & Operator Name (if the operator of the facility is different than the owner, please provide this information): Provide the complete company and operator names. For corporations, include divisions or subsidiary names, if any.

2. Facility Name: Provide the facility name. Please note that a facility is a site, place, location, etc… that may contain one or more air pollution emitting units.

3. Type of Operation: Indicate the generally accepted name for the operation (i.e., asphalt plant, gas station, dry cleaner, sand & gravel mining, oil and gas wellsite, tank battery, etc.).

4. Portable Source: Will this facility operate in more than one location? Some examples of portable sources include asphalt batch plants and concrete batch plants.

5. Temporary Source: A temporary source, in general, would have emissions that are expected last less than 12 months.

6. NAICS Code: North American Industry Classification System. The NAICS Code for your facility can be found at the following link → North American Industry Classification System (http://www.census.gov/epcd/naics/nsic2ndx.htm#S1).

7. SIC Code: Standard Industrial Classification Code. Although the new North American Industry Classification System (NAICS) has replaced the SIC codes, much of the Clean Air Act permitting processes continue to use these codes. The SIC Code for your facility can be found at the following link → Standard Industrial Classification Code (http://www.osha.gov/pls/imis/sic_manual.html).

8. Physical Address: Provide the actual address of where you are proposing to construct the new facility, not the mailing address. Include the State and the ZIP Code.

9. Reservation: Provide the name of the Indian reservation within which the facility will be constructed.

10. County: Provide the County within which the source will be constructed.

11a & 11b. Latitude & Longitude: These are GPS (global positioning system) coordinates.

12a – 12d. Section-Township-Range: Please provide these coordinates in 1/4 Section/Section/Township/Range. (e.g., SW ¼, NE ¼ S36/T10N/R21E).

B. Contact Information

Please provide the information, requested, in full.

1. Company Contact: Provide the full name of the primary contact for the company that owns the facility.

2. Operator Contact: Provide the name of the primary contact for the company that operates the facility if the company operating the facility is different from the company that owns the facility.

3. Permitting Contact: Provide the name of primary contact, for permitting decisions, at the company that owns the facility or the company that operates the facility.

4. Compliance Contact: Provide the name of primary contact, responsible for compliance of the facility, at the company that owns the facility or the company that operates the facility. If this is the same as the Permitting Contact please note this on the form.

B. Current Permit Information

Provide a list of all air quality permits that have been issued for this facility. This should include any Federal Minor New Source Review (MNSR), Prevention of Significant Deterioration (PSD) or Non-Attainment New Source Review (NA NSR) permits, in addition to the most recent Part 71 permit. The permit number must be included with each permit identified.

C. Attachments

This section lists the information needed to complete the requested approval. This information should be accompanied by the supporting information listed on the form and described below. The information should be presented in enough detail to document how the facility is currently operating and/or how it is proposed to be operated.

☐ **FORM SYNMIN**

If synthetic minor limits are being requested, a synthetic Minor Limit Application should be included with this application.

☐ Narrative description of the proposed production processes.

1. The narrative description should follow the flow of the process flow diagram to be submitted with this application. This needs to be as comprehensive as possible to help in understanding the proposed facility and how it will be operated. For example:

What are the raw materials?
What are the properties of the raw materials?
Does the production process include heating, drying, the application of chemicals, etc?
How will the raw materials be affected by this process?
What are the out puts from each step of the process (i.e., crushed ore, dry gas, water, etc…)?
Etc….

2. The proposed operating schedule presented in terms of hours per day, days per week, and weeks per year.
3. A list of the type and quantity of fuels and/or raw materials used. Each fuel and raw material should be described in enough detail to indicate its basic chemical components.

☐ A process flow chart identifying all proposed processing, combustion, handling, storage, and emission control equipment. This flow chart should illustrate the detailed narrative description requested above.

☐ List and describe all proposed units, emission units and air pollution-generating activities. At a minimum, provide the following:

1. The hourly, daily and annual maximum operating rates for each operating unit, production process, and activity.
2. The hourly, daily and annual maximum firing rates for each fuel and combustion equipment.
3. The capacity for storage units and the hourly, daily and annual maximum throughput of material in the storage units.
4. Material and product handling equipment and the hourly, daily and annual maximum throughput of material and product.
5. Tank designs, tank storage capacities, hourly, daily and annual maximum throughput of material and product.

☐ Type and quantity of fuels, including sulfur content of fuels, proposed to be used on a daily, annual and maximum hourly basis.

☐ Type and quantity of raw materials used or final product produced proposed to be used on a daily, annual and maximum hourly basis.

☐ Proposed operating schedule, including number of hours per day, number of days per week and number of weeks per year.

☐ A list and description of all proposed emission controls, control efficiencies, emission limits, and monitoring for each emission unit and air pollution generating activity.

1. Include manufacturer specifications and guarantees for each control device.

Criteria Pollutant Emissions Estimates

☐ Estimates of Current Actual Emissions, Current Allowable Emissions, Post-Change Uncontrolled Emissions, and Post-Change Allowable Emissions for the following air pollutants: particulate matter, PM_{10}, $PM_{2.5}$, sulfur oxides (SO_2), nitrogen oxides (NOx), carbon monoxide (CO), volatile organic compound (VOC), lead (Pb) and lead compounds, ammonia (NH_3), fluorides (gaseous and particulate), sulfuric acid mist (H_2SO_4), hydrogen sulfide (H_2S), total reduced sulfur (TRS) and reduced sulfur compounds, including all calculations for the estimates.

1. These estimates are to be made for each emission unit, emission generating activity, in addition to total emissions.

2. The information should include all of the supporting calculations, assumptions and references. Emission estimates must address all emission units and pollutants proposed and/or affected by the limitation and be presented in short term (e.g. pounds per hour) as well as annual (tons per year) units.

3. Any emission estimates submitted to the Regional Administrator must be verifiable using currently accepted engineering criteria. The following procedures are generally acceptable for estimating emissions from air pollution sources:

   - Unit-specific emission tests;
   - Mass balance calculations;
   - Published, verifiable emission factors that are applicable to the unit. (i.e. manufacturer specifications)
   - Other engineering calculations; or
   - Other procedures to estimate emissions specifically approved by the Regional Administrator.

4. Guidance for estimating emissions can be found at http://www.epa.gov/ttn/chief/efpac/index.html.

Current Actual Emissions: Current actual emissions for a pollutant is expressed in tpy and generally is calculated by multiplying the actual hourly emissions rate in pounds per hour (lbs/hr) times actual hours operated (which is the number of hours in a year) and dividing by 2,000 (which is the number of pounds in a ton).

1. For an **existing air pollution source (permitted and unpermitted)** that operated prior to the application submittal, the current actual emissions are the actual rate of emissions for the preceding calendar year and must be calculated using the actual operating hours, production rates, in-place control equipment, and types of materials processed, stored, or combusted during the preceding calendar year. The emission estimates must be based upon actual test data or, in the absence of such data, upon procedures acceptable to the Regional Administrator.

Current Allowable Emissions: Current allowable emissions for a pollutant is expressed in tpy and generally is calculated by multiplying the allowed hourly emissions rate in pounds per hour (lbs/hr) times allowed hours (which is the number of hours in a year) and dividing by 2,000 (which is the number of pounds in a ton).

1. "Allowed" means the source is restricted by permit conditions that limit its emissions and are enforceable as a practical matter (i.e., allowable emissions). The allowable emissions for any

emissions unit are calculated considering any emissions limitations that are enforceable as a practical matter on the unit's PTE.

2. For an **existing permitted air pollution source** that operated prior to the application submittal, the current allowable emissions are the allowable rate of emissions for the preceding calendar year and must be calculated using the permitted operating hours, production rates, in-place control equipment, and types of materials processed, stored, or combusted during the preceding calendar year.

3. For an **existing air pollution source** that does not have an established allowable emissions level prior to the modification must report the pre-change uncontrolled emissions.

Post-Change Potential Emissions (Potential uncontrolled emissions from proposed project): This is the maximum capacity of a source to emit a pollutant under its physical and operational design. This is expressed in tpy and generally is calculated by multiplying the maximum hourly emissions rate in pounds per hour (lbs/hr) times 8,760 hours (which is the number of hours in a year) and dividing by 2,000 (which is the number of pounds in a ton).

Post-Change Allowable Emissions: A source's allowable emissions for a pollutant is expressed in tpy and generally is calculated by multiplying the allowed hourly emissions rate in pounds per hour (lbs/hr) times allowed hours (which is the number of hours in a year) and dividing by 2,000 (which is the number of pounds in a ton).

1. Unless the source is restricted by permit conditions or other requirements that are enforceable as a practical matter, the post-change allowable emissions would be equivalent to post-change uncontrolled emissions. For the post-change allowable emissions a lower level of allowable emissions may be proposed.

2. For physical or operational changes at minor sources and for minor physical or operational changes at major sources, the total increase in allowable emissions resulting from your proposed change would be the sum of following:

   - For each new emissions unit that is to be added, the emissions increase would be the potential to emit of each unit.
   - For each emissions unit with an allowable emissions limit that is to be changed or replaced, the emissions increase would be the allowable emissions of the emissions unit after the change or replacement minus the allowable emissions prior to the change or replacement. However, this may not be a negative value. If the allowable emissions of an emissions unit would be reduced as a result of the change or replacement, use zero in the calculation.
   - For each unpermitted emissions unit (i.e., a unit without any emissions limitations before the change) that is to be changed or replaced, the emissions increase would be the allowable emissions of the unit after the change or replacement minus the potential to emit prior to the change or replacement. However, this may not be a negative value. If

the allowable emissions of an emissions unit would be reduced as a result of the change or replacement, use zero in the calculation.

☐ **Air Quality Review**

Provide a narrative description of the current air quality conditions and the expected impact the permitted source would have on that air quality. Factors to include in the qualitative discussion are meteorology, terrain, elevation, distance to ambient air, expected emissions, stack heights, etc…

Your reviewing authority may require you to provide additional information used to determine impacts that may result from your new source or modification. You may be required to conduct and submit an Air Quality Impact Analysis (AQIA) using dispersion modeling in accordance with 40 CFR part 51, Appendix W. If required, and the AQIA demonstrates that construction of your source or modification would cause or contribute to a NAAQS or PSD increment violation, you will also required to further reduce its impact before you could obtain a permit.

☐ **ESA**

The Endangered Species Act requires us, in consultation with the U.S. Fish and Wildlife Service and/or the NOAA Fisheries Service, to ensure that actions we authorize are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species.

To expedite the approval of your proposed construction, we encourage you to identify any listed species that you may be readily aware of that could be affected by your proposal. The following website has been provided to assist you: http://www.fws.gov/endangered/

Simply enter the State and County in which you propose to construct to obtain a general listing.

☐ **NHPA**

The National Historic Preservation Act requires us, in consultation with State and/or Tribal Historic Preservation Officers to ensure that actions we authorize are not likely to affect cultural resources.

To expedite the approval of your proposed construction, we encourage you to identify any cultural resources that you may be readily aware of that could be affected by your proposal. The following website has been provided to assist you:
http://nrhp.focus.nps.gov/natreghome.do?searchtype=natreghome

Simply enter the State and County in which you propose to construct to obtain a general listing.

ATTACHMENT 2

APPLICATION FOR SYNTHETIC MINOR LIMIT: EPA FORM NO. 5900-246

OMB Control No. 2060-0003
Approval expires 04/30/2017

United States Environmental Protection Agency
Pacific Southwest - Region 9
Federal Minor New Source Review Program in Indian Country

Application for Synthetic Minor Limit

Please submit information to:

U.S. EPA at:

Air Division, Permits Office (Air-3)
U.S. EPA, Region 9
75 Hawthorne Street
San Francisco, CA 94105

For more information:
http://www.epa.gov/caa-permitting/tribal-nsr-permits-region-9, call (415) 972-3974, or email R9AirPermits@epa.gov.

Tribe:

Yocha Dehe Environmental Department
PO Box 18
Brooks, CA 95606

(530) 796-0176
edrewek@yochadehe-nsn.gov

A. General Source Information

Company Name Yocha Dehe Wintun Nation
Source Name Cache Creek Casino Resort
Contact Information (name, title, phone number, email) Mike Hill Facilities Engineering Manager, Cache Creek Casino Resort 530-796-5276 mhill@cachecreek.com
Mailing Address P.O. Box 65 Brooks, CA 95606-0065

B. Attachments

For each criteria air pollutant, hazardous air pollutant and for all emission units and air pollutant-generating activities to be covered by a limitation, include the following:

X Item 1 - The proposed limitation and a description of its effect on current actual, allowable and the potential to emit. **See Attachment 4.**
X Item 2 - The proposed testing, monitoring, recordkeeping, and reporting requirements to be used to demonstrate and assure compliance with the proposed limitation. **See Narrative Description.**
X Item 3 - A description of estimated efficiency of air pollution control equipment under present or anticipated operating conditions, including documentation of the manufacturer specifications and guarantees. **N/A.**
X Item 4 - Estimates of the Post-Change Allowable Emissions that would result from compliance with the proposed limitation, including all calculations for the estimates. **N/A.**
X Item 5 – Estimates of the potential emissions of Greenhouse Gas (GHG) pollutants. **See Attachment 4.**

The public reporting and recordkeeping burden for this collection of information is estimated to average 6 hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed form to this address.

Instructions

Submit this form in addition to FORM NEW.

1. Who Can Request Federally-Enforceable Limitations Under the Tribal NSR Authority?

The Tribal NSR Rule applies only to sources located within the exterior boundaries of an Indian reservation in the United States of America or other lands as specified in 40 CFR part 49, collectively referred to as "Indian country". So, to use the authority in the Tribal NSR Rule to create federally-enforceable limitations, a source must be located within Indian country. Land ownership status (for example, whether the land is owned by a Tribal member or whether the land is owned in fee or in trust) does not affect how the rule applies.

2. Who Might Want to Request Federally-Enforceable Limitations?

The primary reason for requesting federally-enforceable limitations is to avoid an otherwise applicable federal Clean Air Act program, rule or requirement. Many federal Clean Air Act programs use a source's "potential to emit" (PTE) air pollution to determine which rules or requirements apply. A source's PTE is based on the maximum annual operational (production, throughput, etc) rate of the source taking into consideration the capacity and configuration of the equipment and operations. Emission or operational limits can also be taken into consideration as maximums if they are federally enforceable. So, using a synthetic minor NSR permit to establish federally enforceable limitations can lower a source's PTE and possibly allow the source to avoid certain federal Clean Air Act requirements.

Three examples of federal Clean Air Act programs that use PTE to determine whether they apply are (1) the Prevention of Significant Deterioration (PSD) construction permitting program, (2) the Title V operating permit program, and (3) the Maximum Achievable Control Technology (MACT) program. For example, existing sources that are considered "major" for Title V (meaning they have the potential to emit air pollution at levels defined in that rule as "major") must apply for a Title V operating permit. If a source accepts a federally-enforceable limitation through a synthetic minor NSR permit that reduces their PTE to below the "major" threshold, and the source does not meet any of the other requirements that would trigger applicability to the part 71 program, then the source no longer needs a Title V operating permit. When planning for the construction of a new source or expansion of an existing source, a source can also accept limitations on PTE (using a synthetic minor NSR permit) that allow the source to avoid PSD. Limitations on PTE can similarly help a source to avoid new MACT standards that would otherwise apply to the source.

3. Section B. Attachments

This section lists the information that must be attached to the application form for each requested limitation. The requested limitation(s) must be described for each affected emissions unit (or pollutant-generating activity) and pollutant and must be accompanied by the supporting information listed on the form and described below. Note that applicability of many federal Clean Air Act requirements (such as Title V, PSD and MACT) is often based on source-wide emission levels of specific pollutants. In that case, all emissions units at a source and all pollutants regulated by that given rule or regulation must be addressed by this section of the application form.

Item 1 – The requested limitation and its effect on actual emissions or potential to emit must be presented in enough detail to document how the limitation will limit the source's actual or potential emissions as a legal and practical matter and, if applicable, will allow the source to avoid an otherwise applicable requirement. The information presented must clearly explain how the limitation affects each emission unit and each air pollutant from that emission unit. Use the information provided in response to Item 4 below to explain how the limitation affects emissions before and after the limitation is in effect.

Item 2 – For each requested limitation, the application must include proposed testing, monitoring, recordkeeping and reporting that will be used to demonstrate and assure compliance with the limitation. Testing approaches should incorporate and reference appropriate EPA reference methods where applicable. Monitoring should describe the emission, control or process parameters that will be relied on and should address frequency, methods, and quality assurance.

Item 3 – The application must include a description and estimated efficiency of air pollution control equipment under present or anticipated operating conditions. For control equipment that is not proposed to be modified to meet the requested limit, simply note that fact; however, for equipment that is proposed to be modified (e.g. improved efficiency) or newly installed to meet the proposed limit, address both current and future descriptions and efficiencies. Include manufacturer specifications and guarantees for each control device.

Items 4 – Any emission estimates submitted to the Reviewing Authority must be verifiable using currently accepted engineering criteria. The following procedures are generally acceptable for estimating emissions from air pollution sources:

(i) Source-specific emission tests;
(ii) Mass balance calculations;
(iii) Published, verifiable emission factors that are applicable to the source. (i.e., manufacturer specifications).
(iv) Other engineering calculations; or
(v) Other procedures to estimate emissions specifically approved by the Reviewing Authority.

Post-Change Allowable Emissions: A source's allowable emissions for a pollutant is expressed in tpy and generally is calculated by multiplying the allowed hourly emissions rate in pounds per hour (lbs/hr) times allowed hours (which is the number of hours in a year) and dividing by 2,000 (which is the number of pounds in a ton).

ATTACHMENT 3

FACILITY EMISSION ANALYSIS:

2017 ACTUAL EMISSIONS;
PROPOSED ALLOWABLE;
POTENTIAL TO EMIT;
HAP ANALYSIS; AND
OPERATING AND FIRING RATES

FACILITY EMISSION ANALYSIS

ACTUAL EMISSIONS: 2017 EMISSIONS FOR EACH EXISTING NON-EMERGENCY GENERATOR

		Pollutant (tons/year)						
Unit	**2017 Annual Run Time**	**NOx**	**VOC**	**SO_2**	**PM**	**PM10**	**PM2.5**	**CO**
CAT C175 Standby Generator, 4,376 bhp; 31.73 MMBtu/hr	78	2.73	0.02	0.00	0.02	0.02	0.02	0.24
CAT C175 Standby Generator, 4,376 bhp; 31.73 MMBtu /hr	78	2.73	0.02	0.00	0.02	0.02	0.02	0.24
CAT C175 Standby Generator, 4,376 bhp; 31.73 MMBtu /hr	70	2.45	0.02	0.00	0.01	0.01	0.01	0.21
CAT C175 Standby Generator, 4,376 bhp; 31.73 MMBtu /hr	108	3.78	0.03	0.00	0.02	0.02	0.02	0.33
CAT 3516 Emergency Generator, 2,876 bhp; 20.47 MMBtu /hr	19	0.55	0.01	0.00	0.00	0.00	0.00	0.01
Boiler #1 – 7.2 MMBtu/hr - Natural Gas	6,601	0.88	0.13	0.01	0.18	0.18	0.18	1.96
Boiler #2 – 7.2 MMBtu/hr - Natural Gas	5,383	0.72	0.10	0.01	0.14	0.14	0.14	1.60
Total		**13.84**	**0.33**	**0.02**	**0.39**	**0.39**	**0.39**	**4.59**

PROPOSED ALLOWABLE EMISSIONS FOR EACH NEW AND EXISTING NON-EMERGENCY GENERATOR

New and Existing Units	Annual Run Time[1]	Pollutant (tons/year)						
		NOx	VOC	SO_2	PM	PM10	PM2.5	CO
CAT G3520H Non-Emergency Natural Gas Generator; 3,467 bhp; 19.71 MMBtu/hr	7,121	1.36	3.27	0.04	0.70	0.70	0.70	10.34
CAT G3520H Non-Emergency Natural Gas Generator; 3,467 bhp; 19.71 MMBtu/hr	7,121	1.36	3.27	0.04	0.70	0.70	0.70	10.34
CAT G3520H Non-Emergency Natural Gas Generator; 3,467 bhp; 19.71 MMBtu/hr	7,121	1.36	3.27	0.04	0.70	0.70	0.70	10.34
CAT C175 Standby Generator; 4,376 bhp; 31.73 MMBtu /hr (Existing)	167	5.85	0.04	0.00	0.03	0.03	0.03	0.51
CAT C175 Standby Generator; 4,376 bhp; 31.73 MMBtu /hr (Existing)	167	5.85	0.04	0.00	0.03	0.03	0.03	0.51
CAT 3516 Emergency Generator; 2,876 bhp; 20.47 MMBtu /hr (Existing)	19	0.55	0.01	0.00	0.00	0.00	0.00	0.01
7.2 MMBtu/hr – Unilux Natural Gas Boiler (Existing)	5,992	0.80	0.12	0.01	0.16	0.16	0.16	1.78
7.2 MMBtu/hr – Unilux Natural Gas Boiler (Existing)	5,992	0.80	0.12	0.01	0.16	0.16	0.16	1.78
2.5 MMBtu/hr – Camus Advantus Natural Gas Boiler	2,190	0.03	0.01	0.00	0.02	0.02	0.02	0.81
2.5 MMBtu/hr – Camus Advantus Natural Gas Boiler	2,190	0.03	0.01	0.00	0.02	0.02	0.02	0.81
2.5 MMBtu/hr – Camus Advantus Natural Gas Boiler	2,190	0.03	0.01	0.00	0.02	0.02	0.02	0.81
2.5 MMBtu/hr – Camus Advantus Natural Gas Boiler	2,190	0.03	0.01	0.00	0.02	0.02	0.02	0.81
Total		**18.05**	**10.18**	**0.14**	**2.56**	**2.56**	**2.56**	**38.85**

Notes:

1) Annual run times for new units are estimated based on projected energy and hot water demands. Average run time hours from 2017 were used for existing units. For the CAT C175 engines, annual run times were calculated based on total hours of operation for all four generators from 2017, divided by two.

POTENTIAL TO EMIT @ 8,760 HOURS/YEAR FOR EACH NON-EMERGENCY UNIT

	Pollutant (tons/year)						
New and Existing Units	**NOx**	**VOC**	**SO_2**	**PM**	**PM10**	**PM2.5**	**CO**
CAT G3520H Non-Emergency Natural Gas Generator; 3,467 bhp; 19.71 MMBtu/hr	1.67	4.02	0.05	0.86	0.86	0.86	12.72
CAT G3520H Non-Emergency Natural Gas Generator; 3,467 bhp; 19.71 MMBtu/hr	1.67	4.02	0.05	0.86	0.86	0.86	12.72
CAT G3520H Non-Emergency Natural Gas Generator; 3,467 bhp; 19.71 MMBtu/hr	1.67	4.02	0.05	0.86	0.86	0.86	12.72
CAT C175 Standby Generator; 4,376 bhp; 31.73 MMBtu /hr (Existing)	7.01	0.05	0.01	0.04	0.04	0.04	0.61
CAT C175 Standby Generator; 4,376 bhp; 31.73 MMBtu /hr (Existing)	7.01	0.05	0.01	0.04	0.04	0.04	0.61
CAT 3516 Emergency Generator; 2,876 bhp; 20.47 MMBtu /hr (Existing)	5.75	0.10	0.00	0.05	0.05	0.05	0.12
7.2 MMBtu/hr – Unilux Natural Gas Boiler (Existing)	1.17	0.17	0.02	0.24	0.24	0.24	2.60
7.2 MMBtu/hr – Unilux Natural Gas Boiler (Existing)	1.17	0.17	0.02	0.24	0.24	0.24	2.60
2.5 MMBtu/hr – Camus Advantus Natural Gas Boiler	0.12	0.06	0.01	0.08	0.08	0.08	3.24
2.5 MMBtu/hr – Camus Advantus Natural Gas Boiler	0.12	0.06	0.01	0.08	0.08	0.08	3.24
2.5 MMBtu/hr – Camus Advantus Natural Gas Boiler	0.12	0.06	0.01	0.08	0.08	0.08	3.24
2.5 MMBtu/hr – Camus Advantus Natural Gas Boiler	0.12	0.06	0.01	0.08	0.08	0.08	3.24
Total	**27.6**	**12.84**	**0.25**	**3.51**	**3.51**	**3.51**	**57.66**

Note: PTE calculated based on 8,760 hours used for non-emergency natural gas engines and all boilers, and 200 hours for emergency or standby diesel engine.

EMERGENCY BACKUP SYSTEM: POTENTIAL TO EMIT @ 200 HOURS/YEAR

	Pollutant (tons/year)						
New and Existing Units	**NOx**	**VOC**	**SO_2**	**PM**	**PM10**	**PM2.5**	**CO**
CAT C175 Standby Generator; 4,376 bhp; 31.73 MMBtu /hr (Existing)	7.01	0.05	0.01	0.04	0.04	0.04	0.61
CAT C175 Standby Generator; 4,376 bhp; 31.73 MMBtu /hr (Existing)	7.01	0.05	0.01	0.04	0.04	0.04	0.61
Spectrum Detroit Diesel 750DS4 Emergency Generator; 1,128 bhp	2.71	0.08	0.00	0.08	0.08	0.08	0.62
Spectrum Detroit Diesel 750DS Emergency Generator; 954 bhp	2.29	0.07	0.00	0.07	0.07	0.07	0.52
Total	**19.02**	**0.25**	**0.02**	**0.23**	**0.23**	**0.23**	**2.36**

CALCULATIONS

CAT G3520H Non-Emergency Natural Gas Generator

Notes: Emissions factors from Manufacturer's Spec Sheet and Emission Control System Analysis (included as part of this application package)

Engine Power: 2,483 ekW; Base Horsepower Rating: 3,467 bhp; Heat Input Rate: 19.71 MMBtu/hr

Calculated heat input rate: MMBtu/hr = 7939 Btu/ekW-hr x 2483 eKw / 10^6 = 19.712537

Heat content of natural gas = 1020 Btu/scf

Pollutant	Emission Factor (g/bhp-hr)	Emission Factor (lb/kW)	Emissions (lb/hr)	Potential to Emit @ 8,760 hours per year (tons/year)	Proposed Allowable Emissions @ 7,121 hours per year (tons/year)
NOx	0.0500	0.0002	0.3822	1.6743	**1.3610**
VOC	0.1200	0.0004	0.9174	4.0182	**3.2664**
CO	0.3800	0.0012	2.9051	12.7243	**10.3436**
CO2	397	1.2223	3035.0584	13293.5559	**10806.3256**
Formaldehyde	0.05	0.0002	0.3822	1.6743	**1.3610**

CAT G3520H Non-Emergency Natural Gas Generator - Continued

Notes: Emissions factors from AP-42 Table 3.2-2 Uncontrolled Emissions Factors for 4-Stroke Lean Burn Engines

Pollutant	Emission Factor (lb/MMBtu)	Emission Factor (lb/MMSCF)	Emissions (lb/hr)	Potential to Emit @ 8,760 hours per year (tons/year)	Proposed Allowable Emissions @ 7,121 hours per year (tons/year)
PM 2.5	0.0099871	10.186842	0.1969	0.8623	**0.7010**
PM 10	0.0099871	10.186842	0.1969	0.8623	**0.7010**
PM	0.0099871	10.186842	0.1969	0.8623	**0.7010**
SO2	0.000588	0.59976	0.0116	0.0508	**0.0413**
Methane	1.25	1275	24.6407	107.9261	**87.7331**
TOC	1.47	1499.4	28.9774	126.9211	**103.1741**

CAT C175 Standby Diesel Generator – Emergency Use Only

Notes: Emissions factors from Manufacturer's Spec Sheet
Engine Power: 3100 ekW; Base Horsepower Rating: 4,376 bhp

Pollutant	Emission Factor (g/bhp-hr)	Emission Factor (lb/kW)	Emissions (lb/hr)	Potential to Emit @ 200 hours per year (tons/year)	Proposed Allowable Emissions @ 167 hours per year (tons/year)
NOx	7.2600	0.0226	70.0546	7.0055	**5.8496**
VOC	0.0500	0.0002	0.4825	0.0482	**0.0403**
CO	0.6300	0.0020	6.0791	0.6079	**0.5076**
PM 2.5	0.0400	0.0001	0.3860	0.0386	**0.0322**
PM 10	0.0400	0.0001	0.3860	0.0386	**0.0322**
PM	0.0400	0.0001	0.3860	0.0386	**0.0322**

CAT C175 Standby Diesel Generator – Emergency Use Only - Continued

Notes: Emissions factors from AP-42 Table 3.4-1

Pollutant	Emission Factor (lb/bhp-hr)	Emissions (lb/hr)	Potential to Emit @ 200 hours per year (tons/year)	Proposed Allowable Emissions @ 167 hours per year (tons/year)
CO2	1.16	5076.16	507.6160	**423.8594**
SO2	1.2135E-05	0.05310276	0.0053	**0.0044**
Methane	0.000705	3.08508	0.3085	**0.2576**

CAT 3516 Diesel Generator - Emergency Use Only

Notes: Emissions factors from Manufacturer's Spec Sheet

Engine Power: 2000 ekW; Base Horsepower Rating: 2,876 bhp

Pollutant	Emission Factor (g/bhp-hr)	Emission Factor (lb/kW)	Emissions (lb/hr)	Potential to Emit @ 200 hours per year (tons/year)	Proposed Allowable Emissions @ 19 hours per year (tons/year)
NOx			57.4800	5.7480	**0.5461**
VOC			1.0100	0.1010	**0.0096**
CO			1.2400	0.1240	**0.0118**
PM 2.5			0.4700	0.0470	**0.0045**
PM 10			0.4700	0.0470	**0.0045**
PM			0.4700	0.0470	**0.0045**

CAT 3516 Diesel Generator - Emergency Use Only - Continued

Notes: Emissions factors from AP-42 Table 3.4-1

Pollutant	Emission Factor (lb/bhp-hr)	Emissions (lb/hr)	Potential to Emit @ 200 hours per year (tons/year)	Proposed Allowable Emissions @ 19 hours per year (tons/year)
CO2	1.16	3336.16	333.6160	**31.6935**
SO2	1.2135E-05	0.0349003	0.0035	**0.0003**
Methane	0.000705	2.02758	0.2028	**0.0193**

Spectrum Detroit 750DS4 Diesel Generator - Emergency Use Only

Notes: Emissions factors from AP-42 Table 3.4-1

Engine Power: 750 ekW; Base Horsepower Rating: 1,128 bhp

Pollutant	Emission Factor (lb/bhp-hr)	Emissions (lb/hr)	Potential to Emit/Proposed Allowable Emissions @ 200 hours per year (tons/year)
NOx	0.0240	27.0720	**2.7072**
VOC	0.0007	0.7952	**0.0795**
CO	0.0055	6.2040	**0.6204**
PM 2.5	0.0007	0.7896	**0.0790**
PM 10	0.0007	0.7896	**0.0790**
PM	0.0007	0.7896	**0.0790**
CO2	1.16	1308.4800	**130.8480**
SO2	1.2135E-05	0.0137	**0.0014**
Methane	0.000705	0.7952	**0.0795**

Spectrum Detroit 750DS Diesel Generator - Emergency Use Only

Notes: Emissions factors from AP-42 Table 3.4-1

Engine Power: 635 ekW; Base Horsepower Rating: 954 bhp

Pollutant	Emission Factor (lb/bhp-hr)	Emissions (lb/hr)	Potential to Emit/Proposed Allowable Emissions @ 200 hours per year (tons/year)
NOx	0.0240	22.8960	**2.2896**
VOC	0.0007	0.6726	**0.0673**
CO	0.0055	5.2470	**0.5247**
PM 2.5	0.0007	0.6678	**0.0668**
PM 10	0.0007	0.6678	**0.0668**
PM	0.0007	0.6678	**0.0668**
CO2	1.16	1106.6400	**110.6640**
SO2	1.2135E-05	0.0116	**0.0012**
Methane	0.000705	0.6726	**0.0673**

Unilux Model #ZF700W; Heat Input Rate 7.2 MMBtu

Notes: Emissions factors from AP-42 Table 1.4-2

Heat content of natural gas = 1020 Btu/scf

Proposed allowable emissions based on average annual run time from 2017

Pollutant	Emission Factor (lb/MMscf)	Emissions (lb/hr)	Potential to Emit @ 8,760 hours per year (tons/year)	Proposed Allowable Emissions @ 5,992 hours per year (tons/year)
NOx	37.7400	0.2664	**1.1668**	**0.7981**
VOC	5.5000	0.0388	**0.1700**	**0.1163**
CO	84.0000	0.5929	**2.5971**	**1.7765**
PM 2.5	7.6000	0.0536	**0.2350**	**0.1607**
PM 10	7.6000	0.0536	**0.2350**	**0.1607**
PM	7.6000	0.0536	**0.2350**	**0.1607**
SO2	0.6000	0.0042	**0.0186**	**0.0127**
CO2	120000.0000	847.0588	**3710.1176**	**2537.7882**
Methane	2.3000	0.0162	**0.0711**	**0.0486**

Camus Advantus AVNH2500; Heat Input Rate 2.5 MMBtu

Notes: NOx and CO emissions factors from Manufacturer's Spec Sheet; Other emissions factors from AP-42 Table 1.4-2

Heat content of natural gas = 1020 Btu/scf

Proposed allowable emissions based on estimated demand of 6 hours per day

Pollutant	Emission Factor (lb/MMBtu)	Emission Factor (lb/MMscf)	Emissions (lb/hr)	Potential to Emit @ 8,760 hours per year (tons/year)	Proposed Allowable Emissions @ 2,190 hours per year (tons/year)
NOx	0.0108959		0.0272	0.1193	0.0298
VOC		5.5000	0.0135	0.0590	0.0148
CO	0.296077		0.7402	3.2420	0.8105
PM 2.5		7.6000	0.0186	0.0816	0.0204
PM 10		7.6000	0.0186	0.0816	0.0204
PM		7.6000	0.0186	0.0816	0.0204
SO2		0.6000	0.0015	0.0064	0.0016
CO2		120,000	294.1176	1288.2353	322.0588
Methane		2.3000	0.0056	0.0247	0.0062

HAP Analysis for One CAT G3520H Prime Natural Gas Engine

Notes: Formaldehyde emissions factor from SCR Emissions Control System Proposal; Other emissions factors from AP-42 Table 3.2-2

Pollutant	Emission Factor (lb/MMBtu)	Emissions (lb/hr)	Potential to Emit @ 8,760 hours per year (tons/year)	Proposed Allowable Emissions @ 7,121 hours per year (tons/year)
Benzene	0.000440	0.0087	0.037985112	0.030878
Toluene	0.000408	0.0080	0.035222558	0.028632
Xylenes	0.000184	0.0036	0.015884683	0.012913
Formaldehyde		0.3822	1.674251378	1.360998
Acetaldehyde	0.0083600	0.1648	0.721717128	0.586684
Acrolein	0.00514000	0.1013	0.443735172	0.360712
Total PAH	0.00002690	0.0005	0.002322272	0.001888

HAP Analysis for One 7.2 MMBtu/hr Natural Gas Boiler

Notes: Emissions factors from https://www.google.com/search?q=boiler%20and%20emergency%20engine%20calculator&cad=h

Pollutant	Emission Factor (lb/MMscf)	Emissions (lb/hr)	Potential to Emit @ 8,760 hours per year (tons/year)	Proposed Allowable Emissions @ 5,992 hours per year (tons/year)
Single HAP	0.07500000	0.0005	0.002318824	0.001586118
Combined HAP	0.08300000	0.0006	0.002566165	0.001755304

HAP Analysis for One 2.5 MMBtu/hr Natural Gas Boiler

Notes: Emissions factors from https://www.google.com/search?q=boiler%20and%20emergency%20engine%20calculator&cad=h

Pollutant	Emission Factor (lb/MMscf)	Emissions (lb/hr)	Potential to Emit @ 8,760 hours per year (tons/year)	Proposed Allowable Emissions @ 2,190 hours per year (tons/year)
Single HAP	0.07500000	0.0002	0.000805147	0.000201287
Combined HAP	0.08300000	0.0002	0.000891029	0.000222757

OPERATING AND FIRING RATES

Unit	Make	Model	Size (kW)	Size (bhp)	Type	Fuel Use (gph or scfh)	Heat input (MMBtu/hr)	Operating Rates (Hrs)			Max Firing Rates (gallons or scf)		
								Hourly	Daily	Annual	Hourly	Daily	Annual
Non-Emergency Generator	Caterpillar	G3520H	2,483	3,467	Natural Gas	21,780.00	19.71	1	24	7121	21,780.0	522,720.0	155,095,380.0
Non-Emergency Generator	Caterpillar	G3520H	2,483	3,467	Natural Gas	21,780.00	19.71	1	24	7121	21,780.0	522,720.0	155,095,380.0
Non-Emergency Generator	Caterpillar	G3520H	2,483	3,467	Natural Gas	21,780.00	19.71	1	24	7121	21,780.0	522,720.0	155,095,380.0
Emergency Generator	Caterpillar	C175-16	3,100	4,376	Diesel	210.7	31.73	1	24	167	210.7	5,056.8	35,186.9
Emergency Generator	Caterpillar	C175-16	3,100	4,376	Diesel	210.7	31.73	1	24	167	210.7	5,056.8	35,186.9
Emergency Generator	Caterpillar	3516BDITA	2,000	2,876	Diesel	135.84	20.47	1	24	19	135.8	3,260.2	2,581.0
Boiler #1	Unilux	ZF 700 W			Natural Gas	6,857.14	7.2	1	24	5992	6,857.1	164,571.4	41,088,000.0
Boiler #2	Unilux	ZF 700 W			Natural Gas	6,857.14	7.2	1	24	5992	6,857.1	164,571.4	41,088,000.0
Boiler #3	Camus Hydronics	AVNH2500			Natural Gas	2,380.95	2.5	1	24	2190	2,381.0	57,142.9	5,214,285.7
Boiler #4	Camus Hydronics	AVNH2500			Natural Gas	2,380.95	2.5	1	24	2190	2,381.0	57,142.9	5,214,285.7
Boiler #5	Camus Hydronics	AVNH2500			Natural Gas	2,380.95	2.5	1	24	2190	2,381.0	57,142.9	5,214,285.7
Boiler #6	Camus Hydronics	AVNH2500			Natural Gas	2,380.95	2.5	1	24	2190	2,381.0	57,142.9	5,214,285.7

Notes:

Heating value for Natural Gas = 0.00105 MMBTU/scf from AP-42 Appendix A: Miscellaneous Data and Conversion Factors

Heat input for natural gas generator calculated using 7939 Btu/ekW-hr * 2483 ekW/10^6

Fuel use for natural gas generator calculated using 363 scfm * 60

Fuel use for boilers calculated using equation: Heat input / 0.00105MMBtu/scf

ATTACHMENT 4

ENGINE SPECIFICATION SHEETS

60Hz, High Response, 1.0g NOx, No Pumps

G3520H

GAS ENGINE TECHNICAL DATA

CATERPILLAR

ENGINE SPEED (rpm):	1500	RATING STRATEGY:	HIGH RESPONSE
COMPRESSION RATIO:	12.1:1	APPLICATION:	GENSET
AFTERCOOLER TYPE:	SCAC	RATING LEVEL:	CONTINUOUS
AFTERCOOLER - STAGE 2 INLET (°F):	118	FUEL:	NAT GAS
AFTERCOOLER - STAGE 1 INLET (°F):	192	FUEL SYSTEM:	CAT LOW PRESSURE
JACKET WATER OUTLET (°F):	210		WITH AIR FUEL RATIO CONTROL
ASPIRATION:	TA	FUEL PRESSURE RANGE(psig):	2.0-5.0
COOLING SYSTEM:	JW+OC+1AC, 2AC+GB	FUEL METHANE NUMBER:	85
CONTROL SYSTEM:	ADEM4 W/ IM	FUEL LHV (Btu/scf):	905
EXHAUST MANIFOLD:	DRY	ALTITUDE CAPABILITY AT 77°F INLET AIR TEMP. (ft):	4921
COMBUSTION:	LOW EMISSION	POWER FACTOR:	0.8
NOx EMISSION LEVEL (g/bhp-hr NOx):	1.0	VOLTAGE(V):	4160-13800

RATING		NOTES	LOAD	100%	75%	50%
GENSET POWER	(WITH GEARBOX, WITHOUT FAN)	(1)(2)	ekW	2483	1862	1242
GENSET POWER	(WITH GEARBOX, WITHOUT FAN)	(1)(2)	kVA	3104	2328	1552
ENGINE POWER	(WITHOUT GEARBOX, WITHOUT FAN)	(2)	bhp	3467	2606	1752
GENERATOR EFFICIENCY		(1)	%	96.8	96.6	95.8
GENSET EFFICIENCY(@ 1.0 Power Factor)	(ISO 3046/1)	(3)(4)	%	44.7	43.6	41.5
THERMAL EFFICIENCY		(3)(5)	%	41.1	42.6	45.6
TOTAL EFFICIENCY (@ 1.0 Power Factor)		(3)(6)	%	85.8	86.2	87.1
ENGINE DATA						
GENSET FUEL CONSUMPTION	(ISO 3046/1)	(7)	Btu/ekW-hr	7674	7851	8255
GENSET FUEL CONSUMPTION	(NOMINAL)	(7)	Btu/ekW-hr	7939	8122	8540
ENGINE FUEL CONSUMPTION	(NOMINAL)	(7)	Btu/bhp-hr	5686	5805	6053
AIR FLOW (77°F, 14.7 psia)	(WET)	(8)	ft3/min	6321	4685	3128
AIR FLOW	(WET)	(8)	lb/hr	28027	20776	13871
FUEL FLOW (60ºF, 14.7 psia)			scfm	363	279	195
COMPRESSOR OUT PRESSURE			in Hg(abs)	141.3	107.2	74.4
COMPRESSOR OUT TEMPERATURE			°F	457	386	292
AFTERCOOLER AIR OUT TEMPERATURE			°F	128	121	120
INLET MAN. PRESSURE		(9)	in Hg(abs)	135.0	100.9	68.5
INLET MAN. TEMPERATURE	(MEASURED IN PLENUM)	(10)	°F	128	123	121
TIMING		(11)	°BTDC	22	20	16
EXHAUST TEMPERATURE - ENGINE OUTLET		(12)	°F	735	798	901
EXHAUST GAS FLOW (@engine outlet temp, 14.5 psia)	(WET)	(13)	ft3/min	15134	11832	8571
EXHAUST GAS MASS FLOW	(WET)	(13)	lb/hr	29021	21539	14406
MAX INLET RESTRICTION		(14)	in H2O	14.45	10.06	7.28
MAX EXHAUST RESTRICTION		(14)	in H2O	20.07	11.29	5.34
EMISSIONS DATA - ENGINE OUT						
NOx (as NO2)		(15)(16)	g/bhp-hr	1.00	1.00	1.00
CO		(15)(17)	g/bhp-hr	1.52	1.46	1.41
THC (mol. wt. of 15.84)		(15)(17)	g/bhp-hr	2.26	2.35	2.27
NMHC (mol. wt. of 15.84)		(15)(17)	g/bhp-hr	0.32	0.33	0.32
NMNEHC (VOCs) (mol. wt. of 15.84)		(15)(17)(18)	g/bhp-hr	0.25	0.26	0.25
HCHO (Formaldehyde)		(15)(17)	g/bhp-hr	0.21	0.21	0.22
CO2		(15)(17)	g/bhp-hr	397	403	411
EXHAUST OXYGEN		(15)(19)	% DRY	9.7	9.4	8.9
LAMBDA		(15)(19)		1.77	1.71	1.63
ENERGY BALANCE DATA						
LHV INPUT		(20)	Btu/min	328538	252091	176708
HEAT REJECTION TO JACKET WATER (JW)		(21)(29)	Btu/min	33909	29109	23892
HEAT REJECTION TO ATMOSPHERE		(22)	Btu/min	4321	3605	2896
HEAT REJECTION TO LUBE OIL (OC)		(23)(29)	Btu/min	12741	11431	9822
HEAT REJECTION TO EXHAUST (LHV TO 77°F)		(24)(25)	Btu/min	88102	71483	54625
HEAT REJECTION TO EXHAUST (LHV TO 248°F)		(24)	Btu/min	62627	52373	41908
HEAT REJECTION TO A/C - STAGE 1 (1AC)		(26)(29)	Btu/min	25725	14306	4894
HEAT REJECTION TO A/C - STAGE 2 (2AC)		(27)(30)	Btu/min	16714	11658	6298
HEAT REJECTION FROM GEARBOX (GB)		(28)(30)	Btu/min	1162	873	587

CONDITIONS AND DEFINITIONS

Engine rating obtained and presented in accordance with ISO 3046/1. (Standard reference conditions of 77°F, 29.60 in Hg barometric pressure.) No overload permitted at rating shown. Consult the altitude deration factor chart for applications that exceed the rated altitude or temperature.

Emission levels are at engine exhaust flange prior to any after treatment. Values are based on engine operating at steady state conditions, adjusted to the specified NOx level at 100% load. Tolerances specified are dependent upon fuel quality. Fuel methane number cannot vary more than ± 3.

For notes information consult page three.

FUEL USAGE GUIDE

CAT METHANE NUMBER	<50	50	60	70	75	85	100
SET POINT TIMING	-	16	16	16	16	22	22
DERATION FACTOR	0	0.65	0.80	0.90	1	1	1

ALTITUDE DERATION FACTORS AT RATED SPEED

INLET AIR TEMP °F	0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
130	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating
120	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating
110	0.97	0.91	0.85	0.79	0.72	0.60	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating
100	1	1	0.98	0.93	0.88	0.84	0.79	0.74	0.70	0.66	0.62	0.58	0.54
90	1	1	1	1	0.95	0.90	0.86	0.81	0.76	0.71	0.66	0.61	0.56
80	1	1	1	1	1	0.98	0.93	0.89	0.84	0.80	0.76	0.68	0.59
70	1	1	1	1	1	1	0.95	0.91	0.87	0.82	0.78	0.72	0.61
60	1	1	1	1	1	1	0.95	0.91	0.87	0.82	0.78	0.72	0.61
50	1	1	1	1	1	1	0.95	0.91	0.87	0.82	0.78	0.72	0.61

ALTITUDE (FEET ABOVE SEA LEVEL)

AFTERCOOLER HEAT REJECTION FACTORS (ACHRF)

INLET AIR TEMP °F	0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
130	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating
120	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating
110	1.15	1.19	1.23	1.26	1.30	1.34	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating	No Rating
100	1.10	1.14	1.17	1.21	1.25	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28
90	1.05	1.08	1.12	1.16	1.19	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23
80	1	1.03	1.07	1.10	1.14	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
70	1	1	1.01	1.05	1.08	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12
60	1	1	1	1	1.03	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
50	1	1	1	1	1	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01

ALTITUDE (FEET ABOVE SEA LEVEL)

FUEL USAGE GUIDE:

This table shows the derate factor and full load set point timing required for a given fuel. Note that deration and set point timing reduction may be required as the methane number decreases. Methane number is a scale to measure detonation characteristics of various fuels. The methane number of a fuel is determined by using the Caterpillar methane number calculation program.

ALTITUDE DERATION FACTORS:

This table shows the deration required for various air inlet temperatures and altitudes. Use this information along with the fuel usage guide chart to help determine actual engine power for your site.

ACTUAL ENGINE RATING:

To determine the actual rating of the engine at site conditions, one must consider separately, limitations due to fuel characteristics and air system limitations. The Fuel Usage Guide deration establishes fuel limitations. The Altitude/Temperature deration factors and RPC (reference the Caterpillar Methane Program) establish air system limitations. RPC comes into play when the Altitude/Temperature deration is less than 1.0 (100%). Under this condition, add the two factors together. When the site conditions do not require an Altitude/ Temperature derate (factor is 1.0), it is assumed the turbocharger has sufficient capability to overcome the low fuel relative power, and RPC is ignored. To determine the actual power available, take the lowest rating between 1) and 2).

1) Fuel Usage Guide Deration
2) 1-((1-Altitude/Temperature Deration) + (1-RPC))

AFTERCOOLER HEAT REJECTION FACTORS(ACHRF):

To maintain a constant air inlet manifold temperature, as the inlet air temperature goes up, so must the heat rejection. As altitude increases, the turbocharger must work harder to overcome the lower atmospheric pressure. This increases the amount of heat that must be removed from the inlet air by the aftercooler. Use the aftercooler heat rejection factor (ACHRF) to adjust for inlet air temp and altitude conditions. See notes 29 and 30 for application of this factor in calculating the heat exchanger sizing criteria. Failure to properly account for these factors could result in detonation and cause the engine to shutdown or fail.

INLET AND EXHAUST RESTRICTIONS FOR ALTITUDE CAPABILITY:

The altitude derate chart is based on the maximum inlet and exhaust restrictions provided on page 1. Contact factory for restrictions over the specified values. Heavy Derates for higher restrictions will apply.

NOTES:

1. Generator efficiencies, power factor, and voltage are based on standard generator. [Genset Power (ekW) is calculated as: (Engine Power (bkW) - Gearbox Power (bkW)) x Generator Efficiency], [Genset Power (kVA) is calculated as: (Engine Power (bkW) - Gearbox Power (bkW)) x Generator Efficiency / Power Factor]
2. Rating is without engine driven water pumps. Tolerance is (+)3, (-)0% of full load.
3. Efficiency represents a Closed Crankcase Ventilation (CCV) system installed on the engine.
4. ISO 3046/1 Genset efficiency tolerance is (+)0, (-)5% of full load % efficiency value based on a 1.0 power factor.
5. Thermal Efficiency is calculated based on energy recovery from the jacket water, lube oil, 1st stage aftercooler, and exhaust to 248ºF with engine operation at ISO 3046/1 Genset Efficiency, and assumes unburned fuel is converted in an oxidation catalyst.
6. Total efficiency is calculated as: Genset Efficiency + Thermal Efficiency. Tolerance is ±10% of full load data.
7. ISO 3046/1 Genset fuel consumption tolerance is (+)5, (-)0% of full load data. Nominal genset and engine fuel consumption tolerance is ± 1.5% of full load data.
8. Air flow value is on a 'wet' basis. Flow is a nominal value with a tolerance of ± 5 %.
9. Inlet manifold pressure is a nominal value with a tolerance of ± 5 %.
10. Inlet manifold temperature is a nominal value with a tolerance of ± 9°F.
11. Timing indicated is for use with the minimum fuel methane number specified. Consult the appropriate fuel usage guide for timing at other methane numbers.
12. Exhaust temperature is a nominal value with a tolerance of (+)63°F, (-)54°F.
13. Exhaust flow value is on a 'wet' basis. Flow is a nominal value with a tolerance of ± 6 %.
14. Inlet and Exhaust Restrictions are maximum allowed values at the corresponding loads. Increasing restrictions beyond what is specified will result in a significant engine derate.
15. Emissions data is at engine exhaust flange prior to any after treatment.
16. NOx tolerances are ± 18% of specified value.
17. CO, CO2, THC, NMHC, NMNEHC, and HCHO values are "Not to Exceed" levels. THC, NMHC, and NMNEHC do not include aldehydes. An oxidation catalyst may be required to meet Federal, State or local CO or HC requirements.
18. VOCs - Volatile organic compounds as defined in US EPA 40 CFR 60, subpart JJJJ
19. Exhaust Oxygen tolerance is ± 0.5; Lambda tolerance is ± 0.05. Lambda and Exhaust Oxygen level are the result of adjusting the engine to operate at the specified NOx level.
20. LHV rate tolerance is ± 1.5%.
21. Heat rejection to jacket water value displayed includes heat to jacket water alone. Value is based on treated water. Tolerance is ± 10% of full load data.
22. Heat rejection to atmosphere based on treated water. Tolerance is ± 50% of full load data.
23. Lube oil heat rate based on treated water. Tolerance is ± 20% of full load data.
24. Exhaust heat rate based on treated water. Tolerance is ± 10% of full load data.
25. Heat rejection to exhaust (LHV to 77°F) value shown includes unburned fuel and is not intended to be used for sizing or recovery calculations.
26. Heat rejection to A/C - Stage 1 based on treated water. Tolerance is ±5% of full load data.
27. Heat rejection to A/C - Stage 2 based on treated water. Tolerance is ±5% of full load data.
28. Heat rejection to Gearbox based on treated water. Tolerance is ±5% of full load data.
29. Total Jacket Water Circuit heat rejection is calculated as: (JW x 1.1) + (OC x 1.2) + (1AC x 1.05) + [0.753 x (1AC + 2AC) x (ACHRF - 1) x 1.05]. Heat exchanger sizing criterion is maximum circuit heat rejection at site conditions, with applied tolerances. A cooling system safety factor may be multiplied by the total circuit heat rejection to provide additional margin.
30. Total Second Stage Aftercooler Circuit heat rejection is calculated as: (2AC x 1.05) + [(1AC + 2AC) x 0.247 x (ACHRF - 1) x 1.05] + (GB x 1.05). Heat exchanger sizing criterion is maximum circuit heat rejection at site conditions, with applied tolerances. A cooling system safety factor may be multiplied by the total circuit heat rejection to provide additional margin.

FREE FIELD MECHANICAL & EXHAUST NOISE

MECHANICAL: Sound Power (1/3 Octave Frequencies)

Gen Power Without Fan	Percent Load	Engine Power	Overall	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz
ekW	%	bhp	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
2483	100	3467	121.9	84.9	96.4	96.1	98.4	100.7	106.8	105.2	105.9	106.3	107.5
1862	75	2606	119.1	84.1	94.8	94.7	96.3	97.6	105.0	103.1	104.2	104.3	106.1
1242	50	1752	116.7	81.2	91.7	92.2	94.3	96.6	103.2	100.9	102.6	103.4	107.0

MECHANICAL: Sound Power (1/3 Octave Frequencies)

Gen Power Without Fan	Percent Load	Engine Power	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz
ekW	%	bhp	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
2483	100	3467	105.3	107.8	108.0	106.6	106.9	105.9	105.4	112.9	117.9	111.7	105.6
1862	75	2606	103.7	106.5	106.9	105.2	105.8	105.9	106.5	114.5	104.7	107.7	100.9
1242	50	1752	102.6	105.5	106.3	104.3	105.0	105.1	108.7	104.4	101.6	103.9	94.4

EXHAUST: Sound Power (1/3 Octave Frequencies)

Gen Power Without Fan	Percent Load	Engine Power	Overall	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz
ekW	%	bhp	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
2483	100	3467	129.3	92.5	104.2	113.3	114.1	108.4	111.3	117.7	115.4	118.0	116.3
1862	75	2606	126.2	90.2	108.0	113.5	113.1	103.4	105.5	110.3	110.1	110.4	109.0
1242	50	1752	123.3	87.8	105.5	114.5	112.6	99.1	101.4	104.5	102.7	101.7	102.9

EXHAUST: Sound Power (1/3 Octave Frequencies)

Gen Power Without Fan	Percent Load	Engine Power	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz
ekW	%	bhp	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
2483	100	3467	116.6	116.7	116.6	117.2	118.2	118.8	116.9	117.2	119.2	116.5	113.5
1862	75	2606	109.7	110.1	113.7	115.6	116.3	116.4	116.2	116.1	116.2	112.8	111.9
1242	50	1752	103.5	104.4	109.9	112.4	114.1	113.7	112.8	112.3	111.5	110.6	109.6

SOUND PARAMETER DEFINITION:

Sound Power Level Data - DM8702-02

Sound power is defined as the total sound energy emanating from a source irrespective of direction or distance. Sound power level data is presented under two index headings:
Sound power level -- Mechanical
Sound power level -- Exhaust

Mechanical: Sound power level data is calculated in accordance with ISO 6798. The data is recorded with the exhaust sound source isolated.

Exhaust: Sound power level data is calculated in accordance with ISO 6798 Annex A. Exhaust data is post-catalyst on gas engine ratings labeled as "Integrated Catalyst".

Measurements made in accordance with ISO 6798 for engine and exhaust sound level only. No cooling system noise is included unless specifically indicated. Sound level data is indicative of noise levels recorded on one engine sample in a survey grade 3 environment.

How an engine is packaged, installed and the site acoustical environment will affect the site specific sound levels. For site specific sound level guarantees, sound data collection needs to be done on-site or under similar conditions.

Emission Control System for Cache Creek Caterpillar G3520H Natural Gas Engines

Mr. John Mott

Holt of California.
3850 Channel Drive
West Sacramento, CA 95691

Proposal Submitted
By

Johnson Matthey
Catalysts

Johnson Matthey Stationary Emissions Control LLC
900 Forge Avenue, Suite 100
Audubon, PA 19403-2305

Marc J. Rost
Regional Manager

Johnson Matthey Proposal No. 400-16-154, Rev.1

November 21, 2016

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1. DESIGN PARAMETERS

The following conditions were used to design the emission control system:

Table 1. Full Load Design Parameters

Engine	Caterpillar G3520H
Application	Power Generation
Fuel	Natural Gas
Horsepower	3,448
Rating	Continuous
RPM	1,500
Load	100%
Design Exhaust Flow Rate	15,141 + 6% = 16,049 CFM
Design Exhaust Temperature	735°F + 63°F = 798°F (1)
Design Exhaust Gas Oxygen Concentration	9.7%
Design Exhaust Gas Water Vapor Concentration	10%

(1) The maximum allowable catalyst operating temperature is 950°F. The permissive for the ammonia injection is 550°F

Table 2. Full Load Emissions Data

Pollutant	Catalyst Inlet (g/bhp-hr)	Catalyst Outlet (g/bhp-hr)	Reduction Efficiency
NOx (as NO_2)	1.0 + 18% = 1.18	0.05	95.7%
CO	1.53	0.38	75%
VOC (2)	0.25	0.12	52%
HCHO	0.21	0.05	76%

(2) Unsaturated NMNE hydrocarbons

Table 3. Full Load SCR System Data

Max. Ammonia Slip	10 ppmvd @ 15% O_2
Estimated 32.% Aqueous Urea Usage	2.2 US GPH
Estimated System Pressure Drop	≤9 "wc

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Johnson Matthey has calculated the appropriate catalyst volume and equipment required based on the above design parameters supplied. If actual operating conditions vary from above conditions more catalyst might be required for the system to achieve desired destruction efficiencies. For this reason, all operating conditions must be closely reviewed as different conditions will void the warranty.

2. EQUIPMENT DESCRIPTION PER ENGINE

The equipment outlined below will be supplied:

2.1 General Arrangement

Johnson Matthey's SCR system design reflects a "straight through" configuration unless otherwise noted. As such, modifying the design to accommodate different system footprint requirements may modify the project pricing due to the need to incorporate additional ducting, elbows, turning vanes, flanges, etc.

Engine → Expansion Joint → Mixing Duct → SCR Catalyst/Housing

2.2 Mixing Duct

Johnson Matthey will design, fabricate, and supply one (1) 300 series stainless steel mixing duct per SCR system. The duct will be 26" diameter by approximately 10' long. The duct will come complete with all fittings for installation of the injection lance and contain a static mixer(s). The mixing duct will be designed to ensure proper distribution of the 19% aqueous ammonia.

One (1) er stainless steel expansion joint is provided with the mixing duct.

2.3 Catalyst Housing (10x8 26)

Johnson Matthey will design and fabricate one (1) 400 series stainless steel catalyst housing with inlet and outlet transition cones, a bolted catalyst access hatch and these approximate dimensions:

The approximate dimensions are 63" (W) x 52" (H) x 105" (L)

The housing will be supplied with 26" inlet and outlet flanges. The housing will be designed for a maximum temperature of 1,000°F and a pressure of 24 in. wc. The unit weight of the mixing tube, reactor and catalyst is approximately 4,500 lbs.

2.4 Catalyst (SW55 + ASC + SC09)

Johnson Matthey will manufacture and supply extruded honeycomb SCR catalyst for NOx reduction, plus ammonia slip and oxidation catalyst. All catalyst is provided in individual modules for easy handling and insertion into the catalyst housing.

2.5 Aqueous Urea Injection Control System

Johnson Matthey will manufacture and supply one (1) urea injection control system per SCR. The control system utilizes an Allen Bradley based PLC to control to SCR system. The urea injection rate will be mapped to an engine load signal (4-20 mA provided by Purchaser) during commissioning to provide a feed forward injection control scheme.

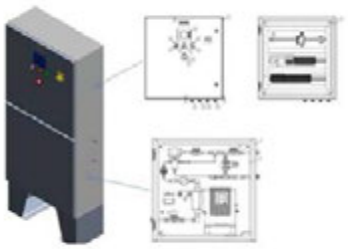
The primary components of the system controls are the following:

a) **Control Panel –** Painted carbon steel enclosure containing a touch screen Allen Bradley PLC with IP communication, on-off switch, and on-off status indicator light. Touch screen can be used for system commissioning and setup. Mounted to the dosing panel that is described below. Available options include a stainless steel enclosure, a heater and air conditioner.

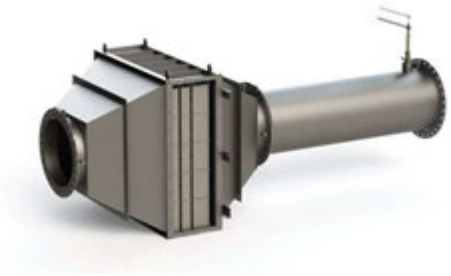
b) **Dosing System** – Painted carbon steel enclosure containing dosing pump, system purge valve, air regulator, air pressure switch, check valves, overpressure regulator and 3-way injection valve. Mounted to the Control Panel that is described above and includes mounting feet. Available options include a stainless steel enclosure, a heater and air conditioner.

c) **Aqueous ammonia injection lance** - Specially designed 2-phase stainless steel nozzle with high temperature protection to be located in the exhaust gas stream prior to the reactor housing.

d) **Exhaust gas temperature transmitter** - RTD to allow urea system to start injecting at temperatures greater than 600°F.

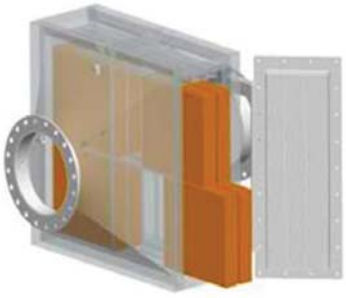


Typical Control Panel and Dosing Panel Assembly



Typical Mixing Duct and Catalyst Housing

Typical Urea Lance



Cut-Away of Catalyst Housing

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C175

PERFORMANCE DATA [WYB00206]
(WYB00206)-ENGINE (G8C00073)-GENERATOR

JANUARY 14, 2016
For Help Desk Phone Numbers Click here

Perf No: DM8455

Change Level: 07

General | Heat Rejection | Sound | Emissions | Regulatory | Altitude Derate | Cross Reference | Perf Param Ref

View PDF

SALES MODEL:	C175-16	**COMBUSTION:**	DI
ENGINE POWER (BHP):	4,376	**ENGINE SPEED (RPM):**	1,800
GEN POWER W/O FAN (EKW):	3,100.0	**HERTZ:**	60
COMPRESSION RATIO:	15.3	**ASPIRATION:**	TA
RATING LEVEL:	STANDBY	**AFTERCOOLER TYPE:**	SCAC
PUMP QUANTITY:	2	**AFTERCOOLER CIRCUIT TYPE:**	JW+OC+1AC, 2AC
FUEL TYPE:	DIESEL	**AFTERCOOLER TEMP (F):**	115
MANIFOLD TYPE:	DRY	**JACKET WATER TEMP (F):**	210.2
GOVERNOR TYPE:	ADEM4	**TURBO CONFIGURATION:**	PARALLEL
ELECTRONICS TYPE:	ADEM4	**TURBO QUANTITY:**	4
CAMSHAFT TYPE:	STANDARD	**TURBOCHARGER MODEL:**	GT862518N-48T-1.38
IGNITION TYPE:	CI	**CERTIFICATION YEAR:**	2008
INJECTOR TYPE:	CR	**CRANKCASE BLOWBY RATE (FT3/HR):**	2,436.4
FUEL INJECTOR:	3492522	**FUEL RATE (RATED RPM) NO LOAD (GAL/HR):**	25.1
REF EXH STACK DIAMETER (IN):	14	**PISTON SPD @ RATED ENG SPD (FT/MIN):**	2,598.4

INDUSTRY	SUB INDUSTRY	APPLICATION
ELECTRIC POWER	STANDARD	GENERATOR SET

General Performance Data Top

GENSET POWER WITHOUT FAN	PERCENT LOAD	ENGINE POWER	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP
EKW	%	BHP	PSI	LB/BHP-HR	GAL/HR	IN-HG	DEG F	DEG F	IN-HG	DEG F
3,100.0	100	4,376	373	0.337	210.7	90.7	121.5	1,204.7	62.1	892.7
2,790.0	90	3,938	335	0.334	188.1	80.7	121.3	1,155.4	53.8	873.9
2,480.0	80	3,501	298	0.337	168.4	72.6	121.1	1,116.8	47.3	859.2
2,325.0	75	3,282	279	0.341	159.8	69.4	121.1	1,102.6	44.8	853.8
2,170.0	70	3,063	261	0.349	152.7	67.4	121.2	1,093.5	43.3	850.2
1,860.0	60	2,626	224	0.371	139.3	63.4	121.4	1,079.0	40.8	844.7
1,550.0	50	2,188	186	0.400	125.1	57.9	121.5	1,063.1	37.5	839.3
1,240.0	40	1,750	149	0.427	106.9	46.6	121.1	1,034.3	30.4	830.3
930.0	30	1,313	112	0.460	86.2	34.5	120.7	998.5	23.2	819.5
775.0	25	1,094	93	0.480	75.0	28.2	120.7	974.1	19.6	810.6
620.0	20	875	75	0.504	63.1	21.9	120.8	902.3	15.9	766.3
310.0	10	438	37	0.599	37.4	8.9	121.4	706.0	8.7	640.0

GENSET POWER WITHOUT FAN	PERCENT LOAD	ENGINE POWER	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP	WET INLET AIR VOL FLOW RATE	ENGINE OUTLET WET EXH GAS VOL FLOW RATE	WET INLET AIR MASS FLOW RATE	WET EXH GAS MASS FLOW RATE	WET EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)	DRY EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)
EKW	%	BHP	IN-HG	DEG F	CFM	CFM	LB/HR	LB/HR	FT3/MIN	FT3/MIN
3,100.0	100	4,376	90	445.6	9,273.3	24,296.2	40,791.3	42,266.1	8,833.4	8,053.0
2,790.0	90	3,938	80	408.8	8,581.1	22,048.1	37,500.0	38,818.1	8,129.1	7,426.2
2,480.0	80	3,501	72	379.4	8,017.1	20,236.9	34,828.9	36,008.9	7,544.3	6,908.9
2,325.0	75	3,282	69	368.5	7,806.4	19,559.6	33,830.6	34,950.7	7,322.0	6,714.9
2,170.0	70	3,063	67	362.0	7,678.5	19,133.1	33,216.8	34,286.4	7,182.0	6,597.4
1,860.0	60	2,626	63	350.0	7,429.0	18,357.1	32,048.0	33,022.1	6,919.7	6,378.1
1,550.0	50	2,188	58	332.5	7,035.8	17,288.9	30,262.9	31,137.8	6,543.9	6,049.9
1,240.0	40	1,750	47	296.6	6,180.3	15,170.1	26,388.4	27,142.7	5,782.1	5,350.6
930.0	30	1,313	35	251.1	5,230.5	12,595.9	22,202.2	22,809.7	4,841.3	4,490.0
775.0	25	1,094	28	224.9	4,722.5	11,143.7	20,000.1	20,524.8	4,313.3	4,008.9
620.0	20	875	22	197.1	4,216.9	9,643.8	17,813.6	18,255.1	3,867.8	3,607.2
310.0	10	438	9	135.1	3,161.9	6,371.4	13,304.1	13,565.9	2,848.7	2,681.3

2,325.0	75	3,282	126.1		88.7	104.5	97.8	98.8	101.9	107.3	111.0	111.1	111.7	112.5
2,170.0	70	3,063	126.3		88.5	104.2	97.8	98.0	101.5	106.8	111.0	110.6	111.5	112.0
1,860.0	60	2,626	126.5		88.0	103.5	97.8	96.5	100.7	105.8	111.0	109.5	111.1	111.2
1,550.0	50	2,188	126.8		87.6	102.8	97.8	95.0	99.9	104.8	111.0	108.5	110.8	110.3
1,240.0	40	1,750	127.0		87.2	102.2	97.7	93.5	99.2	103.8	110.9	107.5	110.5	109.5
930.0	30	1,313	127.3		86.7	101.5	97.7	92.0	98.4	102.8	110.9	106.5	110.1	108.6
775.0	25	1,094	127.4		86.5	101.1	97.7	91.2	98.0	102.3	110.9	105.9	109.9	108.2
620.0	20	875	127.5		86.3	100.8	97.7	90.5	97.6	101.8	110.9	105.4	109.8	107.8
310.0	10	438	127.8		85.9	100.1	97.7	89.0	96.8	100.8	110.9	104.4	109.4	106.9

MECHANICAL: Sound Power (1/3 Octave Frequencies)

GENSET POWER WITHOUT FAN	PERCENT LOAD	ENGINE POWER	1000 HZ	1250 HZ	1600 HZ	2000 HZ	2500 HZ	3150 HZ	4000 HZ	5000 HZ	6300 HZ	8000 HZ	10000 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
3,100.0	100	4,376	112.7	113.9	114.6	115.3	114.9	112.7	110.8	111.8	114.2	113.3	117.9
2,790.0	90	3,938	112.5	113.7	114.4	114.9	114.4	112.2	110.3	111.0	113.6	112.8	119.5
2,480.0	80	3,501	112.1	113.1	113.7	114.3	114.2	111.8	109.9	110.6	113.1	112.6	121.8
2,325.0	75	3,282	111.9	112.8	113.3	113.9	114.1	111.6	109.8	110.4	112.9	112.5	123.1
2,170.0	70	3,063	111.7	112.5	112.8	113.6	114.0	111.4	109.6	110.3	112.6	112.4	124.3
1,860.0	60	2,626	111.2	111.9	112.0	112.9	113.8	110.9	109.2	109.9	112.2	112.2	126.8
1,550.0	50	2,188	110.8	111.3	111.1	112.2	113.7	110.5	108.9	109.6	111.8	112.1	129.3
1,240.0	40	1,750	110.4	110.7	110.3	111.5	113.5	110.1	108.5	109.2	111.3	111.9	131.8
930.0	30	1,313	110.0	110.1	109.4	110.8	113.3	109.6	108.2	108.8	110.9	111.7	134.2
775.0	25	1,094	109.7	109.8	109.0	110.5	113.2	109.4	108.0	108.7	110.7	111.6	135.5
620.0	20	875	109.5	109.5	108.6	110.2	113.1	109.2	107.8	108.5	110.5	111.5	136.7
310.0	10	438	109.1	108.9	107.8	109.5	112.9	108.8	107.5	108.1	110.0	111.3	139.2

Emissions Data Top

Units Filter All Units

RATED SPEED POTENTIAL SITE VARIATION: 1800 RPM

GENSET POWER WITHOUT FAN ENGINE POWER		EKW BHP	3,100.0 4,376	2,325.0 3,282	1,550.0 2,188	775.0 1,094	310.0 438
PERCENT LOAD		%	100	75	50	25	10
TOTAL NOX (AS NO2)		G/HR	31,683	20,556	8,412	3,523	3,586
TOTAL CO		G/HR	2,743	3,359	1,704	1,822	1,827
TOTAL HC		G/HR	238	195	372	378	330
PART MATTER		G/HR	162.5	167.1	120.5	135.6	125.3
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	3,729.4	3,245.7	1,732.0	1,314.5	2,738.0
TOTAL CO	(CORR 5% O2)	MG/NM3	284.3	453.8	295.6	579.5	1,199.1
TOTAL HC	(CORR 5% O2)	MG/NM3	20.3	23.4	57.6	103.9	188.1
PART MATTER	(CORR 5% O2)	MG/NM3	14.4	19.7	18.8	38.6	76.0
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	1,817	1,581	844	640	1,334
TOTAL CO	(CORR 5% O2)	PPM	227	363	236	464	959
TOTAL HC	(CORR 5% O2)	PPM	38	44	108	194	351
TOTAL NOX (AS NO2)		G/HP-HR	7.26	6.28	3.85	3.22	8.18
TOTAL CO		G/HP-HR	0.63	1.03	0.78	1.66	4.17
TOTAL HC		G/HP-HR	0.05	0.06	0.17	0.35	0.75
PART MATTER		G/HP-HR	0.04	0.05	0.06	0.12	0.29
TOTAL NOX (AS NO2)		LB/HR	69.85	45.32	18.54	7.77	7.91
TOTAL CO		LB/HR	6.05	7.41	3.76	4.02	4.03
TOTAL HC		LB/HR	0.52	0.43	0.82	0.83	0.73
PART MATTER		LB/HR	0.36	0.37	0.27	0.30	0.28

RATED SPEED NOMINAL DATA: 1800 RPM

GENSET POWER WITHOUT FAN ENGINE POWER		EKW BHP	3,100.0 4,376	2,325.0 3,282	1,550.0 2,188	775.0 1,094	310.0 438
PERCENT LOAD		%	100	75	50	25	10
TOTAL NOX (AS NO2)		G/HR	26,403	17,130	7,010	2,936	2,988
TOTAL CO		G/HR	1,524	1,866	947	1,012	1,015
TOTAL HC		G/HR	179	147	279	284	248
TOTAL CO2		KG/HR	2,206	1,619	1,240	696	327
PART MATTER		G/HR	116.1	119.3	86.1	96.8	89.5
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	3,107.8	2,704.7	1,443.3	1,095.5	2,281.7
TOTAL CO	(CORR 5% O2)	MG/NM3	157.9	252.1	164.2	321.9	666.1
TOTAL HC	(CORR 5% O2)	MG/NM3	15.2	17.6	43.3	78.1	141.4
PART MATTER	(CORR 5% O2)	MG/NM3	10.3	14.0	13.4	27.5	54.3
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	1,514	1,317	703	534	1,111
TOTAL CO	(CORR 5% O2)	PPM	126	202	131	258	533
TOTAL HC	(CORR 5% O2)	PPM	28	33	81	146	264
TOTAL NOX (AS NO2)		G/HP-HR	6.05	5.23	3.21	2.68	6.82
TOTAL CO		G/HP-HR	0.35	0.57	0.43	0.92	2.32
TOTAL HC		G/HP-HR	0.04	0.04	0.13	0.26	0.57
PART MATTER		G/HP-HR	0.03	0.04	0.04	0.09	0.20
TOTAL NOX (AS NO2)		LB/HR	58.21	37.76	15.45	6.47	6.59
TOTAL CO		LB/HR	3.36	4.11	2.09	2.23	2.24
TOTAL HC		LB/HR	0.39	0.32	0.62	0.63	0.55
TOTAL CO2		LB/HR	4,863	3,570	2,735	1,535	720
PART MATTER		LB/HR	0.26	0.26	0.19	0.21	0.20
OXYGEN IN EXH		%	9.6	10.3	11.7	12.9	15.2
DRY SMOKE OPACITY		%	0.7	0.9	0.3	0.9	2.3

BOSCH SMOKE NUMBER	0.26	0.34	0.12	0.35	0.74

Regulatory Information Top

EPA TIER 2 **2006 - 2010**

GASEOUS EMISSIONS DATA MEASUREMENTS PROVIDED TO THE EPA ARE CONSISTENT WITH THOSE DESCRIBED IN EPA 40 CFR PART 89 SUBPART D AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. THE "MAX LIMITS" SHOWN BELOW ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE NON-ROAD REGULATIONS.

Locality	Agency	Regulation	Tier/Stage	Max Limits - G/BKW - HR
U.S. (INCL CALIF)	EPA	NON-ROAD	TIER 2	CO: 3.5 NOx + HC: 6.4 PM: 0.20

EPA EMERGENCY STATIONARY **2011 - —**

GASEOUS EMISSIONS DATA MEASUREMENTS PROVIDED TO THE EPA ARE CONSISTENT WITH THOSE DESCRIBED IN EPA 40 CFR PART 60 SUBPART IIII AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. THE "MAX LIMITS" SHOWN BELOW ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE EMERGENCY STATIONARY REGULATIONS.

Locality	Agency	Regulation	Tier/Stage	Max Limits - G/BKW - HR
U.S. (INCL CALIF)	EPA	STATIONARY	EMERGENCY STATIONARY	CO: 3.5 NOx + HC: 6.4 PM: 0.20

Altitude Derate Data Top

Note(s)

ALTITUDE DERATE DATA IS BASED ON THE ASSUMPTION OF A 20 DEGREES CELSIUS(36 DEGREES FAHRENHEIT) DIFFERENCE BETWEEN AMBIENT OPERATING TEMPERATURE AND ENGINE INLET MANIFOLD TEMPERATURE (IMAT). AMBIENT OPERATING TEMPERATURE IS DEFINED AS THE AIR TEMPERATURE MEA

ALTITUDE CORRECTED POWER CAPABILITY (BHP)

AMBIENT OPERATING TEMP (F)	30	40	50	60	70	80	90	100	110	120	130	140	NORMAL
ALTITUDE (FT)													
0	4,376	4,376	4,376	4,376	4,376	4,376	4,376	4,376	4,376	4,376	4,376	4,376	4,376
1,000	4,376	4,376	4,376	4,376	4,376	4,376	4,376	4,376	4,376	4,376	4,376	4,362	4,376
2,000	4,376	4,376	4,376	4,376	4,376	4,376	4,376	4,376	4,376	4,376	4,323	4,233	4,376
3,000	4,360	4,360	4,360	4,360	4,360	4,360	4,360	4,360	4,359	4,294	4,200	4,107	4,360
4,000	4,185	4,185	4,185	4,185	4,185	4,185	4,184	4,183	4,181	4,139	4,080	4,021	4,185
5,000	4,019	4,019	4,019	4,019	4,019	4,019	4,018	4,016	4,013	3,992	3,964	3,935	4,019
6,000	3,867	3,867	3,867	3,867	3,867	3,867	3,866	3,862	3,859	3,853	3,846	3,839	3,867
7,000	3,747	3,747	3,747	3,747	3,747	3,747	3,745	3,741	3,737	3,732	3,725	3,719	3,747
8,000	3,626	3,626	3,626	3,626	3,626	3,626	3,624	3,620	3,616	3,610	3,604	3,598	3,626
9,000	3,514	3,514	3,514	3,514	3,514	3,514	3,512	3,508	3,504	3,498	3,493	3,487	3,514
10,000	3,409	3,409	3,409	3,409	3,409	3,409	3,407	3,403	3,399	3,394	3,389	3,383	3,409
11,000	3,304	3,304	3,304	3,304	3,304	3,304	3,302	3,298	3,294	3,289	3,285	3,280	3,304
12,000	3,199	3,199	3,199	3,199	3,199	3,199	3,197	3,193	3,189	3,185	3,181	3,176	3,199
13,000	3,113	3,113	3,113	3,113	3,113	3,113	3,111	3,108	3,105	3,101	3,098	3,095	3,113
14,000	3,030	3,030	3,030	3,030	3,030	3,030	3,029	3,027	3,025	3,022	3,020	3,018	3,030
15,000	2,948	2,948	2,948	2,948	2,948	2,948	2,947	2,946	2,944	2,943	2,942	2,940	2,948

Cross Reference Top

Engine Arrangement

Arrangement Number	Effective Serial Number	Engineering Model	Engineering Model Version
3079788	WYB00620	GS26S	-

Test Specification Data

Test Spec	Setting	Effective Serial Number	Engine Arrangement
0K9167	LL6027	WYB00620	3079788

Performance Parameter Reference Top

California Environmental Protection Agency AIR RESOURCES BOARD	CATERPILLAR INC.	EXECUTIVE ORDER U-R-001-0367 New Off-Road Compression-Ignition Engines

Pursuant to the authority vested in the Air Resources Board by Sections 43013, 43018, 43101, 43102, 43104 and 43105 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-02-003;

IT IS ORDERED AND RESOLVED: That the following compression-ignition engine and emission control system produced by the manufacturer are certified as described below for use in off-road equipment. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	DISPLACEMENT (liters)	FUEL TYPE	USEFUL LIFE (hours)
2009	.9CPXL106.T2E	84.7	Diesel	8000

SPECIAL FEATURES & EMISSION CONTROL SYSTEMS	TYPICAL EQUIPMENT APPLICATION
Direct Diesel Injection, Turbocharger, Charge Air Cooler, Smoke Puff Limiter and Engine Control Module	Generator

The engine models and codes are attached.

The following are the exhaust certification standards (STD) and certification levels (CERT) for hydrocarbon (HC), oxides of nitrogen (NOx), or non-methane hydrocarbon plus oxides of nitrogen (NMHC+NOx), carbon monoxide (CO), and particulate matter (PM) in grams per kilowatt-hour (g/kw-hr), and the opacity-of-smoke certification standards and certification levels in percent (%) during acceleration (Accel), lugging (Lug), and the peak value from either mode (Peak) for this engine family (Title 13, California Code of Regulations, (13 CCR) Section 2423):

RATED POWER CLASS	EMISSION STANDARD CATEGORY		EXHAUST (g/kw-hr)					OPACITY (%)		
			HC	NOx	NMHC+NOx	CO	PM	ACCEL	LUG	PEAK
KW > 560	Tier 2	STD	N/A	N/A	6.4	3.5	0.20	N/A	N/A	N/A
		CERT	--	--	6.2	1.9	0.16	--	--	--

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the information and materials to demonstrate certification compliance with 13 CCR Section 2424 (emission control labels), and 13 CCR Sections 2425 and 2426 (emission control system warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

This Executive Order is only granted to the engine family and model-year listed above. Engines in this family that are produced for any other model-year are not covered by this Executive Order.

Executed at El Monte, California on this 20 day of January 2009.

Annette Hebert, Chief
Mobile Source Operations Division

ATTACHMENT 1 of 1

Engine Model Summary Template U-R-001-0367

Engine Family	1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	6.Torque @ RPM (SEA Gross)	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J1930
8CPXL106.T2E	1	C175-16	4422 @ 1800	935.8	1511.5	12902.4 @	NA	NA	ECM, EM,DI,TA, SPL
8CPXL106.T2E	2	C175-16	4034 @ 1800	837.0	1351.9	11770.3 @	NA	NA	ECM EM,DI,TA, SPL
8CPXL106.T2E	3	C175-16	3717 @ 1800	764.7	1235.2	10845.4 @	NA	NA	ECM, EM,DI,TA, SPL

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF TRANSPORTATION AND AIR QUALITY
WASHINGTON, DC 20460

CERTIFICATE OF CONFORMITY
2009 MODEL YEAR

Manufacturer:	**CATERPILLAR, INC.**
Engine Family:	**9CPXL106.T2E**
Certificate Number:	**CPX-NRCI-09-23**
Intended Service Class:	**NR 9 (>560)**
Fuel Type:	**DIESEL**
FELs:	NMHC+NOx: **N/A** NOx: **N/A** PM: **N/A**
Effective Date:	**1/30/2009**
Date Issued:	**1/30/2009**

Karl J. Simon, Director
Compliance and Innovative Strategies Division
Office of Transportation and Air Quality

Pursuant to Section 111 and Section 213 of the Clean Air Act (42 U.S.C. sections 7411 and 7547) and 40 CFR Part 60 and Part 89, and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which have been found to conform to applicable requirements and which represent the following stationary and nonroad engines, by engine family, more fully described in the documentation required by 40 CFR Part 60 and 89, and produced in the stated model year.

This certificate of conformity covers only those new stationary and nonroad compression-ignition engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Part 60 and 89 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Part 60 and 89.

It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 89.129-96 and 89.506-96 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to a revocation or suspension of this certificate for reasons specified in 40 CFR Part 89. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void ab initio for other reasons specified in 40 CFR Part 89.

This certificate does not cover stationary and nonroad engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.

3516

CATERPILLAR®

GEN SET PACKAGE PERFORMANCE DATA [7RN01569]

JANUARY 14, 2016

For Help Desk Phone Numbers Click here

Performance Number: DM4505

Change Level: 02

Sales Model: 3516BDITA

Engine Power:
2000 W/F EKW 2060 W/O F EKW
2,876 HP

Manifold Type: DRY

Turbo Quantity: 4

Hertz: 60

Rating Type: STANDBY

Combustion: DI

Speed: 1,800 RPM

Governor Type: ADEM

Engine App: GP

Application Type: PACKAGE-DIE

Certification: 2000 EPA

Aspr: TA

After Cooler: SCAC

After Cooler Temp(F): 140

Turbo Arrangement: Parallel

Engine Rating: PGS

Strategy:

General Performance Data

GEN W/F EKW	PERCENT LOAD	ENGINE POWER BHP	ENGINE BMEP PSI	FUEL BSFC LB/BHP-HR	FUEL RATE GPH	INTAKE MFLD TEMP DEG F	INTAKE MFLD P IN-HG	INTAKE AIR FLOW CFM	EXH MFLD TEMP DEG F	EXH STACK TEMP DEG F	EXH GAS FLOW CFM
2,000	100	2848	297.62	0.33	135.84	180.68	80.25	6,112.98	1,165.1	846.5	15,471.37
1,800	90	2565	268.03	0.33	121.81	175.28	72.97	5,777.49	1,101.74	804.56	14,132.94
1,600	80	2286	238.88	0.34	109.37	170.24	65.62	5,417.27	1,056.2	777.74	12,971.09
1,500	75	2146	224.23	0.34	103.45	168.44	62.07	5,237.17	1,037.12	767.48	12,427.24
1,400	70	2007	209.73	0.34	97.53	166.46	58.55	5,050	1,018.4	759.02	11,883.4
1,200	60	1730	180.72	0.35	85.35	161.96	49.31	4,545	981.5	750.92	10,654.45
1,000	50	1454	151.86	0.35	72.99	157.28	39.89	4,018.81	944.96	743.72	9,354.86
800	40	1183	123.57	0.36	60.68	153.14	30.74	3,503.22	901.4	731.12	8,012.91
600	30	908	94.86	0.37	48.13	149.54	21.68	2,980.56	835.7	701.24	6,632.1
500	25	769	80.35	0.38	41.79	148.1	17.21	2,712.17	794.84	679.82	5,932.87
400	20	629	65.7	0.39	35.4	146.84	13.09	2,454.37	744.8	649.4	5,230.11
200	10	346	36.26	0.46	22.53	145.58	6.87	1,981.15	604.22	546.8	3,824.58

General Performance Data 2

GEN W/F EKW	PERCENT LOAD	ENGINE POWER BHP	COMPRESS OUT PRESS IN-HG	COMPRESS OUT TEMP DEG F
2,000	100	2848	80.34	446
1,800	90	2565	73.03	416.12
1,600	80	2286	65.77	390.02
1,500	75	2146	62.28	377.42
1,400	70	2007	58.78	364.64
1,200	60	1730	49.57	333.32
1,000	50	1454	40.16	298.22
800	40	1183	31.03	259.7
600	30	908	22.15	219.38
500	25	769	17.8	198.86
400	20	629	13.8	179.06
200	10	346	7.58	144.5

Engine Heat Rejection Data

GEN W/F EKW	PERCENT LOAD	REJ TO JW BTU/MN	REJ TO ATMOS BTU/MN	REJ TO EXHAUST BTU/MN	EXH RCOV TO 350F BTU/MN	FROM OIL CLR BTU/MN	FROM AFT CLR BTU/MN	WORK ENERGY BTU/MN	LHV ENERGY BTU/MN	HHV ENERGY BTU/MN
2,000	100	43,505.5	8,246.1	109,133.3	56,869.9	14,558.7	28,776.2	120,734.8	291,458.1	310,452.7
1,800	90	40,320.8	7,677.4	97,418.1	48,908.1	13,080.1	24,852.1	108,792.1	261,885.8	279,003.6
1,600	80	37,192.9	7,279.3	87,636.5	42,936.8	11,715.2	21,155.6	96,906.3	234,815.7	250,170.6
1,500	75	35,657.4	7,108.7	82,973.2	40,434.5	11,089.6	19,335.8	90,991.8	221,621.9	236,066.9
1,400	70	34,121.9	6,938.1	78,309.8	38,102.8	10,464.1	17,515.9	85,134.2	208,428.1	222,020.0
1,200	60	30,994.1	6,596.9	69,040.0	33,553.2	9,156.0	14,046.9	73,362.1	182,097.4	193,983.2
1,000	50	27,695.6	6,255.7	59,770.2	29,060.5	7,848.0	10,691.5	61,646.9	155,880.3	166,060.0
800	40	24,283.4	5,914.5	50,557.3	24,454.1	6,483.2	7,563.7	50,159.2	130,004.5	138,478.2
600	30	20,530.0	5,573.2	40,889.4	19,051.4	5,175.2	4,777.1	38,500.9	103,446.3	110,213.8
500	25	18,482.7	5,345.8	35,884.9	16,207.9	4,492.7	3,469.1	32,643.3	89,968.1	95,882.6
400	20	16,435.4	5,175.2	30,766.6	13,250.7	3,810.3	2,217.9	26,672.0	76,319.4	81,323.9
200	10	11,942.7	4,720.2	20,075.1	6,881.3	2,445.4	170.6	14,672.4	48,396.3	51,581.0

EXHAUST Sound Data: 4.92 FEET

GEN W/F EKW	PERCENT LOAD	OVERALL SOUND DB(A)	OBCF 63HZ DB	OBCF 125HZ DB	OBCF 250HZ DB	OBCF 500HZ DB	OBCF 1000HZ DB	OBCF 2000HZ DB	OBCF 4000HZ DB	OBCF 8000HZ DB
2,000	100	116	107	121	117	109	108	109	109	107
1,800	90	115	106	120	116	108	107	108	108	106
1,600	80	114	105	119	115	107	106	107	107	105
1,500	75	114	104	119	115	107	105	107	106	105
1,400	70	113	104	118	114	106	105	106	106	104
1,200	60	112	102	117	113	105	104	105	105	103
1,000	50	111	101	116	112	104	102	104	103	102
800	40	110	100	115	111	103	101	102	102	100
600	30	108	98	113	109	101	99	101	101	99
500	25	107	97	112	108	100	99	100	100	98
400	20	106	96	111	107	99	98	99	99	97
200	10	104	94	109	105	97	95	97	97	95

EXHAUST Sound Data: 22.97 FEET

GEN W/F EKW	PERCENT LOAD	OVERALL SOUND DB(A)	OBCF 63HZ DB	OBCF 125HZ DB	OBCF 250HZ DB	OBCF 500HZ DB	OBCF 1000HZ DB	OBCF 2000HZ DB	OBCF 4000HZ DB	OBCF 8000HZ DB
2,000	100	103	94	111	105	97	95	96	96	93
1,800	90	102	93	110	104	96	94	95	95	92
1,600	80	101	92	109	103	95	93	94	94	91
1,500	75	100	92	108	103	94	92	93	93	90
1,400	70	100	91	108	102	93	92	93	92	90
1,200	60	99	90	107	101	92	91	91	91	89
1,000	50	97	89	105	100	91	89	90	90	87
800	40	96	88	104	98	90	88	89	89	86
600	30	95	86	103	97	88	87	87	87	84
500	25	94	85	102	96	87	86	86	86	84
400	20	93	84	101	95	86	85	85	85	83
200	10	91	82	99	93	84	83	83	83	80

EXHAUST Sound Data: 49.21 FEET

GEN W/F EKW	PERCENT LOAD	OVERALL SOUND DB(A)	OBCF 63HZ DB	OBCF 125HZ DB	OBCF 250HZ DB	OBCF 500HZ DB	OBCF 1000HZ DB	OBCF 2000HZ DB	OBCF 4000HZ DB	OBCF 8000HZ DB
2,000	100	96	88	104	99	90	88	89	89	86
1,800	90	95	87	103	98	89	87	88	88	85
1,600	80	94	86	102	97	88	86	87	87	84
1,500	75	94	85	102	96	87	86	87	86	84
1,400	70	93	85	101	95	87	85	86	86	83
1,200	60	92	84	100	94	86	84	85	85	82
1,000	50	91	82	99	93	84	83	84	83	81
800	40	90	81	98	92	83	82	82	82	79
600	30	88	79	96	90	82	80	81	81	78
500	25	87	79	95	89	81	79	80	80	77
400	20	86	78	94	88	80	78	79	79	76
200	10	84	75	92	86	77	76	77	76	74

MECHANICAL Sound Data: 3.28 FEET

GEN W/F EKW	PERCENT LOAD	OVERALL SOUND DB(A)	OBCF 63HZ DB	OBCF 125HZ DB	OBCF 250HZ DB	OBCF 500HZ DB	OBCF 1000HZ DB	OBCF 2000HZ DB	OBCF 4000HZ DB	OBCF 8000HZ DB
2,000	100	111	113	123	114	105	101	101	99	103
1,800	90	111	113	123	114	105	101	101	99	103
1,600	80	111	113	123	114	105	101	101	99	103
1,500	75	111	113	123	114	105	101	101	99	103
1,400	70	111	113	123	114	105	101	101	99	103
1,200	60	111	113	123	114	105	101	101	99	103
1,000	50	111	113	123	114	105	101	101	99	103
800	40	111	113	123	114	105	101	101	99	103
600	30	111	113	123	114	105	101	101	99	103
500	25	111	113	123	114	105	101	101	99	103
400	20	111	113	123	114	105	101	101	99	103
200	10	111	113	123	114	105	101	101	99	103

MECHANICAL Sound Data: 22.97 FEET

GEN W/F EKW	PERCENT LOAD	OVERALL SOUND DB(A)	OBCF 63HZ DB	OBCF 125HZ DB	OBCF 250HZ DB	OBCF 500HZ DB	OBCF 1000HZ DB	OBCF 2000HZ DB	OBCF 4000HZ DB	OBCJ 8000HZ DB
2,000	100	98	100	109	100	92	89	90	87	91
1,800	90	98	100	109	100	92	89	90	87	91
1,600	80	98	100	109	100	92	89	90	87	91
1,500	75	98	100	109	100	92	89	90	87	91
1,400	70	98	100	109	100	92	89	90	87	91
1,200	60	98	100	109	100	92	89	90	87	91
1,000	50	98	100	109	100	92	89	90	87	91
800	40	98	100	109	100	92	89	90	87	91
600	30	98	100	109	100	92	89	90	87	91
500	25	98	100	109	100	92	89	90	87	91
400	20	98	100	109	100	92	89	90	87	91
200	10	98	100	109	100	92	89	90	87	91

MECHANICAL Sound Data: 49.21 FEET

GEN W/F EKW	PERCENT LOAD	OVERALL SOUND DB(A)	OBCF 63HZ DB	OBCF 125HZ DB	OBCF 250HZ DB	OBCF 500HZ DB	OBCF 1000HZ DB	OBCF 2000HZ DB	OBCF 4000HZ DB	OBCF 8000HZ DB
2,000	100	92	94	103	94	86	84	84	82	86
1,800	90	92	94	103	94	86	84	84	82	86
1,600	80	92	94	103	94	86	84	84	82	86
1,500	75	92	94	103	94	86	84	84	82	86
1,400	70	92	94	103	94	86	84	84	82	86
1,200	60	92	94	103	94	86	84	84	82	86
1,000	50	92	94	103	94	86	84	84	82	86
800	40	92	94	103	94	86	84	84	82	86
600	30	92	94	103	94	86	84	84	82	86
500	25	92	94	103	94	86	84	84	82	86
400	20	92	94	103	94	86	84	84	82	86
200	10	92	94	103	94	86	84	84	82	86

EMISSIONS DATA

Certification: 2000 EPA

REFERENCE EXHAUST STACK DIAMETER	8 IN
WET EXHAUST MASS	27,844.4 LB/HR
WET EXHAUST FLOW (845.60 F STACK TEMP)	15,481.96 CFM
WET EXHAUST FLOW RATE (32 DEG F AND 29.98 IN HG)	5,836.00 STD CFM
DRY EXHAUST FLOW RATE (32 DEG F AND 29.98 IN HG)	5,346.65 STD CFM
FUEL FLOW RATE	136 GAL/HR

RATED SPEED "Potential site variation"

GEN PWR EKW	PERCENT LOAD	ENGINE POWER BHP	TOTAL NOX (AS NO2) LB/HR	TOTAL CO LB/HR	TOTAL HC LB/HR	PART MATTER LB/HR	OXYGEN IN EXHAUST PERCENT	DRY SMOKE OPACITY PERCENT	BOSCH SMOKE NUMBER
2,000	100	2848	57.4800	1.2400	1.0100	.4700	10.5000	1.4000	1.2800
1,500	75	2146	36.5700	1.0100	.9800	.5100	11.7000	1.5000	1.2800
1,000	50	1454	19.5400	1.3200	.8100	.4500	12.5000	2.3000	1.2800
500	25	769	10.1500	1.4300	.5600	.3100	13.8000	2.1000	1.2800
200	10	346	6.8600	2.0000	.5100	.1900	15.8000	1.6000	1.2800

RATED SPEED "Nominal Data"

GEN PWR EKW	PERCENT LOAD	ENGINE POWER BHP	TOTAL NOX (AS NO2) LB/HR	TOTAL CO LB/HR	TOTAL HC LB/HR	TOTAL CO2 LB/HR	PART MATTER LB/HR	OXYGEN IN EXHAUST PERCENT	DRY SMOKE OPACITY PERCENT	BOSCH SMOKE NUMBER
2,000	100	2848	47.9000	.6900	.7600	2,839.5	.3400	10.5000	1.4000	1.2800
1,500	75	2146	30.4700	.5600	.7300	2,154.3	.3600	11.7000	1.5000	1.2800
1,000	50	1454	16.2800	.7300	.6100	1,511.1	.3200	12.5000	2.3000	1.2800
500	25	769	8.4600	.8000	.4200	865.4	.2200	13.8000	2.1000	1.2800
200	10	346	5.7200	1.1100	.3900	454.9	.1300	15.8000	1.6000	1.2800

Altitude Capability Data(Corrected Power Altitude Capability)

Ambient Operating Temp. / Altitude	50 F	68 F	86 F	104 F	122 F	NORMAL
0 FT	2,876.49 hp	2,876.49 hp	2,876.49 hp	2,876.49 hp	2,876.49 hp	2,876.49 hp
984.25 FT	2,876.49 hp	2,876.49 hp	2,876.49 hp	2,876.49 hp	2,876.49 hp	2,876.49 hp
1,640.42 FT	2,876.49 hp	2,876.49 hp	2,876.49 hp	2,876.49 hp	2,876.49 hp	2,876.49 hp
3,280.84 FT	2,876.49 hp	2,876.49 hp	2,876.49 hp	2,868.44 hp	2,779.93 hp	2,876.49 hp
4,921.26 FT	2,876.49 hp	2,876.49 hp	2,787.98 hp	2,698.13 hp	2,614.99 hp	2,876.49 hp
6,561.68 FT	2,805.41 hp	2,710.2 hp	2,620.35 hp	2,537.21 hp	2,458.09 hp	2,734.34 hp
8,202.1 FT	2,636.45 hp	2,546.6 hp	2,462.11 hp	2,382.99 hp	2,309.24 hp	2,597.56 hp
9,842.52 FT	2,475.52 hp	2,391.04 hp	2,311.92 hp	2,238.16 hp	2,168.43 hp	2,466.14 hp
10,498.69 FT	2,412.49 hp	2,330.69 hp	2,252.91 hp	2,181.84 hp	2,113.45 hp	2,416.52 hp

The powers listed above and all the Powers displayed are Corrected Powers

Identification Reference and Notes

Engine Arrangement:	1736942	**Lube Oil Press @ Rated Spd(PSI):**	55.8
Effective Serial No:	7RN01092	**Piston Speed @ Rated Eng SPD(FT/Min):**	2,244.1
Primary Engine Test Spec:	0K2409	**Max Operating Altitude(FT):**	4,921.3
Performance Parm Ref:	TM5739	**PEEC Elect Control Module Ref**	
Performance Data Ref:	DM4505	**PEEC Personality Cont Mod Ref**	
Aux Coolant Pump Perf Ref:	DM1286		
Cooling System Perf Ref:	DM1299	**Turbocharger Model**	BTV8501-1.23
Certification Ref:	EPA	**Fuel Injector**	1008774
Certification Year:	2000	**Timing-Static (DEG):**	--
Compression Ratio:	14.0	**Timing-Static Advance (DEG):**	--
Combustion System:	DI	**Timing-Static (MM):**	--
Aftercooler Temperature (F):	140	**Unit Injector Timing (MM):**	64.3
Crankcase Blowby Rate(CFH):	2,874.6	**Torque Rise (percent)**	--
Fuel Rate (Rated RPM) No Load(Gal/HR):	14.5	**Peak Torque Speed RPM**	--
Lube Oil Press @ Low Idle Spd(PSI):	20.0	**Peak Torque (LB.FT):**	--

Reference Number: DM4505

–

Parameters Reference: TM5739

GEN SET - PACKAGED - DIESEL

TOLERANCES:
AMBIENT AIR CONDITIONS AND FUEL USED WILL AFFECT THESE VALUES. EACH OF THE VALUES MAY VARY IN ACCORDANCE WITH THE FOLLOWING TOLERANCES.

Power	+/- 3%
Exhaust Stack Temperature	+/- 8%
Generator Power	+/- 5%
Inlet Airflow	+/- 5%
Intake Manifold Pressure-gage	+/- 10%
Exhaust Flow	+/- 6%
Specific Fuel Consumption	+/- 3%
Fuel Rate	+/- 5%
Heat Rejection	+/- 5%
Heat Rejection - Exhaust Only	+/- 10%

T4i Tolerance Exceptions
C15: Power Tolerance +4% , -0%
C27: Power Tolerance +0% , -4%

CONDITIONS:
ENGINE PERFORMANCE IS CORRECTED TO INLET AIR STANDARD CONDITIONS OF 99 KPA (29.31 IN HG) AND 25 DEG C (77 DEG F).

THESE VALUES CORRESPOND TO THE STANDARD ATMOSPHERIC PRESSURE AND

Submittal

23 52 16 Gas Fired Boilers

FOR

Cache Creek Casino Resort

1445 CA-16
Brooks, CA 95606
Air Systems' Job # 7-204.10.20.30

GENERAL CONTRACTOR

Swinerton Builders

15 Business Park Way, Suite 101
Sacramento, CA 95828
GC's Job # 16041087

PREPARED BY

ASSC
AIR SYSTEMS SERVICE & CONSTRUCTION

Carlos Quinones
Project Manager

Submittal for:

Equipment List: Heating Hot Water Boiler Schedule

TAG: B-1, B-2, B-3, B-4

Specification Section: 23 52 16 Gas Fired Boilers

Project:

Cache Creek Casino Resort Hotel Expansion

1455 State Hwy 16

Brook, CA 95606

Engineer:

JBA Consulting Engineers

5155 West Patrick Lane

Las Vegas, NV 89118

Submitted by:

R. F. MacDONALD CO.

1549 Cummins Drive

Modesto, CA 95358

(209) 576-0726

R.F. MacDonald Co.
your boiler & pump solutions team!
since 1954

STATEMENT OF COMPLIANCE

R.F. MacDonald Co. will furnish the following:

TAG: B–1, B–2, B–3, B–4 – Four (4) Camus Hydronics – Advantus Firetube condensing boiler model **AVNH2500** having an **input rating of 2,500,000 Btu/hr** and 2,375,000 Btu/hr output for hydronic heating. The boiler shall be design certified by CSA International and shall meet the requirements of ANSI Z21.13 & CSA 4.9. The heating boiler shall be vented as a Category II or IV condensing appliance suitable for indoor operation.

Boiler Design

The combustion chamber shall be an integral part of the heat exchanger which shall be an all welded cylindrical Stainless Steel counter-flow firetube design consisting of an inner tube bundle for primary heat transfer and an outer tube bundle for extracting latent heat from flue gases. A window view port shall be provided for visual inspection of the boiler combustion during firing. The combustion chamber, fire tubes, and tube sheets shall be constructed of 316L stainless steel. The remainder of the heat exchanger shall be constructed of 304L stainless steel. The burner shall provide equal distribution of heat through the entire heat exchanger. The heat exchanger shall be inspected and tested to A.S.M.E. Section IV requirements. The heat exchanger shall be a two-pass heat exchanger with maximum working pressure of 160 psig (1100 kPa). The heat exchanger shall be capable of 40°F constant system return temperatures and be fully condensing complete with condensate trap and drains. The burner shall be capable of up to 25:1 gas input turn down ratio with sustained efficient combustion characteristics throughout entire modulating range.

Trim (Mounted)

- Operating temperature control
- High limit temperature controls w/ manual reset
- High and low gas pressure switches
- Status on/off contact
- Pump delay relay
- E-stop connection point

Trim (Shipped Loose for Field Installation)

- ASME rated pressure relief valve(s)
- Low water cut-off
- Flow switch
- Neutralizer
- **BMS Protocol convertor – Sola Modbus RTU to BACnet**
- **Sensus Model 243 regulator (5 psig to 7" w.c.)**

Controls

Standard controls include a SOLA electronic proportional integrated combination ignition limit/operator control accurate to 1°F (0.5°C) having a 4-20 mA output signal suitable for control of a variable frequency motor drive or a pulse width modulation signal output for modulating fan speeds. Controls are lead lag "Cascade" ready for control of up to eight boilers c/w Indoor outdoor reset and lead lag control. Control shall be equipped and ready with 4-20 mA remote set point or modulating control, capable with 0-10 VDC remote set point and modulating control. Control is BMS Modbus RTU protocol ready and capable of other alternate protocol conversions with additional

optional gateway protocol converter. Control shall be supplied with a mounted touch screen mid-level display which shall also provide for control system configuration and set up, readouts of boiler target, differential and inlet/outlet temperatures as well as accumulated runtime, enunciator diagnostics, and firing rates. The complete control package shall be mounted on the front panel with a hinged door for easy access to all control modules. The boiler safety control string shall be furnished with controls for low gas pressure, optional high gas pressure, fan air proving, blocked flue, water pressure, high limit, stack limit and flow switch. Additional control safeties shall include flue gas stack temperature, flame rectification, fan speed, and auto recycling high limit.

Emissions
The boiler will include an emission control package designed to meet the requirements of the local Air Quality Management District with a NO_x emission limit of 9 ppm and CO limit of 400 ppm each corrected to 3% 0_2 while firing natural gas only.

Requirements
Electrical: **208/230VAC, 60Hz, 1 Phase**
Natural Gas: 4"WC – 14"WC @ 2,500 CFH
Min. Operating Press: 30 PSI (water side)

Primary Boiler Circulators – For Camus Hydronics Advantus 2500 Units

- Manufacturer: Grundfos
- Model: TP 80-80/4
- Quantity: Four (4)
- Rated For: 110 gpm at 18 ft
- Motor Rating: 1-1/2 HP, 115/208-230V 1PH

NOTE – Motor starters and HOA switches not included (by others)

Exceptions and Clarifications
Drawing HE-M8.03 – Heating Hot Water Boiler Schedule

- Amp draw shall be 20 Amps.
- Voltage requirement shall be 208-230V/1Ph.
- Shipping weight shall be 2,200 lbs.
- Direct vent kits not included.

Section 23 52 16 – Gas Fired Boilers

- Part 1.6: Concrete base and anchor-bolt inserts by others.
- Part 2.2, B: Heat exchanger shall be a 316SS 2-pass firetube design.
- Part 2.4, A.1: Boiler controller shall be a Honeywell SOLA with 7" touchscreen.
- Part 2.5, B: Boiler will require 208-230V/1Ph. Pump motor starters are by others.
- Part 2.6: Venting kits not included.
- Part 3.1: Examination by others.
- Part 3.2: Boiler installation by others.
- Part 3.3: Connection by others.
- Part 3.4: Cleaning by others.
- Part 3.5, D: Occupancy adjustments can be provided for an additional charge.

Specification Data

UNILUX

MULTIPASS FLEXIBLE WATERTUBE BOILERS

HOT WATER BOILERS

Unilux Advanced Manufacturing, LLC
30 Commerce Park Drive
Niskayuna, NY 12309
518.344.7490

Fax: (518) 344-7495
E-mail: info@uniluxam.com
Web Site: www.uniluxam.com

"From commercial comfort to industrial process"

UNILUX HOT WATER BOILER CAPACITIES:

BOILER MODEL W	MAXIMUM FUEL INPUT BTU/HR IN THOUSANDS	BOILER OUTPUT BTU/HR IN THOUSANDS	APPROX. BOILER HORSE POWER	SHIPPING WEIGHT LBS	OPERATING WEIGHT LBS	WATER CONTENT U.S. GALLONS
100	1250	1062	31.5	3290	3790	60
150	1750	1488	44.5	3800	4380	70
200	2200	1870	56	4400	5035	76
250	2750	2338	70	5000	5750	90
300	3000	2550	76	5600	6410	97
350	3750	3188	95.2	6100	6985	106
400	4300	3655	109	6800	7800	120
500	5400	4590	137	8200	9660	175
600	6250	5313	159	9000	10625	195
700	7235	6150	184	10000	11820	218
800	8270	7030	210	11400	13650	270
900	9300	7905	236	12140	14580	293
1000	10330	8780	262	13200	15870	320
1200	12400	10540	315	15480	18625	377
1400	14470	12300	367	16600	20100	420
1600	16530	14050	420	18800	22680	465
1800	18600	15810	472	20960	25210	510
2000	20670	17570	525	22700	27290	550
2500	25000	21250	635	28500	35000	776
2900	29000	24650	736	30800	38000	865
3000	34000	28900	863	43160	53880	1285
3500	38000	32300	965	49000	61340	1480

ORDER NUMBER PROCEDURE: Example – ZF 300WG

- 300 — BOILER MODEL
- W — WATER (W) LOW PRESSURE STEAM (LS) HIGH PRESSURE STEAM (HS)
- G — NAT. GAS, MIXED OR LP (G) NO. 2 OR LIGHTER OILS (L) COMB. GAS/LIGHT OIL (LG)

ZW – Welded Boiler Tube
ZF – Ferrule Boiler Tube

SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE. DIMENSIONS MUST BE CONFIRMED FOR CONSTRUCTION.

STANDARD EQUIPMENT:
• PRESSURE GAUGE • THERMOMETER
• LWCO • RELIEF VALVES • BURNER OPERATING AND SAFETY TEMPERATURE CONTROLS

UNILUX REPRESENTATIVE:

ALL BURNER EQUIPMENT UL, CSA APPROVED

ATTACHMENT 5

2002 ENVIRONMENTAL EVALUATION REPORT COVER PAGE AND

2017 FINAL ENVIRONMENTAL IMPACT REPORT COVER PAGE

Cache Creek Indian Bingo & Casino Expansion Project

Final Environmental Evaluation

October 2002

Prepared For:

The Rumsey Band of Wintun Indians
P.O. Box 18
Brooks, CA 95606

Prepared by:

AES
ANALYTICAL ENVIRONMENTAL SERVICES
2021 "N" Street, Suite 200
Sacramento, CA 95814
(916) 447-3479

FINAL TRIBAL ENVIRONMENTAL IMPACT REPORT

YOCHA DEHE WINTUN NATION

CACHE CREEK HOTEL EXPANSION PROJECT

VOLUME I: RESPONSE TO COMMENTS

JANUARY 2017

LEAD AGENCY:
The Yocha Dehe Wintun Nation
P.O. Box 18
Brooks, CA 95606

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LEAD AGENCY:
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www.analyticalcorp.com

FINAL TRIBAL ENVIRONMENTAL IMPACT REPORT

YOCHA DEHE WINTUN NATION

CACHE CREEK HOTEL EXPANSION PROJECT

VOLUME II: REVISED DRAFT TRIBAL ENVIRONMENTAL IMPACT REPORT

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FINAL TRIBAL ENVIRONMENTAL IMPACT REPORT

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SECTION 1.0

INTRODUCTION

SECTION 1.0
INTRODUCTION

1.1 OVERVIEW OF THE TEIR PROCESS

This document was prepared in compliance with Sections 10.8.1 through 10.8.7 of the gaming compact between the Yocha Dehe Wintun Nation (Tribe) and the State of California (Compact), which require that a Tribal Environmental Impact Report (TEIR) be prepared before the commencement of a project, as defined by the Compact. Pursuant to the Compact, the Tribe issued a NOP of TEIR for Cache Creek Hotel Expansion Project (Proposed Project; refer to Section 2.0 of Volume II for a detailed project description) on March 21, 2016. In response to the NOP, the Tribe received three comment letters. Although not required to do so by the Compact, the Tribe issued a Supplemental NOP on July 21, 2016, for an additional 20 days of review to ensure that interested stakeholders were provided with a reasonable opportunity to identify potentially significant off-reservation environmental impacts (and any reasonable mitigation measures to address those impacts) resulting from the Proposed Project refinements. In response to the Supplemental NOP, the Tribe received three additional comment letters. The NOP and Supplemental NOP are included as Appendix B in Volume III of this Final TEIR, and comment letters received on the NOP and Supplemental NOP are included as Appendix C in Volume III.

The Draft TEIR for the Proposed Project dated September 2016 (SCH #2016032058) was submitted to the State Clearinghouse and released to the public and agencies for a 45-day comment period beginning on September 23, 2016, and ending on November 7, 2016. A public meeting to receive comments on the Draft TEIR was held on October 13, 2016. Comments on the Draft TEIR were carefully reviewed and are addressed in this Final TEIR for the Proposed Project and Alternatives. As required by the Compact, this Final TEIR includes comments, responses to comments, and any resulting updates, modifications, or revisions to this TEIR as were warranted after review of the comments received by the Tribe. Upon completion, the Final TEIR will be presented to the Tribe's Tribal Council, which will then consider approval and certification of the Final TEIR as required by the Compact. If the Final TEIR is certified, the Tribe will make the certified Final TEIR available to the County as required by the Compact.

This Final TEIR is only one of a number of actions that the Compact requires be taken in connection with the Proposed Project. In addition to requiring this Final TEIR to address off-reservation environmental impacts, the Compact requires that certain non-environmental impacts of the Proposed Project, such as fiscal impacts on certain public services, also be addressed. Those non-environmental impacts must be addressed in an Intergovernmental Agreement (IGA) between the Tribe and Yolo County, but (because they are not environmental impacts) they are not addressed in this Final TEIR. The analysis reflected in

this Final TEIR is an environmental impact analysis; it is not a fiscal, economic, or social impacts analysis.

1.2 ORGANIZATION OF THE DOCUMENT

This Final TEIR contains the following volumes:

VOLUME I: RESPONSE TO COMMENTS

- **Section 1.0 – Introduction.** This section provides information on the contents and organization of this Final TEIR.
- **Section 2.0 – Comments.** This section includes a list of commenters, copies of written comments, and the public meeting transcript. All comments are bracketed and annotated with individual comment numbers.
- **Section 3.0 – Responses to Comments.** This section provides responses to all comments included in **Section 2.0**. Responses generally provide clarification of the Draft TEIR, and occasionally include changes or additions to the text of that document.
- **Section 4.0 – Mitigation Monitoring and Reporting Program.** A Mitigation Monitoring and Reporting Program (MMRP) for the Proposed Project is included in this section.
- **Section 5.0 – Report Authors and Persons Consulted.** This section provides a list of individuals involved in the preparation of this Final TEIR.
- **Section 6.0 – Bibliography.** A list of references for this Final TEIR is provided in this section.

VOLUME II: REVISED DRAFT TRIBAL ENVIRONMENTAL IMPACT REPORT

Additions to the Revised Draft TEIR are shown in <u>underline</u>, and deletions from the Revised Draft TEIR are shown in ~~strikeout~~. Refer to Section 1.4 of Volume II for a detailed description of the organization of the Revised Draft TEIR, which includes the following sections:

- **Executive Summary.** This summary includes a brief description of the Proposed Project and Alternatives, a list of potentially significant off-reservation environmental impacts attributable to the Proposed Project, and a summary of the potentially significant off-reservation environmental impacts identified in this TEIR and recommended mitigation measures for those impacts. The executive summary includes a table of potential off-reservation environmental impacts and associated recommended mitigation measures.
- **Section 1.0 – Introduction.** This section describes the purpose and organization of the TEIR and the TEIR preparation, review, and certification process.
- **Section 2.0 – Project Description.** This section describes the Proposed Project and outlines the objectives of the Proposed Project. Components of the Proposed Project are described, including design features to reduce anticipated potentially significant off-reservation environmental impacts.

- **Section 3.0 – Environmental Analysis.** For each environmental resource area listed in the Checklist (Appendix A), this section describes the applicable regulatory setting for the Proposed Project and the existing off-reservation environmental setting; discusses the potentially significant off-reservation environmental impacts attributable to the construction and operation of the Proposed Project, including direct, growth-inducing, and cumulative off-reservation impacts; and recommends mitigation measures for those impacts.
- **Section 4.0 – Alternatives.** This section describes potential alternatives to the Proposed Project, including a RIA and a No Action Alternative. This section discusses the potentially significant off-reservation environmental impacts associated with the construction and operation of the Alternatives, including direct, growth-inducing, and cumulative off-reservation impacts, and recommends mitigation measures for those impacts. A discussion of other alternatives considered and a comparison of the merits of the Proposed Project and the Alternatives are also included in this section.
- **Section 5.0 –Report Authors and Persons Consulted.** This section provides the names of the authors who participated in, and agencies or individuals consulted during, preparation of this TEIR.
- **Section 6.0 – Bibliography.** This section provides a list of reference materials.

VOLUME III: APPENDICES

All technical appendices of the Draft TEIR (see Section 1.4 of Volume II for a complete list) are included as appendices of the Revised Draft TEIR, with minor modifications made to the following appendix:

- **Appendix D:** *Traffic Impact Study* (Revised) – Mitigation has been modified in response to comments received on the Draft TEIR; description of the existing carpool and vanpool services has been updated to match the Draft TEIR; and clarification has been added on the methodology used for calculating the Proposed Project's fair share contribution.

SECTION 2.0

COMMENTS

SECTION 2.0
COMMENTS

Comments received on the Draft Tribal Environmental Impact Report (TEIR) are listed in **Table 2-1**, and provided in their entirety on the following pages. Issues are individually bracketed and numbered in the margins of the comment letters. Responses to comments are provided in **Section 3.0**.

TABLE 2-1
LIST OF COMMENTERS

Comment Number	Individual or Signatory	Affiliation	Address	Date
Written Comment Letters				
1	Tom Frederick	Capay Valley Vineyards	P.O. Box 17 Brooks, CA 95606	10/10/16
2	Terry Bassett, Executive Director	Yolo County Transportation District	350 Industrial Way Woodland, CA 95776	11/03/16
3	Patrick S. Blacklock, County Administrator	Yolo County	625 Court Street, Room 202 Woodland, CA 95695	11/14/16
4	Tom Frederick and Pamela Welch	Capay Valley Vineyards	P.O. Box 17 Brooks, CA 95606	11/07/16
5	Barbara Gemmill Herren	Capay Valley Coalition	P.O. Box 894 Esparto, CA 95627	11/07/16
6	Eric Fredericks, Chief, Office of Transportation Planning	California Department of Transportation	2379 Gateway Oaks Drive, Suite 150 – MS 19 Sacramento, CA 95833	11/15/16
Public Hearing Transcript				
PH	Diego Ochoa	Esparto Lyons Club, Capay Valley General Alliance Advisory Committee	County Road 59 Brooks, CA 95606	10/13/16
PH	Sue Heitman		19880 County Road 79 Capay, CA 95607	10/13/16
PH	Barry Burns	Esparto Fire Department	16960 Yolo Avenue Esparto, CA 95627	10/13/16

COMMENT LETTER 1

CAPAY VALLEY VINEYARDS

Comment Letter 1

Tribal Council
P. Yost
C. Rotsinsch
O. Carrillo

Capay Valley
VINEYARDS

P.O.Box 17, Brooks, CA 95606
ph (530) 796-4110 – (530) 796-3788 fax
info@capayvalleyvineyards.com

Leland –

For your consideration – this printed in the Woodland Daily Democrat recently.

Tom Frederick

Please – Another road to the Casino

The Cache Creek Casino is planning another expansion – tripling the size of their hotel, adding an event center seating 1300, and doubling the size of nongaming space. The tribal casino has generated enormous wealth for the tribe. According to a 2012 Sacramento Bee article citing a court document, profits from 1993-2006 were $276 million annually. All of this with no tax and no legal accountability. Under these conditions - no wonder they want to expand !

The Capay Valley is a farming valley with diverse crops, some agri-tourism and of course it's natural beauty. This diversity is in jeopardy of being overwhelmed by the tribal casino's gambling concession granted by the Federal Government with scant over site and no checks and balances.

Yolo County receives $5 million per year from the casino to "mitigate" problems created by the casino. The State of California receives $25 million for - ?

1-1

A new access to the casino is necessary. A direct route to I-505 is both possible and necessary. It would seem that a direct road or a train/tram access would be a good business decision. Let's give the residents of the Highway 16 corridor some respect and consideration. Charity is nice ...but responsible business practices are better.

Andrew Carnegie, the great philanthropist of the early 20th century, noted that charity endeavors should improve the community and contribute to the "lasting good". Perhaps a new casino access could be both mitigation and charity – along with good business.

Tom Frederick
Brooks

COMMENT LETTER 2

YOLO COUNTY TRANSPORTATION DISTRICT

Comment Letter 2

Yolobus
Yolo County Transportation District

City of Davis – City of West Sacramento – City of Winters
City of Woodland – County of Yolo
EX Officio – Caltrans District 3 – University of California, Davis

Yolo County Transportation District
350 Industrial Way
Woodland, CA 95776
530.661.0816 FAX: 530.661.1732
www.yolobus.com

Tribal Council
P. Yost
O. Carrillo
C. Natsinnah
R. Takemoto
A. Sakurai
R. Lindsley
E. Drewek
M. Wilson

November 3, 2016

COPY

Yocha Dehe Wintun Nation
18960 Puhkum Road
P.O. Box 18
Brooks, CA 95606

Subject: **Cache Creek Hotel Expansion Project**
Comments on Tribal Environmental Impact Report (TEIR)

Dear Sirs:

Thank you for the opportunity to provide comments on the Cache Creek Hotel Expansion Project Tribal Environmental Impact Report (TEIR). Yolo County Transportation District ("District") is both Yolo County's public transportation operator and the Congestion Management Agency. YCTD also assisted Kimley Horn, subconsultant to Analytical Environmental Services, by providing data contained in the report on transit service to the existing facility serving employees who use Yolobus to get to their jobs on a daily basis. Comments from the District are focused on the provision of public transportation service for both more patrons and employees associated with the expansion of the hotel and the proposed event center.

Cache Creek currently provides great benefit to Western and Northwestern Yolo County by funding transit service to the current casino resort complex and areas between Woodland and Brooks along State Highway 16. Section 3.2 of the TEIR accurately describes Bus Route 215 service funded by the current casino and implemented by YCTD including both fixed route and paratransit service. Fixed route service via Route 215 is timed for employee shifts at the Casino. A great number of employees take advantage of this service. On occasion, both groups of employees and casino/hotel patrons have brought up two periods of time when Route 215 service is not available: 2-1

1) 4:55PM-8:55PM
2) 8:55AM-12:55PM

Patrons and employees have requested that Yolobus provide service during those times to access the facility. Filling part of that gap would increase ridership and overall efficiency of the Route 215 service. With the addition of the concert/event center with this gap in time may be important, especially during the evening hours to give patrons and employees the opportunity to reduce single occupancy vehicle trips with the benefit of decreasing congestion before and after events at the concert/event center.

Specifically, we would like to suggest the following:

1) Add a 9:55 AM and a 5:55 PM round trip, 7 days a week, between Woodland and the resort.
2) Add one additional round trip that could return event patrons and casino resort employees to Capay, Esparto, Madison and Woodland.
3) Develop and implement a comprehensive marketing program to encourage use of Yolobus, as well as carpooling and other ridesharing arrangements.

The 5:55 PM round trip has the potential of carrying not only more employees, but attendees of the concert/event center, as well. With a capacity of 1,325 seats, the concert/event center will likely generate hundreds of new vehicle trips along Highway 16.

The original casino hotel project considered the construction of a large park and ride lot at the intersection of State Highway 16 and Interstate 505. For obvious reasons, this location was abandoned by the County and Yocha Dehe Wintun Nation as it was not proximate to where employees and patrons lived. Discussions over the years have centered on a dedicated park and ride location within the City of Woodland where a greater number of employees reside, as well as a smaller one in the town of Madison. The District remains committed to working with Yocha Dehe Wintun Nation and Yolo County on several potential sites for this park and ride facility in both of these communities.

2-1
(cont.)

If you have any questions regarding this comments, please contact myself at (530) 402-2812 or at tbassett@yctd.org, or Mike Luken, Deputy Director of Operations at (530) 402-2830 or mluken@yctd.org.

Regards,

Terry Bassett
Executive Director

C: Yolo County Transportation District Board of Directors
Mike Luken, Deputy Director of Operations, Planning & Special Projects

COMMENT LETTER 3

YOLO COUNTY

COUNTY OF YOLO

Office of the County Administrator

Patrick S. Blacklock
County Administrator

625 Court Street, Room 202 Woodland, CA 95695
(530) 666-8150 FAX (530) 668-4029
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November 14, 2016

The Honorable Leland Kinter
Tribal Chairman, Yocha Dehe Wintun Nation
18960 Puhkum Road
P.O. Box 18
Brooks, CA 95606

RE: Tribal Environmental Impact Report for Cache Creek Hotel Expansion Project

Dear Chairman Kinter,

Yolo County provides the following comments to the Draft Tribal Environmental Impact Report ("TEIR") for the Yocha Dehe Wintun Nation's proposed hotel expansion project at the Cache Creek Casino Resort ("Project"). While the County does not have regulatory authority over projects on tribal lands, the County appreciates the opportunity to provide comments in the development of the Project. As we have stated previously, our governments share a deep interest in the agricultural and natural heritage of the Capay Valley. We hope that these comments will help improve the Project and preserve that heritage.

I. Transportation / Traffic

The TEIR's analysis concludes that the Project will result in significant impacts to traffic as a result of the increased trips generated by additional customers and employees visiting the restaurants, hotel, casino, and events made possible by the Project. Specifically, the TEIR concluded that the Project would result in 144 additional trips per peak hour on Fridays and 161 additional trips per peak hour on Saturdays. Those trips will reduce the level of service ("LOS") on State Route 16 ("SR 16") for large stretches between the casino and Woodland once the Project is completed.[1] Some of these stretches already are at or near the LOS thresholds, due in part to the existing volume of traffic generated by the existing facility.

3-1

The TEIR identifies ways to mitigate the Project's immediate traffic impacts by installing slow vehicle turnouts at four locations along SR-16 (westbound ("WB") and eastbound ("EB") between the casino and County Road ("CR") 85, WB only between Esparto and CR 89, WB only between CR 89 and I-505, and WB and EB between I-505 and CR 98). However, the TEIR indicates that these mitigation measures would not be built "unless and until such additional

[1] The TEIR also identifies additional long-term impacts compared to 2035 Baseline Conditions. *See* TEIR 3.13-7 through 3.13-13

traffic growth, as well as the related impact requiring mitigation, actually occurs." *See* TEIR at 3.2-27.

The approach proposed by the TEIR -- waiting for a significant impact to occur before providing mitigation -- is inconsistent with how environmental are mitigated under both federal and state law. If the Project is expected to cause a significant environmental impact, which the TEIR acknowledges, feasible mitigation measures should be implemented *before* those impacts occur, such as concurrently with construction of the project rather than at an undefined later point in time. *See Center for Bio. Diversity v. B.L.M.*, 422 F. Supp. 2d 1115 (N.D. Cal. 2006) (mitigation measures cannot be deferred "until after significant degradation has occurred"); *Save Cuyama Valley v. County of Santa Barbara*, 213 Cal. App. 4th 1059, 1070-71 (2013) (deferred mitigation measure should set forth specific and mandatory performance standards to ensure that the measure, as implemented, will be effective to *prevent* environmental impact); *see also* CEQA Guidelines § 15126.4. The Tribe's new compact with the State is consistent with existing federal and state law in this respect, requiring that the TEIR identify mitigation measures that "minimize Significant Effects on the Off-Reservation Environment." *See* Tribal-State Compact Between the State of California and the Yocha Dehe Wintun Nation § 11.1(a)(4). Implementing mitigation measures before significant effects have occurred would minimize those impacts more effectively than waiting until after they have occurred. *See also id.* § 11.7(a)(1) (agreement with County must "provid[e] for the *timely* mitigation of any Significant Effect on the Off-Reservation Environment") (emphasis added); *id.* § 11.7(c) (Caltrans to provide language "for timely mitigation of the significant traffic impacts on the State highway system") (emphasis added). 3-1 (cont.)

In addition, the TEIR implies that the Project would only be responsible for a fractional share of the total cost of the mitigation measures (between 14 to 91 percent depending on the location) and that the mitigation measures would not be built until "the applicable jurisdiction has made arrangement for payment of the portion of the mitigation cost that is attributable to traffic growth not attributable to the Proposed Project (and without which there would have been no need for the mitigation measure)." *See* TEIR at 3.2-29. The TEIR does not explain how this fractional share is calculated, nor does it provide authority that the mitigation measures for significant impacts caused by the project can be conditioned on other agencies' funding. Indeed, the TEIR should better explain what other traffic growth contributes to the significant traffic impacts analyzed in the TEIR. The TEIR identifies two small housing development projects, including one by the Tribe, that would not have a meaningful impact on traffic, and the existing development in the Capay Valley do not themselves cause the traffic issues experienced on SR-16. 3-2

The TEIR also should evaluate bypass routes that are used when there is traffic on SR 16. The TEIR does not include the CR 23/CR 85B cut around, or the CR 85/CR 14 cut around, which have seen an increase in traffic as SR 16 has become more congested due to the current levels of casino-related traffic. Those areas might also require mitigation due to traffic impacts. Among other things, mitigation should require that the Construction Traffic Control Plan avoid County Roads except as required to directly access SR 16 from a permitted materials production site. 3-3

As for the use of four slow vehicle turnouts for mitigation along the 18-mile stretch of SR16, the TEIR does not analyze whether such mitigation would be effective. Ordinarily, turnouts are used for windy or hilly roads, where slower vehicles cause faster traffic to back up. The County is unaware of evidence showing that turnouts provide any traffic benefit where, as here, the road is flat and relatively straight. In these kinds of situations, motorists are used to passing lanes, but may not know how and when to use a turnout appropriately. The TEIR should discuss the available literature on this issue, and modify the mitigation measures if needed to ensure that they mitigate impacts. 3-4

In addition, mitigation measure 3.13.1 requires the installation of a two-way left-turn lane along SR-16. A two-way left-turn lane appears inappropriate at this location, given this intersection is within a high speed s-curve. The TEIR should consider whether a traffic signal would provide the appropriate mitigation. 3-5

Altogether, the County encourages the Tribe to further evaluate the nature and timing of appropriate traffic-related mitigation measures. This could include constructing any necessary improvements during the Project construction phase, so they can be completed before the impacts reach significant levels. The County will be happy to provide input from its Public Works Division on any additional or revised mitigation measures that the Tribe may decide to evaluate. 3-6

II. Groundwater

The TEIR estimates that the Project will increase water usage by about 50%, from 300,000 gallons per day ("gpd") to 460,000 gpd, mostly obtained from increased groundwater pumping.[2] In the face of continuing drought and a changing climate, the sustainable management of our groundwater resources is a critical issue for the County and the state, and we would welcome the Yocha Dehe Wintun Nation's participation and involvement in the formation and ongoing governance of the County's Groundwater Sustainability Agency. As such, the TEIR should analyze the Project's compatibility and water resource needs through the prism of County/state groundwater regulation as mandated by the Sustainable Groundwater Management Act ("SGMA"). As noted in Section 1.o.i(f) of the 2002 Intergovernmental Agreement, "[t]he tribe will comply with the County's groundwater ordinance," which includes any Countywide groundwater ordinance or other regulatory program arising from implementation of the SGMA. 3-7

III. Aesthetics

The Draft TEIR states the nine story hotel tower will stand 27.5 ft higher than the existing resort facilities. The scale of this new facility stands to have the potential to further alter the rural agricultural landscape of the Capay Valley. As we are sure the Tribe would agree, the rural agricultural setting is a core attraction of the resort and along with the golf course and other amenities distinguishes the facility as a "destination resort." We trust that the Tribe will incorporate design and landscaping features to eliminate, minimize, and mitigate noise, light, or other aesthetic features which alter or detract from the rural agricultural landscape of the Capay Valley. 3-8

[2] Taking water recycling into account, the net use will increase from 245,000 gpd to 390,000 gpd.

IV. Additional Corrections

The County notes the following additional issues to correct in the final TEIR:

- The TEIR does not describe the ability of existing fire apparatuses to reach the upper floors of the hotel tower. The proximity of such necessary equipment should be discussed in more detail. 3-9
- Page 3.2-7 identifies "Country Villa Estates" as a County Road, which it is not. The road does not provide "access to the main off-reservation roadway network." 3-10
- Table 3.13-6 (Page 3.13-8): Tutt Street intersection, CR22 intersection, and the Madison Migrant Center driveway appear to be missing from the study. 3-11

* * *

Thank you for considering the County's comments. The Draft TEIR reflects a considerable amount of work, which the County appreciates in evaluating the Project. The County also appreciates the ongoing relationship between the Tribe and its neighboring governments. Such cooperation will be of vital importance in ensuring the success of the Project while minimizing the effect on the surrounding communities. Please feel free to contact me or Alex Tengolics if any County staff can be of any additional assistance.

Sincerely,

Patrick S, Blacklock
County Administrator

COMMENT LETTER 4

CAPAY VALLEY VINEYARDS

Comment Letter 4

Tribal Council
P. Yost.
C. Natsennah
O. Carrillo
R. Takimoto
M. Wilson
R. Lindsley
S. Sakurai
A. Drenek

Capay Valley
VINEYARDS

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November 7, 2016
2 pages total

Yocha Dehe Wintun Nation
18960 Puhkum Rd
P.O.Box 18
Brooks,CA 95606

Re –Comments Draft TEIR Cache Creek Hotel Expansion

Dear Sir or Madam:

Upon review of the Draft TEIR – we hereby provide comments.

3.11 Aesthetics

The draft TEIR is inadequate as it fails to address:

a. The fact that the proposed 9 story hotel tower will create a new and significant eyesore in the view shed of the adjacent Frederick/Welch residence and Capay Valley Vineyards.

b. Light from the proposed 9 story hotel tower will create a new and significant source of light in the nighttime sky view shed of the Frederick/Welch residence and Capay Valley Vineyards. A 9 story building from this developer is inappropriate urbanization of an ever decreasing scenic and agricultural area. 4-1

Mitigation needed – Significant hardscape and landscape shielding will be needed between the casino property and the Frederick/Welch residence/Capay Valley Vineyards. Special consideration should be given because of the disparity between the casino projects and the rural, agricultural, scenic Valley.

Water 3.7

The draft finds no significant impact to off reservation wells although it freely admits that the most impact would be to the wells closest to the casino. The water modeling is self serving and not certainty. 4-2

What is the mitigation plan if nearby neighbor's wells are drawn down to a level that "does not support their previous or permitted use "? (For example the mitigation for the golf course included a plan for non-irrigation of various areas of the course in times of drought.)

If the daily pumped water capacity from the existing wells CCCR 1, 2, 3 is so plentiful for the new construction, why is another million gallon storage tank being built ? Construction of a second million gallon storage tank for fire suppression and reserve storage points to a concern about availability of water.

The tribal developer is transporting water from fee to trust land for their projects.

The compact states that impacts are significant if "The off-reservation environmental effects of a project would cause substantial adverse effects on human beings, either directly or indirectly." We rely on water for our livelihood.

4-2 (cont.)

Mitigation for water use should include a plan to supply water to neighboring water users.

The proposed project will more than double total build out space, triple the amount of hotel rooms, and add a capacity expansion for an additional 1325 person event/ballroom. The estimate of a 59% increase in water needed is extremely low and not substantiated by detailed calculations.

While there is abundant information on waste water and recycled water, there is nothing showing the methodology used to figure increased potable water use of the project.

3.13 Cumulative impacts

Several categories of impacts have been deemed "not significant" by this document. Section 10.8.7 (b) of the compact states that a significant effect would occur if incremental effects of an individual project would be considerable when viewed in connection with the effects of past projects …."

4-3

The cumulative effects of project after project from this same developer have created the current unacceptable "baselines" for traffic and noise. These same baselines are now used to claim no impacts.

A new access road built by the developer would alleviate some of these adverse effects on the communities and citizens along State Highway 16 between I-505 and the casino.

4-4

Yours truly,

Tom Frederick/Pamela Welch

COMMENT LETTER 5

CAPAY VALLEY COALITION

Comment Letter 5

Capay Valley Coalition
P.O. Box 894
Esparto, CA 95627

COPY

November 7, 2016
9 pages total

Yocha Dehe Wintun Nation
P.O.Box 18
Brooks, CA 95606

Re: Draft TEIR for the Cache Creek Hotel Expansion Project

Dear Sir or Madam:

Herein we provide comments on the **DRAFT TEIR for the Cache Creek Hotel Expansion Project.**

A few initial points: The TEIR has been quick to point out which of our comments are not appropriate/part of the scope to address within the TEIR (second hand smoke, gambling addictions, etc.). Yet most of those we requested in our comments on the NOP, not including those that were not part of the scope, remain unaddressed. We find it very unconstructive to ask concerned citizens to spend time and effort going over documents, only to have their inputs ignored.

5-1

A further point: the Draft TEIR document does not allow cutting and pasting, thus to comment on any text it needs to be retyped. This is an annoying burden on the public, and should be changed in any further reports.

The specific points we would like to see addressed are in ***bold and italic,*** below.

p. 10 ES3 Alternative to the Proposed Project. The reduced intensity alternative is not at all that, it only reduces the number of hotel rooms by 60 rooms, a small reduction of 13%. All other expansion objectives remain constant (size of ballroom, additional dining space, back of house). ***Thus there is not a real reduced intensity alternative being presented, it should impact all the expansion metrics to be a viable alternative.***

5-2

In addition, we have asked that an alternate road direct to the casino be considered as one of the alternatives, and/or means of mass transit to cope with the cumulative impact of traffic. We note that often in the winter Highway 16 is closed between Rumsey and Highway 20 due to landslides. When one of the two routes to the valley is closed, emergency evacuations can be seriously impaired- a considerable concern with the proposed enlargement of the resort.None of these are considered within the report.

5-3

P 40 –Background and purpose

"The Tribe will use this TEIR, the scope of which conforms to the Checklist (Appendix A) to determine whether the construction and operation of the Proposed Project would likely result in potentially significant impacts on the off-reservation environments."

Comment: Is it really up to the Tribe alone to use this TEIR, that they have commissioned, to determine if there are off-reservation impacts? ***Those impacts are not impacting them, thus, is it correct that they commission the study, with the omissions and errors that we note here, and use it say that the off-reservation impacts are acceptable and will be mitigated? There is no neutral body adjucating and respecting the rights of off-reservation rights holders.***

5-4

p. 66 As with the previous TEIR, the picture of the building is made from a vantage point that hovers high in the air, in the field across, a point from which no one will view the building, and makes it look smaller by being elevated and looking down. The illustration should be made from the vantage point of a person standing near the highway. ***We requested this in the comments on the NOP, and it has been ignored here.***

5-5

P.69 The TEIR states that the casino would not host events in the ballroom when events are being held in the Club 88 (presumably to reduce levels of traffic from having two major events at the same time- and probably this enters into the calculation of traffic). ***But what is to guarantee that this rule is followed? It seems unlikely that the casino would not have a conference underway at the same time as an event; why would a commercial operation let one large facility stand idle? All impacts should be calculated on full use of the facilities.***

5-6

Traffic

We find that the Draft TEIR completely fails to address the concerns we brought up in our comments on the NOP:

> "To Capay Valley Coalition and other residents of the Valley this remains the largest and most objectionable impact, turning a small scenic country highway into a stream of cars, forcing residents – including farmers needing to more farm equipment - to have to contend with reckless, speeding drivers wanting to get to the casino as quickly as possible. It is where the community meets the casino, with trouble for all. We would like to ask that finally a perfect solution is found for all, preserving the rural character of the Valley while ensuring that the Casino clients arrive safely: that the Tribe constructs a road directly off of Highway 505 to the casino. The revenues from the casino can easily pay for this once and for all solution that will relieve the great grief and antagonism on all sides.
>
> In many other developments within the state, under the current concern with Climate Change, the proposers agree to take action to reduce greenhouse gas emissions. This

5-7

standard should be one that the Tribe holds itself to as well. With respect to transportation, this can only be done by the introduction of some means of a transportation alternative. At a minimum, the park and ride facility that was agreed between the County and Tribe- but has never been built – must be a part of any solution that does not include a direct road to the casino. Other forms of mass transit- a train or tram – should also be considered amongst alternatives."

Recently, vigorous community objections and potential lawsuits have been brought up in relation to a nearby event center on Road 29 near Winters, due to excessive traffic, environmental concerns and loss of agricultural vitality. These last concerns are equally applicable to the resort and its expansion.

5-7 (cont.)

We are extremely disappointed that the TEIR does not even consider, as alternatives to this project, an alternative that includes a new road, and forms of mass transit. No mention of our request to consider a direct road is included in the TEIR.

Specific comments on the traffic analysis in the TEIR:

LOS

p.101 Traffic. "Typically the Caltrans standard is LOS C or better for off-reservation intersections and roadway segments; however, in the SR-16 TCCR, Caltrans indicated that a LOS D was acceptable before mitigation would be required." D is "approaching unstable flow; operation of individual users becomes significantly affected by other users". ***Why is D acceptable for Capay Valley?*** Note that (p. 105) Under existing conditions, the LOS from the casino to 505 on Saturdays is D in most segments, and E in two.

5-8

p. 106 The use of Highway 16 by agricultural vehicles, tractors, etc. should be more highlighted- it is the only route for the movement of a considerable amount of farm vehicles. The TEIR finds no impact of increased traffic on movement of farm vehicles (p. 124).

5-9

p. 107 January 2016 is taken as the baseline for traffic; ***is this a true average time of visitation? It would seem to be a low period. Its use should be validated by a table showing number of visits to the casino in each month of the year, averaged over several years.***

5-10

p. 115 Calculation of new trips to be generated are incredibly low...from 144 on Friday to 161 on Saturday, - as a result of an additional 459 hotel rooms, and ballroom and expanded restaurants? ***This seems highly underestimated, with a reasoning that is questionable (people in the hotel are probably casino patrons, thus not additional?). Moreover, the cumulative numbers should be reflected and given, alongside each calculation of the additional numbers.***

5-11

According to their own analysis, four segments of roadway will operate at an unacceptable level of service: casino to CR 85, Esparto to CR 89, 89 to 505, and 505 to 98. The mitigation proposed for all road segments where the LOS would be unacceptable are slow vehicle turnouts, for

5-12

which they will pay a share; thus requiring Caltrans to pay the balance, (for example 91% of the cost of the turn out from the casino to CR 85, and 21% of the cost between Esparto and CR 89. ***What is the guarantee that CalTrans, and the taxpayers of California, will pay this additional amount?***

5-12 (cont.)

It is noted that trucks and buses tend to degrade roads, ***yet then it is noted that there is not expected to be any increase in bus traffic. How can this be? With a ballroom and event center, plus expanded hotel and restaurants, surely there will be more bus traffic.***

5-13

We do not believe that slow vehicle turnouts are sufficient mitigation measures for the overwhelming impact of the Casino traffic on Highway 16.

5-14

3.3 Land use, agricultural resources, population and Housing and recreation and parks

The TEIR finds that there will be no increase in housing as there are enough unemployed people and vacant units, largely in Woodland. However, closer communities such as Esparto should be the focus, to reduce commute times, and greenhouse gas emissions. There is still a lack of low and moderate income housing in both Esparto and Woodland. ***The analysis should reflect the anticipated income levels of the additional employees in the Casino, to justify the analysis and their finding that there will be no impacts or shortage of housing.***

5-15

3.4 Biological resources

We had noted in our comments on the NOP that among other impacts, nighttime lighting and glare can impact wildlife movement and behavior, and should be addressed. The addition of 459 more rooms, additional restaurants, and a ballroom will surely add to nighttime lighting and glare. This is not mentioned in the TEIR. We find it frustrating that comments provided earlier are completely ignored; at least they should be acknowledged and responded to.

5-16

3.5 Cultural resources

We had noted in our comments on the NOP, that:

"Capay Valley has a significant historical resource in having been and continuing to be a well-known and appreciated rural valley with small diverse farms of great scenic beauty. The impact on this resource of an expanding casino and associated traffic and pollutants can only erode the value of such a resource. The TEIR should consider how future development could minimize such impacts, in particular in building a road directly to the casino from 505 so that Highway 16 retains its rural scenic road character."

5-17

This is not addressed in the TEIR, and should be. While understanding that this cultural resource is far greater and less tangible than an archeological artifact or a single historic building, it nonetheless has tremendous value to all Valley residents. We feel that it merits

consideration, how the casino can be expanded without detracting from the scenic beauty and rural character of Capay Valley, expressly through a direct road, leaving Highway 16 to Valley residents and other low-impact visitors.

5-17 (cont.)

3.7 Water

The proposed project, which will more than double total build out space, triple the amount of hotel rooms, and add a capacity expansion for an additional 1325 person event/ballroom, needs a careful accounting for the resultant increase in water use. The draft TEIR does not give such a careful accounting, showing how the estimate of a 59% increase in water needed is derived. Even if the number of patrons do not necessarily increase (an unlikely assumption) their longer stays, in three times the existing number of hotel rooms, will surely result in much larger water demands than a mere 59% increase.

5-18

The TEIR finds that even with a 59% increase in use of groundwater, there will be no significant impacts as there would not be an impact on the aquifer volume or drawdown of groundwater levels. Rather than assessing this solely from the perspective of the three wells owned on fee land by the tribe, we had suggested in our comments on the NOP that this be carefully assessed in the context of the new period of groundwater management. There is no recognition within the TEIR of the Tribe participating in a Valley-wide groundwater management district or other such structure. ***The commitment to doing so should be made before such a significant level of increased use is implemented.***

5-19

The criteria for finding no significant impact is that the predicted drawdown of the wells would be within 3 feet or above the historic minimum point of drawdown, during drought years. It would seem that this goal (minimum three feet above severe drought drawdown) should be reconsidered, in that drought years are expected to much more frequent in the future, with less high rainfall years to restore aquifers. ***A larger "safety valve" to prevent these or adjacent wells from going dry or becoming impaired should be used.***

5-20

3.8 Air quality

It is noted in the TEIR that the largest source of greenhouse gas emissions is from mobile emissions from vehicles. But the Tribe has only addressed this through providing incentives to employees to carpool, and encouraging use of the bus. ***Addressing only employee vehicle use is insufficient; measures to reduce all vehicular trips to the Casino should be addressed, through the long promised Park and Ride facility, or some sort of mass transit such as a tram, which could be placed alongside a direct road to the Casino.***

5-21

It is noted later under public utilities that the Casino also runs charter buses; elsewhere it is noted elsewhere that buses have the greatest impact on road degradation. Yet the draft TEIR states that it is not anticipated that more buses will result from the expansion. Thus, it seems that the Casino is not supporting an expansion of this form of mass transit.

5-22

We noted in our comments on the NOP that: On a national and global level, the degree of concern over greenhouse gas emissions has increased exponentially over the last decade. The project should address not simply its emission levels, but what it can contribute to building greater climate change adaptation and resilience in Yolo County. ***Much of this should be reflected in measures to reduce traffic emissions. We find the response here to be insufficient.***

5-23

3.9 Noise

Current noise levels, as noted in table 3.9.6 already touch on or exceed what is acceptable for residential houses (60-65 max); this is what people living along Highway 16 must already endure. The text on impacts then only discusses incremental impacts, yet here it is clearly the cumulative impact that is relevant. ***It is not reasonable to only consider the extent of change from a baseline that is at the very limit of what it should be. Clearly, noise levels from the current highway are causing an unacceptable level of noise in at least two stretches of Highway 16, and – if rounding up – 4 (and in cumulative impacts, table 3.13-13, 5) large and important stretches within the Valley are being exposed to levels of noise pollution around 65 decibels, no longer acceptable. The finding of nonsignificance is incorrect, even more so if the number of vehicle trips has been underestimated as we suggest above.***

5-24

Again, mitigation measures that must be considered, for sound pollution, should include a direct road to the casino from Highway 505, or the commitment to building the Park and Ride facility as promised in 2002.

5-25

The additional noise from the ballroom and larger hotel seems not to be considered, a major omission when the baseline level from just south of the Casino, where the addition is to be built, already exceeds the acceptable level (66 db).

5-26

3.10 Public services and utilities

The Draft TEIR finds that there will be no significant impacts on public services because, "The proposed project will not significantly increase patronage at the Resort; it will instead accommodate existing patrons". We find this highly fallacious; it is not possible that with expansion of a hotel, ballroom and conference facilities that the Resort is not going to expand its number of patrons. The analysis of the TEIR seems to be based on this assumption/falsehood, (for example that the ballroom will not be used when the event center has an event-a great unlikelihood that the Resort will let facilities stand idle)- resulting in gross underestimates of additional vehicle trips, etc., and then findings of no significance for public services. The TEIR analysis should be based on a true and honest assessment of anticipated increased patronage, and consequent impacts on public services.

5-27

3.11 Aesthetics

The comments given above on cultural resources apply here as well. The biggest impact on aesthethics in the Valley, detracting from its scenic rural character, is probably not the Casino per se, but the intensity of traffic on highway 16, which could be mitigated by a direct road to the casino.

5-28

In our comments on the NOP we noted:

> "The high valued placed by residents of Yolo County and Capay Valley on the unique scenic qualities of the Capay Valley is an important element in assessing the impacts of casino expansion. Highway 16 is a scenic rural highway. (noting our error in calling it a scenic State Route). Expansion inevitably impacts the area's visual character; certainly tripling the number of hotel rooms is a massive expansion. A vastly reduced size of project, or no further expansion should be a fair alternative to consider.
>
> In order to provide input, it will be important to specify height of the proposed facility and its profile from different vantage points, that are the vantage points used and accessed by residents and visitors to the Valley (not a profile as viewed from the middle of a field, for instance)."

5-29

Neither of these have been addressed in the TEIR.

5-30

The elevation/illustration does exactly what we asked that it not do. A proposed 9-story hotel tower will create a new and significant, highly disruptive element to the scenic values in Capay Valley. ***An alternative with a much reduced size and impact should be considered.***

We also noted:

> "Assessment of light and glare should consider the current status and cumulative effects. Capay Valley has been an area in the state with unparalled nighttime star viewing, but the clarity of the night sky is impaired with each addition of night lighting in a large development like the casino. In the response to the 2002 casino expansion, there was already concern about light and glare from an expanded operation, yet those levels of light and glare have been increased through expansions since then. While all parking lot lights are downward facing, the two large electronic screens on the side of the building already create nighttime glare. Increased lighting generated from the tripling of the number of hotel rooms will have significant cumulative impacts.
>
> Nighttime light pollution should consider the long string of car lights along highway 16."

5-31

We do not find these addressed in the TEIR.

Cumulative impacts

Section 10.8.7 (b) of the compact states that a significant effect would occur if incremental effects of an individual project would be considerable when viewed in connection with the effects of past projects ...." In the draft TEIR several catagories of impacts have been deemed "not significant" on the basis that the change from baseline is not significant. Yet the cumulative effects of project after project from this same developer have created the current "baselines" for traffic and noise which are now used to claim no impacts. ***Cumulative impacts need to be clearly stated, and mitigated. A direct road to the casino from Highway 505 is the one alternative that is capable of mitigating the cumulative impacts.***

5-32

A new access road built by the developer would alleviate some of these adverse effects on the communities and citizens along State Highway 16 between I-505 and the casino.

5-33

Areas left out of the TEIR

Our comments and request for coverage of increased demand on the County's health care system with respect to the low-income population, gambling addictions and second have not been addressed, with the reasoning given that the proposal does not include an expansion of the gaming floor thus these are not within the scope of the TEIR. We disagree; with a tripling of hotel rooms, more patrons will be exposed to second hand smoke, or the same patrons will be exposed for a longer period, if indeed some patrons stay longer. The impacts then are surely off-reservation, reflected in the health of employees often many years later. As we noted in the comments on the NOP:

5-34

"The costs of the health care that must be borne as the result of the Casino's policy on smoking and proposed expansion (exposing more people to second hand smoke) must be reflected in the report, as well as who is to pay for debilitating illness and health care. Largely, it can be expected to fall on those least prepared to deal with It, the low income employees of the Casino, or public health facilities within the County. Will the health coverage given to casino employees today cover their health costs many years later, when no longer employees? "

Impacts on health care systems from the project need to be addressed and mitigated.

The proposal notes an increase of 200 employees, however as we note in our comments, if these are low wage level positions, the community must provide additional support:

> "In industries where the majority of employees are paid minimum wage (and the casino is one of these), often more than half of the workers must depend on public assistance to make ends meet[1]. It is estimated for example that each Olive Garden restaurant costs taxpayers $200,000 annually in public assistance for workers. The same analysis should

5-35

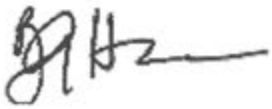
[1] ROC United, Picking Up the National Restaurant Association's Tab: The Public Cost of Low Wages in the Restaurant Industry (New York, NY: Restaurant Opportunities Centers United, 2015)."

be applied to the societal value of expanding low-income employment through the Casino expansion."

5-35 (cont.)

A response within the TEIR on the levels of employment through the proposal is warranted.

We hope you may find it appropriate to take these comments in the spirit they are offered, to contribute to a better life for all in Capay Valley, and will seriously address our concerns.
Sincerely,



Barbara Gemmill Herren
For Capay Valley Coalition

COMMENT LETTER 6

CALIFORNIA DEPARTMENT OF TRANSPORTATION

STATE OF CALIFORNIA—CALIFORNIA STATE TRANSPORTATION AGENCY EDMUND G. BROWN Jr., Governor

DEPARTMENT OF TRANSPORTATION
DISTRICT 3 – SACRAMENTO AREA OFFICE
2379 GATEWAY OAKS DRIVE, STE 150 - MS 19
SACRAMENTO, CA 95833
PHONE (916) 274-0635
FAX (916) 263-1796
TTY 711

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STATE CLEARINGHOUSE

November 6, 2016

032016-YOL-00012
03-YOL-16 / 19.236
SCH# 2016032058

Yocha Dehe Wintun Nation
18960 Puhkum Road
P.O. Box 18
Brooks, CA 95606

Cache Creek Hotel Expansion Project – Draft Tribal Environmental Impact Report (DTEIR)

Dear Yocha Dehe Wintun Nation:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the project referenced above. Caltrans' new mission, vision, and goals signal a modernization of our approach to California's transportation system. We review this local development for impacts to the State Highway System in keeping with our mission, vision and goals for sustainability/livability/economy, and safety/health. We provide these comments consistent with the State's smart mobility goals that support a vibrant economy, and build communities, not sprawl.

The proposed project will be adjacent to the Cache Creek Casino Resort, which is located at 14455 Highway 16, Brooks, California. Regional access to the site of the proposed project would be provided by Interstate 505, which connects Interstate 80 in Vacaville to Interstate 5 near the Yolo/Colusa County line. State Route (SR) 16 provides direct access to the Resort. 6-1

The proposed project consists of the construction of an additional structure which would include 377 new hotel rooms along with other amenities for a total of an additional 405,000 sf. The following comments are based on the DTEIR.

Transportation Impact Analysis

Caltrans questions the mitigation monitoring process discussed in Section 3.2 of the DTEIR. Caltrans believes it will be very difficult to accurately monitor traffic volumes on SR 16 and decipher what percentage of those volumes is attributable to this particular project. Also, if the project has impacts upon opening, the mitigation should be built ahead of those impacts. If this project creates significant impacts on its own, and the other development does not occur, Caltrans is concerned the additional 6-2

funding required to complete those improvements will not be realized, and therefore, the mitigation (Slow Vehicle Turnouts) will not be constructed. 6-2 (cont.)

The SR 16 segment between Esparto and County Road 89 as well as the segment between County Road 89 to I-505 are part of the Yolo County SR-16 Safety Improvement Project (SIP). The safety project includes 8 foot shoulders, 20 foot clear recovery zone, and a two way left turn lane. Building the turnouts (as part of the mitigation) would be more efficient and cost effective if the construction was coordinated with the safety project and built simultaneously. The SIP also includes a two way left turn lane between Tutt Street and Willow Slough.

In addition to the proposed mitigation measures in Section 3.2 of the DTEIR, another potential mitigation measure is to provide transportation demand management strategies to reduce the vehicle miles traveled on SR 16. 6-3

Caltrans would like to work with Yocha Dehe Wintun Nation to develop a Transportation Mitigation Agreement for impacts to the State Highway System. This could include a mechanism for monitoring traffic volumes.

Traffic Management Plan

If it is determined that traffic restrictions and detours are needed on or affecting State highways, a TMP or construction Traffic Impact Study may be required for approval by Caltrans prior to construction. TMPs must be prepared in accordance with Caltrans' *Manual on Uniform Traffic Control Devices*. Further information is available for download at the following web address: 6-4
http://www.dot.ca.gov/hq/traffops/engineering/mutcd/

Hydraulics

The Grading and Drainage Analysis Study states that "The added impervious areas of proposed Lot F and the water storage tank yard amounts to less than 3% of the total impervious area of the CCCR site runoff area….". Please state the net increase in peak runoff associated with the increase in impervious area. Also, please explain how the net increase in runoff affects the cross-culverts under SR-16 and whether or not the culverts have the capacity to convey the larger flow. 6-5

Encroachment Permit

Any project along or within the State's ROW requires an encroachment permit that is issued by Caltrans. To apply, a completed encroachment permit application, environmental documentation, and five sets of plans clearly indicating State ROW must be submitted to: 6-6

Charles Laughlin
California Department of Transportation District 3, Office of Permits
703 B Street
Marysville, CA 95901

Please provide our office with copies of any further actions regarding this project. We would appreciate the opportunity to review and comment on any changes related to this development.

If you have any questions regarding these comments or require additional information, please contact Jacob Buffenbarger, Intergovernmental Review Coordinator at (916) 236-1625 or by email at: Jacob.Buffenbarger@dot.ca.gov.

6-6
(cont.)

Sincerely,

ERIC FREDERICKS, Chief
Office of Transportation Planning – South Branch

PUBLIC HEARING TRANSCRIPT

OCTOBER 13, 2016

PUBLIC HEARING FOR CACHE CREEK

HOTEL EXPANSION PROJECT TRIBAL

ENVIRONMENTAL IMPACT REPORT

ORIGINAL

---oOo---

Thursday, October 13, 2016

Seka Hills Olive Mill and Tasting Room

19326 County Road 78

Brooks, CA 95606

5:17 P.M.

---oOo---

Reported by: YVONNE PARKER, CSR License No. 11049

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---oOo---

LELAND KINTER: Hello everybody. We're going to get started. I just wanted to welcome everybody and introduce myself. I'm Leland Kinter. I am the chairman of Yocha Dehe Wintun Nation. I want to welcome you to our land for our comments here today. And I just want to say to everybody, get something to drink, we're looking forward to hearing the comments.

JAMES KINTER: I am James Kinter, tribe secretary. And I just wanted to let you guys know that all of your comments are allowed. We want to hear them all, and we care about them. And we want to make sure that we are listening to everything that we can. And so please give your comments, and we care about them.

We'll turn it over to AES Ryan and thank you very much.

RYAN SAWYER: Thanks for that introduction. As the chairman mentioned, my name is Ryan Sawyer. I am with Analytical Environmental Services.

First of all, welcome and good evening. And thank you for attending the meeting tonight for the Cache Creek Hotel Expansion Project Tribal Environmental Impact Report. I will be facilitating the meeting tonight on behalf of the Yocha Dehe Wintun Nation.

So the purpose of the meeting tonight is to

receive comments from the public on the Tribal Environmental Impact Report, abbreviated as TEIR, that was prepared to meet the requirements of Section 10.8 of the Gaming Compact between the Tribe and the State of California.

The meeting will be transcribed by a court reporter and spoken comments will be considered in the same manner as written comments. If you wish to speak tonight and have not filled out a speaker card, please do so now at this time so we will have an accurate record of your name and turn the card in to either myself or Bibiana here at the front desk.

Speakers will be called in the general order that speaker cards are received. So far I only have two here, so the meeting should be a pretty quick succession of time.

Additionally, if you would like to use the comment cards located at the sign-in table and place them in the collection box located out in the lobby, you can mail that in later if you choose.

All spoken and written comments will be specifically addressed and responded to in the final TEIR. The Tribe will review the final TEIR and its conclusions in determining how to proceed with the proposed project.

If you do not wish to comment tonight, you can still provide written comments as long as they are postmarked by November 7th and mailed to the address shown on this slide.

This slide shoes an aerial photograph of the Cache Creek Casino Resort and associated project site evaluated in the TEIR. The existing Casino Resort is located within the central portion of the Tribe's Reservation in Yolo County, within Capay Valley along Highway 16. The Resort currently includes a 200-room hotel and gaming facility, which contains restaurants, retail areas, a spa, administrative offices, and general circulation space.

The proposed project would consist of the expansion and renovation of the Resort, including an additional 459 new hotel rooms, an approximately 13,350-square-foot ballroom, new restaurant space, public space, and expansion of back of house facilities. All project expansion and pool area is located in the south parking lot of the existing Resort and is presently paved and landscaped.

A new parking lot will be constructed in the northern portion of the project site, and existing parking stalls and the parking garage will be re-striped to off-set the elimination of 429 parking spaces in the

south lot. The Tribe will also make adjustments to valet parking services and employee parking policies to manage available parking during peak demands.

This slide provides a site plan of the project analyzing the TEIR. The areas of new construction are outlined in red and the existing facilities are in black. As previously mentioned, the proposed 459-room hotel expansion will be located south of the existing casino, replacing part of the south lot surface parking areas.

The TEIR is an informational document that informs the tribal agency of environmental issues before making a project decision, identifies potentially significant direct, indirect, and cumulative project-related impacts, and describes mitigation measures that will lessen impacts.

The TEIR analyzed in detail the off-reservation environmental effects associated with the issue areas listed on this page, including transportation and traffic, land use, agricultural resources, population and housing, recreation and parks, biological resources, cultural resources, hazards and hazardous materials, hydrology and water quality, air quality, noise, public services and utilities, aesthetics, and geology and soils.

All off-reservation effects were determined to

be less than significant with the exception of impacts associated with traffic. Mitigation measures and best management practices were recommended to avoid or minimize potentially adverse traffic effects identified in the TEIR, including the implementation of a construction traffic control plan and the addition of four slow vehicle turnouts along SR-16 at various intervals between the Resort and Woodland.

This slide provides an overview of the TEIR process and schedule for the Hotel Expansion Project.

A notice of preparation of the TEIR was issued on March 21st, which initiated a 30-day public scoping period that closed on April 21st. A supplemental NOP was released to allow for additional public comments and to inform the public of changes to the project description. This comment period lasted from July 22nd through August 11th.

The draft TEIR was released on September 23rd through circulation of a Notice of Completion. The 45-day public review and comment period for the TEIR closes on November 7th.

Following review and consideration of comments received on the draft TEIR, a final TEIR will be prepared and released, which will consist of responses to comments received on the draft and necessary revisions to the

analysis or supplemental information provided in response to comments.

The TEIR is available for review online at www.CacheCreekTEIR.com, and hard copies may be reviewed during normal business hours at the office of the Yolo County Administrator located at 625 Court Street, Room 202, Woodland, California. You can also obtain CDs at that address.

We are now ready to receive your comments on the TEIR. As stated earlier, the purpose of the meeting tonight is not to have a question-and-answer session or a debate. We are here to listen to your comments and concerns and make sure that all of your comments are carefully recorded and addressed within the final TEIR. The most useful comments are those which provide feedback on elements of the off-reservation environment rather than simply expressing support for or opposition to the project.

When your name is called, please approach the podium to state your comment, and please limit your comment to approximately three minutes. We won't be using the timer tonight since we have a small crowd. When you begin to speak, please state your name clearly for the record, and speak as clearly as possible so that the court reporter can accurately document your words.

Okay. The first speaker tonight will be Diego Ochoa.

DIEGO OCHOA: My name is Diego Ochoa, D-i-e-g-o, O-c-h-o-a. I am a resident of Brooks, California, 7/22/55, County Road 59, Brooks, California, 95606. I'm just a few miles down the road. I work in Esparto. I'm a member of the Esparto Lyons Club and a member of the Capay Valley General Alliance Advisory Committee.

I have reviewed the draft environmental impact report, and I have a comment to give related to the process that was used related to the components that are in the plan.

So I want to commend the Yocha DeHe Wintun Nation and Cache Creek Casino for the process that they set forth. In particular, the very clear communication about the TEIR, multiple invitations to community members to seek more documents, to be able to review the documents, I think it has lead to an atmosphere of transparency.

In terms of the report itself, particularly in the areas of noise as it pertains to any impact that it might have on residents in the area, as a general concept, I think adding hotel rooms is not likely to draw very many more customers to the facility, but rather distribute the times that individuals are leaving. And I

think that's reflected in the report. And that is a key component of the report itself.

And so in closing, it's just a very thorough report, a very clear report, and I look forward to seeing the final version. Thank you.

RYAN SAWYER: Thank you, Mr. Ochoa.

And the next speaker, Sue and Larry Hartman.

SUE HARTMAN: Hi. I'm speaking for both Larry and myself. We live on 19880 County Road 79 south, which is the direction of the Casino expansion. And I just want to say that I have been to every TEIR meeting for the last 25 years every time the Tribe has one. So I'm speaking also in regards to reflection historically.

So I want to say that the Tribe has been very good stewards of not only their land but of their business. And while any big business in a rural area like our rural area, it's difficult and presents problems, especially for us in the area of traffic.

The Casino and Tribe have been very conscious and very thoughtful about reaching out. As Diego said, the process has been very clear of how we can give feedback and see our feedback accepted as this expansion continues.

Some of the things that I would specifically like to comment on historically and what I see in the new

TEIR, are the traffic mitigations that the Tribe has done in the past that we as a community have asked them to do, and they have graciously done, including funding both CalTrans and local Yolo County for road improvements, funding Yolo Transportation Authority for adding a bus line out to this area, as well as all the way up to Rumsey, building an internationally recognized fire department that deals with the safety issues when there are accidents or incidents up and down this valley.

And, in fact, my sister and I today were talking about that we get a better response -- we both live on Road 79. We get a better response than any urban resident gets, plus they are all EMTs.

They have also lead the way in terms of solar ray and the recycling of waste water and scaling down projects when we, as citizens, have surrounded them saying the lights are too bright. There's too many rooms. You are doing a road that's impeding farming. The Tribe has always looked at our comments faithfully and mitigated those comments.

So I guess I would -- both Larry and I would hazard to say that there's no other Tribe or business, and that's the key word, business, in Yolo County or California that actually has a reputation for listening to community comments and acting on those comments.

I have lived in urban areas -- most of my time in rural areas, but in urban areas, and I can tell you that I have never been able to go into IBM, talk to the CEO and ask him to make changes to his business plan. This is what we're able to do with the process that the TEIR is as well as the relationship with the Tribe in our community.

I believe the expansion of hotel rooms will also decrease traffic because people will stay overnight. It's been a problem consistently with the lack of hotel space. In fact, I think the Tribe has said something like 98 percent occupied, even during weekdays, which is fairly phenomenal. So I'm thankful for that.

And, lastly, I want to say that I think the expansion of new restaurants will personally allow me to not cook one more night a week. Thank you.

RYAN SAWYER: Okay. And we have one more speaker card here. The name is Barry Barnes.

BARRY BARNES: Yes. My name is Barry Barnes. I'm with the Esparto Fire Department. Also sort of representing Madison, Willow Oak, the ones that would get most of the traffic. With the expansion of the hotel, we're really looking at cutting our traffic accidents down more. These people will be staying, especially when they have events up here. That seems like when we have

the longest traffic jams and stuff like that. I get a lot of phone calls at the station looking for hotels.

So we're really in favor of the expansion; that it will help cut down on traffic and bring back the Mexican restaurant.

RYAN SAWYER: Is there anyone else that would like to speak tonight? I'd like to remind everyone to submit your written comment cards in the collection box before you leave.

Additionally, if you would like to be added to the mailing list, please be sure to provide your name and address on the sign-in sheet at the entrance. All written comments must be postmarked on or before November 7th.

That concludes tonight's meeting. Thank you for your attendance and interest in the environmental review process for the Cache Creek Hotel Expansion Project.

(Whereupon the proceedings concluded at 5:35 p.m.)

REPORTER'S CERTIFICATE

I, YVONNE PARKER, hereby certify that I am a Certified Shorthand Reporter, licensed by the State of California and empowered to administer oaths and affirmations pursuant to Section 2093 (b) of the Code of Civil Procedure, do hereby certify:

The said proceedings were recorded stenographically by me and were thereafter transcribed into typewriting;

That the foregoing transcript is a true record of the proceedings which then and there took place;

That I am a disinterested person to said action.

IN WITNESS WHEREOF, I have subscribed my name on October 18, 2016.

Yvonne Parker

YVONNE PARKER, CSR #11049
STATE OF CALIFORNIA

SECTION 3.0

RESPONSES TO COMMENTS

SECTION 3.0
RESPONSES TO COMMENTS

3.1 RESPONSE TO COMMENT LETTER 1 – CAPAY VALLEY VINEYARDS

1-1 A Traffic Impact Study (TIS) was prepared to analyze impacts associated with the increase in traffic generated by the Proposed Project; the Revised TIS is included as Appendix D of Volume III, and the results were summarized within Section 3.13 of Volume II. Mitigation measures identified within the TIS and recommended within Volume II were determined to reduce all potentially significant off-reservation traffic impacts associated with the Proposed Project to a less than significant level. Thus, additional mitigation, such as a new road linking the Casino to Interstate-505 (I-505) as suggested by this comment, is not warranted as a result of the Proposed Project. Additionally, when compared to the mitigation measures proposed in the TEIR, a new road from I-505 to the Resort would result in greater off-reservation environmental impacts associated with conversion of farmland, habitat conversion, wetlands, biological resources, and cultural resources. A new access road is not a feasible mitigation measure due to 1) lack of funding mechanisms for planning, design, acquiring right of way, environmental review, permitting, and construction, all of which would be several orders of magnitude more expensive than the TEIR's proposed mitigation measures improving the existing State Route (SR)-16; 2) the potential for increased significant environmental effects from developing a roadway in undeveloped areas; 3) uncertainty with regard to whether private land owners would be willing to provide or sell right-of-way or whether the County would be willing to utilize eminent domain to acquire the right-of-way; and 4) the fact that it is unlikely a new road could be designed, permitted, and built within a reasonable period of time, if at all. Because Section 10.8.1 (b) of the Tribal-State Gaming Compact (Compact) states that the "discussion of mitigation measures shall describe *feasible* measures which could minimize significant adverse effects" (*emphasis added*), an alternative access road is not included or analyzed in the Tribal Environmental Impact Report (TEIR).

3.2 RESPONSE TO COMMENT LETTER 2 – YOLO COUNTY TRANSPORTATION DISTRICT

2-1 As discussed in **Section 1.1**, the Draft TEIR was developed in accordance with the Compact, which requires that a TEIR consider all of the potential off-reservation environmental impacts that are listed in the Checklist. Impacts to public transit were discussed in Section 3.10 of

Volume II (refer to Impact 3.10.12). As discussed therein, impacts to public transit were determined to be less than significant, even when utilizing a methodology that likely over-estimates the number of new employees and patrons who would use public transit to travel to and from the Resort. In that regard, it is important to note that events at the ballroom component of the Proposed Project (identified in the comment as a concert/event center) would only take place when the Resort's existing entertainment venue is closed. Increased transit ridership as a result of the Proposed Project would not trigger the need for new public transit facilities the construction of which would result in significant off-reservation impacts. Based on the results of the TIS (Appendix D of Volume III), identified traffic/transportation impacts would be adequately mitigated with the implementation of the Proposed Project and committed mitigation measures. Additional public transit trips along the route serving the project site were not considered necessary to reduce the impacts of the Proposed Project. However, additional funding for Yolo County Transportation District (YCTD) to increase Route 215 service may be addressed in the Intergovernmental Agreement (IGA) process that will follow the final adoption of the TEIR. As noted in the first amendment to the IGA between the Tribe and the County dated January 29, 2008 (2008 Amendment to the IGA), the Tribe and the County recognize that Route 215 bus service has been an unqualified success in providing safe, affordable transportation for the Casino's employees and patrons that reduces traffic along State Highway 16, and the parties are committed to a joint ongoing effort to identify and provide additional transit services that may be operated by YCTD or similar public agencies when or where ridership levels would so warrant. YCTD's statement of willingness to work with the Tribe on a variety of issues, including sites for a park and ride, is noted and appreciated.

3.3 RESPONSE TO COMMENT LETTER 3 – YOLO COUNTY

3-1 The comments received on the Draft TEIR have been reviewed and the issues related to the physical impacts of the Proposed Project on the off-reservation environment have been considered in development of this Final TEIR. The discussion under the heading of *General Nature of Recommended Mitigation Measures* regarding the need for mitigation arising from future traffic growth and the timing of that mitigation has been removed from Section 3.2.3 of Volume II, as this discussion is only applicable to cumulative traffic impacts which are described separately within Section 3.13 of Volume II. It should be noted that the timing of construction of the recommended improvements to SR-16 is subject to Caltrans approval and is not within the jurisdiction or control of the Tribe; however, the Tribe will take all reasonable steps within its control to ensure the timeliness of mitigation, including contribution of its fair share of the improvement costs recommended as mitigation in the TEIR and compliance with the terms of the IGA to be negotiated between the County and the Tribe. Refer to revised mitigation measures in Section 3.2 of Volume II. The Tribe’s payment of fair share costs will occur prior to significant impacts from the Proposed Project.

3-2 The Revised TIS (Appendix D of Volume III) states: "[t]he fair share percentage follows the Caltrans methodology for calculating equitable mitigation measures as outlined in the Caltrans *Guide for the Preparation of Traffic Impact Studies*." Also within the TIS, Table 14 provides the jurisdiction of each area within which mitigation is proposed, which is listed as Caltrans for all proposed improvements to SR-16. As described in the Caltrans *Guide for the Preparation of Traffic Impact Studies*, fair share responsibility from a proposed project is dependent on the number of trips generated by a project, the forecasted traffic volume at the time of general plan build-out, and the existing traffic volume on the roadway (Caltrans, 2002). Per the Caltrans methodology, the fair share contributions are calculated by taking the number of project trips and dividing it by the difference between the long-term volumes and the near-term volumes. Thus, the Proposed Project's proportionate share contribution to the need for the recommended traffic improvements was based in part on forecasted cumulative traffic volumes at the time of the County's General Plan build-out.

Cumulative traffic was predicted based on the 2035 forecasts provided in the *County of Yolo 2030 Countywide General Plan* and in the Sacramento Area Council of Governments (SACOG) Metropolitan Transportation Plan / Sustainable Communities Strategy (MTP/SCS) travel forecast model, as described in the Revised TIS (Appendix D of Volume III). As noted in the Revised TIS, the Tribe's actual fair share contribution to certain improvements to SR-16 will be determined in consultation with Caltrans.

3-3 As described in the Revised TIS (Appendix D of Volume III), intersections and roadway segments included in the analysis were determined based on consultation with Caltrans and Yolo County, and through a review of the previous *Cache Creek Casino Resort Event Center Project Traffic Impact Study*. As a result, the alternate routes to SR-16, including County Road (CR)-23 to CR-85B and CR-14 to CR-85, were not included for analysis within the TIS (Appendix D of Volume III). Furthermore, 2016 traffic counts collected during the Friday and Saturday PM peak period show only a maximum of 32 vehicles for the northbound (NB) approach at the intersection of CR-85B and CR-21A. This low volume suggests that few vehicles are on the CR-23/CR-85B cut-through route. The existing traffic counts show only a maximum of 17 vehicles for the southbound (SB) right-turn movement at the intersection of CR-85B and SR-16. This low volume suggests that few vehicles are on the CR-14/CR-85 cut-through route.

Additionally, the Construction Traffic Control Plan (TCP), as required by Mitigation Measure 3.2.1, requires the designation of haul routes in compliance with Caltrans requirements. The development of these haul routes as part of the TCP would ensure that truck trips follow approved routes to the Proposed Project site.

3-4 California Vehicle Code Section 21656 describes the proper use of turnouts on "a two-lane highway where passing is unsafe because of traffic in the opposite direction or other conditions,"

which indicates that the windiness or hilliness of a roadway is not the only requirement for the installation and use of a turnout. It is also worth noting that some stakeholders have expressed concerns about safety on SR-16.

Level of service (LOS) for two-lane highways is to be determined based on "percent time spent following" (PTSF) (Caltrans, 2002). PTSF is defined as the average percent of total travel time that vehicles must travel in platoons behind slower vehicles due to inability to pass on a two-lane highway. By adding a slow vehicle turnout lane, the slow vehicles will be able to pull to the side of the road so the platoon behind them will be able to pass, and therefore, the PTSF will decrease. There is no Highway Capacity Manual (HCM) methodology to quantify the specific decrease to PTSF with the addition of a pullout. However, a New Zealand research study titled Passing Opportunities at Slow Vehicle Bays by Glen Koorey reported a reduction up to 10 percent in PSTF with the implementation of turnouts. The greatest increase in PTSF caused by the Proposed Project identified in the Revised TIS prepared to support the Draft TEIR was 4.2 percent; therefore, it is believed that pullouts would mitigate the effects of the project.

3-5 As described in the Revised TIS (Appendix D of Volume III), traffic signal warrant analyses were completed for unsignalized study intersections, including the intersection of SR-16 and CR-94B. This intersection would satisfy Traffic Signal Warrant #3 in the cumulative year (2035) both with and without the Proposed Project. Traffic Signal Warrant #3 means that operating conditions are sufficiently high such that for one hour of a day a signal would be warranted. As stated in the TIS, "[w]hen intersections satisfy the peak-hour volume warrant, it does not necessarily mean that a signal will or should be installed." The Traffic Signal Warrant analysis was completed for informational purposes and is not indicative of an impact. It was determined that a two-way left turn lane would sufficiently mitigate the impacts of the Proposed Project on the intersection of SR-16 and CR-94B.

To address safety concerns related to the orientation of the roadway in this location, the mitigation has been revised to install a refuge lane along SR-16 for NB left turn users and SB left turn users. A refuge lane is a center lane utilized by both the northbound and southbound traffic for left turns onto side streets from the main thoroughfare, in order to avoid potential safety concerns associated with left turns from a throughbound traffic lane. This will make left turn movements a two-stage process and reduce the delay for the side-street stop approaches. The Revised TIS is included as Appendix D of Volume III. Refer to revised Mitigation Measure 3.13.1 included within Section 3.13 of Volume II.

3-6 As part of the Final TEIR, a Mitigation Monitoring and Reporting Program (MMRP) is included as **Table 4-1** in **Section 4.0**, which provides details for the timing and verification of mitigation measures proposed in the Draft TEIR. Refer to **Response to Comment 3-1** regarding the timing for payment of fair share fees and mitigation implementation.

3-7 As described in Section 3.7.1 of Volume II, the groundwater sustainability agency for the project area has not been formed; therefore, no long-term groundwater sustainability plan has been completed in accordance with the Sustainable Groundwater Management Act. Without the availability a plan to conduct its analysis, the TEIR conservatively provided a detailed analysis of potential drawdown impacts that could occur as a result of the Proposed Project, which is included as Appendix E of Volume III. The information contained in this analysis could ultimately be used by the groundwater sustainability agency to inform the strategies it would include in its plan. The County's invitation to participate in groundwater sustainability agency planning is noted and appreciated. The Tribe is exploring participating in the groundwater sustainability agency and/or plan as part of its continued stewardship of groundwater in the area.

3-8 Aesthetic impacts associated with the Proposed Project are discussed in Section 3.11 of Volume II. As concluded therein, views of the Resort from areas outside of the reservation would not change substantially since the proposed hotel expansion would be an addition to an existing visual component (the Resort) that currently has a similarly sized structure. Additionally, the hotel expansion would continue the aesthetic concept and palette of the existing Resort and would not impede views of natural scenic resources. Therefore, the Proposed Project is consistent with the existing aesthetic and visual character of the Proposed Project site. It is also worth noting that the Proposed Project will most frequently be seen through filtered views from moving vehicles on SR-16.

The Draft TEIR included descriptions of design and landscaping features that address concerns mentioned by the commenter regarding lighting and aesthetics. As described in Section 2.4.12 of Volume II, the building design and landscaping of the Proposed Project site would be designed to be consistent with the surrounding agricultural and viticultural land uses and would buffer views of the Resort from SR-16. Lighting of the Proposed Project is discussed in Section 2.4.10 of Volume II and Mitigation Measure 3.11.3 was recommended to minimize off-reservation light and glare impacts.

As concluded in Impact 3.9.1 and Impact 3.9.3 of Volume II, noise from existing mechanical equipment for the Resort, including the heating, ventilating, and air conditioning (HVAC) systems and loading/unloading activities, is not audible at off-reservation locations due to the distance between the on-site stationary noise sources and the closest sensitive noise receptor. Other Resort components of the Proposed Project (i.e., dining) would have no off-reservation noise impacts because of the low noise levels associated with these uses and the considerable distance from these components to the nearest off-reservation sensitive noise receptors. Because on-site operational noise (including on-site traffic) would not exceed existing ambient noise levels at nearby sensitive receptors and would not result in increases to ambient noise levels

above applicable standards, no design or landscape features are needed to minimize noise at off-site receptors.

3-9 The Yocha Dehe Fire Department (YDFD) is requiring the design of the hotel to meet high-rise building standards established by the Sacramento Fire Department through the installation of life safety devices that would assist firefighters, the public, and employees during an emergency. These features include smoke removal standards, enclosed stairway pressurization systems, Piped Air SCBA refilling systems, Fire Department Cache rooms, fire pumps, and standby generators. The fire access to the Proposed Project is in compliance with the California Fire Code Chapter 5 and Appendix D of Volume III. In addition, the YDFD has mutual and automatic aid agreements with City of Woodland, UC Davis Fire Department, Williams Fire Protection Authority, and City of West Sacramento Fire Department, which all have ladder trucks in their fleets.

3-10 Section 3.2 of Volume II has been corrected to clarify the jurisdiction of each roadway facility. The commenter is correct in that Country Villa Estates does not provide access to the main off-reservation roadway network; however, the roadway is located along an alternate route of access to the Proposed Project.

3-11 Refer to **Response to Comment 3-3** above, regarding the selection of study area intersections and roadway segments. The intersections of Tutt Street and SR-16, CR-22 and CR-85B, and Madison Migrant Center driveway and SR-16 are not expected to experience a significant amount of traffic related to the Proposed Project.

The Tutt Street and SR-16 intersection and Madison Migrant Center driveway and SR-16 intersection are near to the CR-89 and SR-16 intersection, which is fully analyzed within the TIS. The Proposed Project would decrease the average speed of motorists on SR-16 in the westbound direction, which would not affect right-turners from either Tutt Street or the Madison Migrant Center driveway. The Proposed Project would not generate traffic at the CR-22 and CR-85B intersection, as it does not provide a faster route to the Resort than CR-85B between CR-21A and SR-16.

3.4 RESPONSE TO COMMENT LETTER 4 – CAPAY VALLEY VINEYARDS

4-1 The proposed hotel expansion would be constructed south of the existing Resort; thus, views from the north of the Resort (including the Frederick/Welch residence and Capay Valley Vineyards) would be obstructed by the existing Resort structures. The hotel expansion would continue the aesthetic concept and palette of the existing Resort, would not impede views of natural scenic resources, and would not change the visual character of the Proposed Project site as experienced by sensitive receptors to the north of the site. Refer to **Response to Comment 3-8**

regarding off-Reservation aesthetic impacts from the construction of the proposed hotel building, impacts from light and glare and proposed landscaping improvements.

4-2 The Draft TEIR found that there would be no significant impacts to off-reservation wells because the modeled drawdown at the nearest non-tribal, off-reservation private well was 2.2 feet under "worst case" drought conditions. Such conditions would not result in these wells going dry, becoming impaired, or being rendered unusable for current or planned land uses, in part because the groundwater levels in the vicinity of the Proposed Project site historically vary as much as 20 feet from season to season. The drought conditions were based on record of a short drought (1976-77), a longer term drought (1987-91), and the most recent drought (2012-15). Since the greatest impact would be wells closest to the Tribal wells used to supply the Resort, non-tribal, off-reservation private wells that are further away would have less than a 2.2-foot drawdown under "worst case" drought conditions. Therefore, basing the determination on the closest non-tribal, off-reservation well during "worst case" drought conditions is appropriate and represents an extremely conservative analysis which likely over-estimates actual impacts. Specifically, the commenter's well is not the nearest non-tribal off-reservation well, and would therefore experience a "worst-case" drawdown of less than 2.2 feet. The groundwater study included as Appendix E of Volume III was based on actual data over a 45-year hydraulic period that included a range of hydraulic variability (normal, wet, and dry conditions) and land and water use information within the Capay Valley; therefore, its conclusions, while not a certainty, are the most likely circumstances that would occur with the Proposed Project based on a scientific evaluation of the available data and are appropriate to be used in the analysis.

As concluded in the Draft TEIR, the maximum drawdown for each well as a result of the Proposed Project would result in groundwater levels that are either above or within three feet of the historic minimum groundwater level for the area. Therefore, there would not be a net deficit in aquifer volume or lowering of the local groundwater table (i.e., the production rate of pre-existing nearby wells would not drop to a level that would fail to support existing land uses or planned uses for which permits have been granted). Because there is no significant impact to off-reservation wells or the uses to which those wells are put, no mitigation is necessary or required under the Compact.

As described in Section 2.4.7 of Volume II, the Tribe is planning to add a 1.1-million gallon (MG) tank for redundancy and supplemental capacity with or without the Proposed Project. This tank is not needed to service the Proposed Project as the Proposed Project would result in a total water storage requirement for the Resort of 1.023 MG, which could be accommodated by the Resort's existing 1.1-MG storage tank. However, since the planned tank would be used by the Proposed Project once it is constructed, it was included within the analysis of the TEIR.

The methodology for calculating potable water use for the Proposed Project is detailed in Section 2.3.2 of the Water and Wastewater Feasibility Study included as Appendix F of Volume III. As discussed therein, potable water demand estimates were calculated by applying a typical water loss percentage to the projected wastewater flows. Prior studies identified a measured annual average facility water loss of about 19 percent. Water losses can be attributed to human consumption, cooking activities, evaporation, leaks, and cooling tower losses. For planning purposes, an annual average of 20 percent was conservatively used in this analysis. This assumption likely results in an over-estimate of potential impacts.

Finally, no mitigation is required because the Proposed Project will not significantly impact groundwater availability. However, it is worth noting that the Proposed Project will incorporate several water-saving design features. For example, hotel rooms will contain low-flow fixtures and will not include soaking tubs.

4-3 The significance criteria, thresholds, and methodology for analysis of off-reservation impacts are included in the respective sections for each issue area, while the discussion under each impact explains the analysis that led to each significance determination. The following addresses the commenter's specific comments regarding the determinations on traffic and noise.

As described in the TIS and Section 3.2 of Volume II, the potential for impacts from the Proposed Project's operation to the off-reservation roadway network was determined by determining the LOS of the study area roadway intersections and roadway segments after the addition of new trips generated by the Proposed Project and then comparing to the jurisdictional agencies' applicable LOS acceptability criteria. Specifically, the trips generated by the Proposed Project were added to the 2019 Baseline Conditions, which were forecasted by adding the number of vehicle trips expected to be generated by approved and pending development projects (other than the Proposed Project) to existing (January 2016) traffic volumes, and adjusting vehicle turning and lane geometry based on planned intersection and roadway improvements. Therefore, rather than the LOS being determined solely by the amount of traffic added by the Proposed Project as insinuated by the commenter, the LOS under the 2019 Plus Proposed Project Conditions includes existing traffic, including traffic generated by the existing resort (past projects); other approved and pending development projects (other current projects); and the Proposed Project. Additionally, the cumulative analysis included in Section 3.13.2 of Volume II provides an analysis that includes additional development projects in the study area that are expected to be completed by the year 2035 (probable future impacts). Therefore, the traffic analysis within the TEIR fulfills the requirement in Section 10.8.7(b) to consider impacts "in connection with the effects of past projects, the effects of other current projects, and the effect of probable future projects." As described in Section 3.2 of Volume II, the 2019 Baseline Conditions and 2019 Plus Proposed Project Condition resulted in unacceptable LOS at four roadway segments. The Proposed Project-related traffic at these road segments results in an increase in PTSF and a

decrease in average travel speed on this roadway segment. Implementation of Mitigation Measure 3.2.3 would require the installation of slow vehicle turnouts along the impacted roadway segments, allowing slow vehicles to pull off the roadway, thereby decreasing the PTSF and increasing the average travel speed, resulting in acceptable service levels at these segments. Impacts on roadway segments would be less than significant with implementation of this mitigation measure.

As described in Section 3.9 of Volume II, off-reservation noise impacts were determined based on two thresholds: 1) if off-reservation transportation noise attributable to the Proposed Project increases the ambient off-reservation noise level by more than 1.5 dBA, 3.0 dBA, or 5.0 dBA, depending on the baseline ambient noise level at each location analyzed and 2) if the Proposed Project would result in an audible increase in the baseline day/night noise level to more than 60 dBA Ldn at the nearest off-reservation sensitive residential noise receptor. The baseline for on-site operational noise was based on noise measurements taken in 2016, the baseline for off-site traffic noise was based in the 2019 Baseline Conditions identified in the traffic section, and the baseline for cumulative off-site traffic noise was based on the 2035 Baseline Conditions identified in the traffic section. Therefore, similar to the discussion of traffic above, the noise analysis within the TEIR fulfills the requirement in Section 10.8.7(b) to consider impacts "in connection with the effects of past projects, the effects of other current projects, and the effect of probable future projects." As described in Section 3.2 of Volume II, the Proposed Project would not result in any exceedance of the established thresholds; therefore, no significant impacts associated with noise would occur.

4-4 Refer to **Response to Comment 1-1** regarding construction of a new road from I-505 to the Resort.

3.5 RESPONSE TO COMMENT LETTER 5 – CAPAY VALLEY COALITION

5-1 Section 1.3.1 of Volume II provides a summary of comments received on the Notice of Preparation (NOP) and Supplemental NOP, including the previous comments received from the commenter. These comments were not comprehensively addressed, but instead referred the commenter to the appropriate sections of the Draft TEIR where the analysis discussed the issue areas described by the commenter. The commenter's input was taken into consideration during the preparation of the Draft TEIR, as described in the responses provided below.

The PDF version of the Draft TEIR that is available for download at http://www.cachecreekteir.com/ allows for copy and paste when viewed with recent versions of the free Adobe Acrobat Reader (available for download at https://get.adobe.com/reader/).

Although these free tools allow for copy and paste of the electronic version of the Draft TEIR, it should be noted that copy and paste is not a requirement of the Compact.

5-2 As shown in Table 4-9 of Volume II, the Reduced Intensity Alternative would lessen four impacts of the Proposed Project (transportation/traffic, hydrology and water quality, air quality, and noise). Section 10.8.1(b) of the Compact states that the alternatives analyzed should "feasibly attain most of the basic objectives of the Project and… avoid or substantially lessen any of the Significant Effects on the Environment." The Reduced Intensity Alternative satisfies these criteria. In contrast, an alternative that eliminates the ballroom or back-of-house components of the Proposed Project is not likely to feasibly obtain most of the objectives of the Proposed Project.

5-3 Refer to **Response to Comment 5-1** regarding comments received on the NOP and Supplemental NOP. Section 1.3.1 of Volume II acknowledged the commenter's concern regarding a suggested construction of a new road from I-505 to the Resort and directed the commenter to Section 3.2, *Transportation / Traffic*, and Appendix D, *Traffic Impact Study*, for a discussion of appropriate traffic mitigation. Refer to **Response to Comment 1-1** regarding further information about the construction of a new road from I-505 to the Resort.

Emergency access in the vicinity of the Proposed Project site is addressed in Section 3.2 and Impact 3.2.5 of Volume II. Increased traffic as a result of the Proposed Project was determined to have a less-than-significant impact on off-reservation emergency access.

Additionally, Figure 13 of the TIS (Appendix D of Volume III) shows that approximately four percent of traffic to and from the Resort under the Proposed Project would be from the north. Should SR-16 be intermittently closed between Rumsey and SR-20, this four percent of generated traffic would be expected to re-route to approach from the south. This increase in traffic from the south would not significantly impair the ability of emergency vehicles to access the project site. Further, in the recent emergency response to wildfires in the area, the Tribe coordinated emergency efforts with local agencies and made a portion of the Reservation available for a staging area for emergency responders, including firefighting helicopters. These recent efforts further exemplify the effectiveness of the interagency coordination during emergency situations.

The possibility of a major emergency at the Resort requiring large-scale evacuation along SR-16 is remote, speculative, and not reasonably foreseeable. However, the training, equipment, and capabilities of existing Tribal Security, YDFD, and staff members are sufficient to execute an evacuation in the unlikely event that one is needed. It should be noted that in case of emergency, Tribal Security, YDFD, and staff members would also be aided by off-reservation agencies with which the Tribe maintains cooperative agreements.

5-4 The Compact was adopted pursuant to state and federal law. Section 1.3 of Volume II describes the Compact procedures which govern the preparation of a TEIR and the implementation of a Project. Those procedures dictate that the Tribe is the entity that certifies the Final TEIR. This arrangement is analogous the "lead agency" provisions of the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA), under which an agency proposing a project is charged with overseeing the preparation of an environmental review document and certifying that the document satisfies applicable procedures and requirements. Unlike NEPA and CEQA, however, the Compact provides that prior to construction of the Proposed Project, the Tribe must also enter into an IGA with Yolo County. As required by Section 10.8.8 of the Compact, IGA negotiations will include mitigation of potentially significant impacts on the off-reservation environment that are attributable to the Proposed Project, as well as other subjects listed in the Compact that are not covered by the Final TEIR. If the Tribe and the County have not agreed on the terms and conditions of an IGA within 55 days after the date on which the Final TEIR is provided to the County, then either the Tribe or the County may demand that the terms and conditions of such IGA be determined by arbitration pursuant to the arbitration process described in Section 10.8.9 of the Compact. Therefore, mitigation for identified off-reservation impacts and other considerations is determined by both the Tribe and County or, if required, a single arbitrator pursuant to the Commercial Arbitration Rules of the American Arbitration Association.

The impacts discussed in the Draft TEIR were not determined to be “acceptable”, as the commenter suggests; instead, they were analyzed based on significance pursuant to the requirements of the Compact. Impacts that were determined to be potentially significant were provided with recommended mitigation measures to reduce those impacts to less-than-significant levels.

5-5 Refer to **Response to Comment 5-1** regarding comments received on the NOP and Supplemental NOP. Section 1.3.1 of Volume II acknowledged the commenter’s concern regarding aesthetic impacts and directed the commenter to view Figure 2-2, an architectural rendering of the Proposed Project; and Section 3.11, *Aesthetics*, for a discussion of impacts from lighting as a result of the Proposed Project. While architectural renderings of the Proposed Project from SR-16 are not available, Section 3.11 of the Draft TEIR included a description of the changes to the viewshed along SR-16. As described therein, travelers along SR-16 – particularly drivers – do not have constant, direct views of the Resort from the road and integrated landscaping is part of the Proposed Project design and would be consistent with existing landscaping on the Proposed Project site, which further buffers views of the Resort from SR-16. . As concluded in the analysis, overall, views experienced by travelers on SR-16 and from areas not within the reservation would not change substantially. This analysis is sufficient for the purposes of the TEIR and additional renderings are not necessary.

5-6 Section 10.8.1 of the Compact requires that the "TEIR shall provide detailed information about the Significant Effect(s) on the Off-Reservation Environment which the Project is *likely* to have" (*emphasis added*). The TEIR stipulates that events at the proposed ballroom facility would occur only when the Tribe's existing entertainment venue (known as Club 88) is not open. The Tribe has committed to this arrangement to help minimize traffic, which it understands to be one of the commenter's concerns. As described in Section 2.4.2 of Volume II, the ballroom would be used for public and private events, including meetings, banquets, parties, receptions, live entertainment, and other community events.

5-7 Refer to **Response to Comment 5-1** regarding comments received on the NOP and Supplemental NOP. Section 1.3.1 of Volume II acknowledged the commenter's request for the development of a road from I-505 to the Resort and directed the commenter to Section 3.2, *Transportation / Traffic*, and Appendix D, *Traffic Impact Study*, for a discussion of appropriate traffic mitigation. Refer to **Response to Comment 1-1** regarding an alternative access road from I-505 to the Resort, and **Response to Comment 5-21** regarding the park and ride facility and transit services. Refer to Section 3.13 of the Draft TEIR, Growth-inducing and Cumulative Off-reservation Environmental Impacts, for a discussion and analysis of cumulative impacts related to climate change.

Similar to the discussion in **Response to Comment 1-1** regarding the construction of a new road between I-505 and the Resort, a train or tram would not be feasible for mitigation due to cost, timing, approval, and other potential off-reservation environmental effects. Further, a train or tram would have a similar result as the current transit system and the planned park and ride facilities; therefore, there would be no advantage to proposing a train or tram, which has numerous unknowns and impacts, over continuing and improving the existing systems the Tribe and YCTD have in place.

The commenter briefly references environmental concerns and loss of agricultural vitality in connection with an "event center" on Road 29 near Winters. The Road 29 facility appears to involve conversion of agricultural land to a new non-agricultural use. In contrast, the Proposed Project involves the continuation of an existing use on a non-agricultural parcel.

5-8 Table 3.2-1 of Volume II (also refer to Table 3 of the TIS, included as Appendix D of Volume III) provides the acceptable operating thresholds for roadways within the jurisdiction of Yolo County, Woodland, and Caltrans. Caltrans does not specify why LOS D was determined to be acceptable in the SR-16 Transportation Corridor Concept Report (TCCR), though a threshold of LOS D is commonly utilized by many jurisdictions throughout California for roadways of comparable size and traffic use, including but not limited to the following examples: Yolo County designates LOS D as acceptable for certain areas along SR-16 and SR-45, nearby Placer County designates LOS D as acceptable for rural roadways within one-half mile of state highways, and

nearby Sutter County designates LOS D as acceptable on county roadways during the peak hour (Yolo County, 2009; Placer County, 2013; Sutter County, 2011). Each LOS threshold utilized by the Tribe in the Draft EIR to determine whether the Proposed Project resulted in unacceptable levels of service was established by the appropriate jurisdiction. . The TEIR acknowledges that two of the road segments currently (2016) operate at LOS E, which is below the Caltrans threshold of LOS D.

5-9 Farm vehicles are discussed in Section 3.2 of Volume II, under the *Existing Farm Vehicles* subheading of Section 3.2.2 and within Impact 3.2.4. The use of SR-16 by farm vehicles was highlighted in Section 3.2.2 of Volume II, *Existing Farm Vehicles* subheading, which states: "SR-16 is a principal transportation route for farm-related vehicles and provides farm-to-market connectivity through a County network of agricultural truck transportation corridors." Contrary to the commenter's assertion that the TEIR finds no impact on farm vehicles, Impact 3.2.4 (page 3.2-35 of Volume II) found the Proposed Project's impact on farm vehicles to be less than significant with Mitigation Measure 3.2.3.

5-10 The TIS (included as Appendix D of Volume III) provides an explanation for the use of January 2016 traffic counts as follows:

> "Friday and Saturday off-reservation intersection turning movement volumes were manually collected in January 2016 at all project study area intersections... Volumes were collected during the PM peak period, from 5:00 PM to 7:00 PM on both Friday and Saturday, when the combination of background and [Cache Creek Casino Resort] CCCR traffic is at its highest levels."

Included as a footnote to the above description:

> "Seasonal variation information was not available from Caltrans; however, traffic counts collected from the previous Kimley-Horn study in January 2010 were compared to the counts collected in August 2007 for the Abrams Associates report. The average volume for the intersections and study segments differed by less than 1%, and therefore, no seasonal adjustment was deemed necessary."

Typically, traffic counts are not conducted unless in coordination with a TIS or other document which requires baseline traffic levels to be evaluated. This is why comprehensive traffic data is not available for the study area intersections and roadway segments specific to the Proposed Project. Additionally, patron count data from the Resort was used to confirm the traffic and trip-generation analysis in the TIS.

5-11 The trip generation methodology was included in the TIS (a Revised TIS is included as Appendix D in Volume III this Final TEIR), and in Section 3.2.3 of Volume II. The methodology discusses restaurant, ballroom, and hotel trips and assumptions made when establishing the trip generation for the Proposed Project. Restaurant trips were calculated based on the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 9th Edition*, which was adjusted to account for the fact that restaurant patrons are overwhelmingly likely to also be casino and/or hotel patrons (a phenomenon known as "internal capture"). Ballroom trips were based on ticket counts provided by the Resort for previous events at the existing entertainment venue (known as Club 88). The average number of attendees for 16 Friday and Saturday drawing events was compared to the average patron count from Saturdays where no event occurred at Club 88. Vehicle occupancy was determined based on the prior Abrams Associates report and confirmed by recent feedback from CCCR staff. Hotel trip generation was based on the ITE *Trip Generation Manual, 9th Edition*, adjusted to account for internal capture. This resulted in the trip generation rates and numbers shown in Table 10 of the TIS, and Table 3.2-9 of Volume II. The usage of internal capture to adjust the trip generation rates to provide an accurate trip generation estimate is a common practice, utilized by agencies such as Caltrans, the ITE *Trip Generation Manual, 9th Edition*, and the Transportation Research Board.

Further, the commenter should note that the trip generation rates provided are for the Friday and Saturday PM peak hours (5:00 PM to 7:00 PM), and are not daily rates. The existing trip generation is provided below in **Table 3-1**, based on the Revised TIS. The trips generated by the Proposed Project, as distributed throughout the study area intersections, and the total number of trips at each intersection (existing plus Proposed Project) are also included.

TABLE 3-1
EXISTING TRIP COUNTS AT STUDY AREA INTERSECTION

No.	Intersection	Existing PM Peak Hour Trips[1]	PM Peak Hour Trips Generated by Proposed Project[2]	Total PM Peak Hour Trips (Existing plus Proposed Project)
Friday				
1	SR-16/North Casino Entrance	481	102	583
2	SR-16/Central Casino Entrance	484	112	596
3	SR-16/South Casino Entrance	568	138	706
4	SR-16/CR-85	613	138	751
5	SR-16/CR-85B	600	135	735
6	SR-16/Woodland Avenue	501	96	597
7	SR-16/Capay Street	509	93	602
8	SR-16/Madison Street	577	92	669
9	SR-16/Plainfield Street	662	90	752
10	SR-16/CR-21A	807	115	922
11	CR-85B/CR-21A	180	35	215
12	Country Villa Estates/CR-21A	162	26	188

No.	Intersection	Existing PM Peak Hour Trips[1]	PM Peak Hour Trips Generated by Proposed Project[2]	Total PM Peak Hour Trips (Existing plus Proposed Project)
Friday				
13	Fremont Street/CR- 21A	215	26	241
14	SR-16/CR-89	831	117	948
15	SR-16/I-505 SB Ramp	855	117	972
16	SR-16/ I-505 NB Ramp	810	92	902
17	SR-16/Wildwing Drive	788	44	832
18	SR-16/CR-94B	807	44	851
19	SR-16/CR-95	842	44	886
20	SR-16/CR-98	1,378	43	1,421
21	SR-16/W Kentucky Avenue	719	30	749
Saturday				
1	SR-16/North Casino Entrance	673	114	787
2	SR-16/Central Casino Entrance	722	124	846
3	SR-16/South Casino Entrance	907	155	1,062
4	SR-16/CR-85	914	154	1,068
5	SR-16/CR-85B	883	152	1,035
6	SR-16/Woodland Avenue	774	107	881
7	SR-16/Capay Street	794	104	898
8	SR-16/Madison Street	795	102	897
9	SR-16/Plainfield Street	878	101	979
10	SR-16/CR-21A	1,070	130	1,200
11	CR-85B/CR-21A	215	40	255
12	Country Villa Estates/CR-21A	199	30	229
13	Fremont Street/CR- 21A	247	30	277
14	SR-16/CR-89	1,073	131	1,204
15	SR-16/I-505 SB Ramp	1,042	130	1,172
16	SR-16/ I-505 NB Ramp	915	104	1,019
17	SR-16/Wildwing Drive	687	50	737
18	SR-16/CR-94B	670	50	720
19	SR-16/CR-95	692	49	741
20	SR-16/CR-98	1,140	48	1,188
21	SR-16/W Kentucky Avenue	530	34	564

Notes:
1 - Data from Figure 3 of the Revised TIS (Appendix D of Volume III).
2 - Data from Figure 14 of the Revised TIS (Appendix D of Volume III). Trip distribution percentages can be found in Figure 13 of the Revised TIS.
Source: Kimley-Horn, 2016 (Appendix D of Volume III).

5-12 Refer to **Response to Comment 3-1** and **3-2**.

5-13 Impact 3.10.12 of Volume II analyzes the impact of the Proposed Project on public transit, including buses. Using a conservative estimate, it was determined that additional public transit buses would not be warranted. However, as stated in **Response to Comment 2-1** above, the Tribe may consider providing additional funding to the YCTD for the provision of additional bus routes to the Resort and additional tour buses may be utilized on an as needed basis. However, the increase would not be substantial in relation to existing bus traffic. As described in Impact 3.10.12, the IGA between the Tribe and Yolo County ensures adequate funding is provided by the Tribe for the operation and maintenance of bus trips to the Proposed Project site. As part of the Proposed Project, the IGA would address potential impacts from the Proposed Project with relation to the impact on Yolo County services and roadway conditions. Although the Proposed Project may add some additional bus trips, as described in Impact 3.2.4, the Proposed Project is also likely to decrease overall truck traffic because the expanded back-of-house area will permit more on-site storage which will reduce the frequency of trucks that currently bring supplies to the facility. Further, as described in Section 2.4.7 of Volume II, if the Tribe implements the Brine Crystallization System, the number of truck trips needed for brine disposal would be reduced to 21 trucks per year (compared to three trucks per day). Therefore, off-reservation truck and bus traffic associated with the Proposed Project on County and City road maintenance would be less than significant.

5-14 Refer to **Response to Comment 3-4**.

5-15 As shown in Tables 3.3-9 and 3.3-10 of Volume II, current employees of the existing Resort reside in different counties and cities, and are willing to commute to the Project site from a variety of distances. This analysis anticipates that the residential distribution of new employees of the Resort will follow generally the same pattern as the residential distribution of existing employees of the Resort. It is outside the scope of this analysis to project which personal preferences each anticipated employee may have for the location of his or her residence. An attempt to estimate such a change in personal housing preferences as a result of the Proposed Project would be speculative. No significant impact to the Esparto and/or Woodland housing market would occur as a result of the Proposed Project.

Predictions of household income levels based on the anticipated salaries of new Resort employees is speculative, as the number of wage earners per household both employed and not employed at the Resort would be unknown and difficult to approximate. However, as stated above potential new employees in low- and moderate-income households who already live in Yolo County are not anticipated to need to relocate within the area to accept a position. Given that substantial numbers of people are not required or anticipated to move to Yolo County, and only a portion of new employees are likely to require low-income housing, a negligible impact to the Yolo County low-income housing market, which is required to reach 11,129 units by 2021 (see Table 3.3-4 of Volume II) would occur. Furthermore, potential new employees in low income households that

currently live outside of Yolo County could continue to live at their current residence and commute to the Resort.

As with any business, the Resort cannot dictate where their employees reside or require that they move closer to the Resort to reduce greenhouse gas (GHG) emissions.

5-16 Refer to **Response to Comment 5-1** regarding comments received on the NOP and Supplemental NOP. Section 1.3.1 of Volume II acknowledged the commenter's concern regarding nighttime lighting impacts on wildlife movement and directed the commenter to Section 3.11, *Aesthetics*, for a discussion of impacts from lighting as a result of the Proposed Project. As described therein, the proposed hotel expansion would have an appearance similar to the existing Resort and would contain similar lighting features including downcast external lamps that would be designed for public safety and security. The analysis concluded that with the implementation of Mitigation Measure 3.11.3, potential impacts due to lighting and glare from the Proposed Project would be less than significant. Additionally, the Proposed Project site is not adjacent to a wildlife refuge or wildlife corridor. The nearest refuge is the San Pablo Bay National Wildlife Refuge, located approximately 44 miles south of the Proposed Project site (USFWS, 2016).

5-17 Refer to **Response to Comment 5-1** regarding comments received on the NOP and Supplemental NOP. Section 1.3.1 of Volume II acknowledged the commenter's assertion that the Capay Valley is a historical resource and directed the commenter to Section 3.5 of Volume II for a definition and discussion of cultural resources and Section 3.2 for a discussion of traffic. As described in Section 3.5 of Volume II, cultural and historic resources are evaluated using National Historic Preservation Act (NHPA) Section 106.

As stated in the Draft TEIR, a historic resource or historic property is defined as:

> …any prehistoric or historic district, site, building, structure or object included in, or eligible for inclusion in the National Register of Historic Places [NRHP], including artifacts, records, and material remains related to such a property… (NHPA Section 301[5]).

Additionally, the Draft TEIR states: "*Historical resources* are defined as buildings, sites, structures, or objects, each of which may have historical, architectural, archaeological, cultural, or scientific importance (Public Resource Code [PRC] Section 50201)."

Significance criteria for cultural resources are defined by 36 Code of Federal Regulations (CFR) 60.4, as follows:

> *National Register criteria for evaluation.* The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and
>
> a) that are associated with events that have made a significant contribution to the broad patterns of our history; or
> b) that are associated with the lives of persons significant in our past; or
> c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
> d) that have yielded, or may be likely to yield, information important in prehistory or history.
>
> *Criteria considerations.* Ordinarily cemeteries, birthplaces, or graves of historical figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historic buildings, properties primarily commemorative in nature, and properties that have achieved significance within the past 50 years shall not be considered eligible for the National Register. However, such properties will qualify if they are integral parts of districts that do meet the criteria of if they fall within the following categories:
>
> a) A religious property deriving primary significance from architectural or artistic distinction or historical importance; or
> b) A building or structure removed from its original location but which is significant primarily for architectural value, or which is the surviving structure most importantly associated with a historic person or event; or
> c) A birthplace or grave of a historical figure of outstanding importance if there is no appropriate site or building directly associated with his productive life.
> d) A cemetery which derives its primary significance from graves of persons of transcendent importance, from age, from distinctive design features, or from association with historic events; or
> e) A reconstructed building when accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other building or structure with the same association has survived; or
> f) A property primarily commemorative in intent if design, age, tradition, or symbolic value has invested it with its own exceptional significance; or

g) A property achieving significance within the past 50 years if it is of exceptional importance.

Furthermore, the *County of Yolo 2030 Countywide General Plan* and Capay Valley Area Plan do not indicate that the Capay Valley should be treated as a cultural or historic resource due it its scenic beauty or rural character. Therefore, the Capay Valley as a whole does not meet the cultural resource criteria and was not considered as a cultural or historic resource in the context of the Draft TEIR. Impacts associated with traffic were addressed in Section 3.2 of Volume II, impacts associated with pollution was addressed in Section 3.8 of Volume II, and impacts to aesthetics was addressed in Section 3.11 of Volume II; therefore, the concerns regarding potential impacts to the Capay Valley associated with traffic, pollutants, and aesthetics were addressed in the TEIR.

Refer to **Response to Comment 1-1** regarding an alternative access road from I-505 to the Resort.

5-18 Refer to **Response to Comment 4-2** regarding the methodology for determining water demands of the Proposed Project.

5-19 Refer to **Response to Comment 3-7** regarding the analysis of groundwater levels in relation to the Sustainable Groundwater Management Act.

5-20 Refer to **Response to Comment 4-2** regarding the analysis of modeled groundwater levels during drought years.

5-21 A discussion of impacts associated with climate change and the measures being implemented by the Tribe and incorporated into the Proposed Project to reduce GHG emissions was included within Section 3.13 of Volume II (pages 3.13-18 through 3.13-20). The discussion addressed measures being implemented by the Tribe to reduce all GHG emissions resulting from the Proposed Project, and was not limited only to GHG emissions resulting from employee trips as noted by the commenter. In addition to the employee ride-share and bus service programs which are estimated to reduce employee-related vehicle miles travelled (VMT) by 10.2 million miles per year, 6 percent of patrons arrive via charter bus, further reducing mobile GHG emissions. In accordance with the first amendment to the IGA between the Tribe and the County, dated January 29, 2008, the Tribe provides funding for Route 215 bus service and implements an education and incentive program to encourage the use of bus service by patrons to reduce vehicle trips and associated VMT. The Tribe will continue to support the transit district (by among other things, providing funding for Route 215, purchasing buses, and supporting paratransit), which will reduce impacts associated with the Proposed Project. In addition to traffic-related emission reductions, energy demands of the Resort will be reduced by the use of recycled water and

participation in Pacific Gas and Electric Company's (PG&E's) Savings by Design Program. The goal of the PG&E Program is to reduce energy usage at least 10 percent below Title 24 energy efficiency standards.

Pursuant to the 2008 Amendment to the IGA, the effort to mitigate traffic from the existing resort along SR-16 through a park-and-ride lot was fulfilled by the subsequent agreement by the Tribe to continue and expand service of Route 215, and to construct a park-and-ride facility at an appropriate location in Woodland. As noted in Section 3.10 of Volume II (page 3.10-23) and in accordance with the 2008 Amendment to the IGA, the Tribe remains committed to funding an appropriate park-and-ride facility, at an appropriate location in Woodland, subject to the County's concurrence that such is needed. The site is to be selected in collaboration with the County. With County concurrence, once an appropriate site has been identified, the Tribe will make funding available for the park-and-ride facility. As noted in the 2008 Amendment to the IGA, the County and the Tribe recognize that Route 215 bus service has been an unqualified success in providing safe, affordable transportation for the Casino's employees and patrons that reduces traffic along State Highway 16, and the parties are committed to a joint ongoing effort to identify and provide additional transit services that may be operated by YCTD or similar public agencies when or where ridership levels would so warrant.

5-22 While ridership on charter buses and Route 215 will likely increase proportionate to the increase in patrons associated with the Proposed Project, the number of Route 215 bus trips to the project site is not expected to significantly increase as these riders could be accommodated within available capacity of buses currently serving the Resort. Refer to **Response to Comment 5-21**.

5-23 As discussed in **Section 1.0**, the TEIR was prepared to analyze the off-reservation impacts of the Proposed Project. Climate change issues related to the Proposed Project are evaluated in Section [--] of the TEIR. A discussion and analysis of climate change adaptation and resilience in Yolo County more generally is beyond the scope of analysis required by the Compact. Refer to **Response to Comment 5-21**.

5-24 As described in Section 3.9 of Volume II, off-reservation noise impacts were determined based on two thresholds: 1) if off-reservation transportation noise attributable to the Proposed Project increases the ambient off-reservation noise level by more than 1.5 dBA, 3.0 dBA, or 5.0 dBA, depending on the baseline ambient noise level at each location analyzed (based on Federal Interagency Committee on Noise [FICON] recommendations); and 2) if the Proposed Project would result in an audible increase in the baseline day/night noise level to more than 60 dBA Ldn at the nearest off-reservation sensitive residential noise receptor (based on the County's General Plan). The project-specific analysis within Section 3.9 and the cumulative analysis within Section 3.13.2 address situations where the Proposed Project would increase the ambient noise level to exceed the 60 dBA Ldn threshold. In each of these cases he increase caused by the

Proposed Project is below 3.0 dBA threshold for what the average healthy ear can barely perceive. For ambient noise levels that currently exceed the 60 dBA Ldn threshold, the TEIR uses the accepted methodology based on FICON recommendations. The FICON study determined the appropriate incremental noise increases that would result in significant impacts relative to the baseline noise level. As the baseline noise level increases, the significance threshold decreases. This is to reflect that areas with higher baseline noise levels are more sensitive to increases in noise levels. Therefore, the analysis conducted in Section 3.9 and 3.13.2 is appropriate and accurate, given the baseline noise levels provided by the Environmental Noise Analysis (included as Appendix K of Volume III).

Refer to **Response to Comment 5-11** for an explanation of trip generation from the Proposed Project.

5-25 Appropriate noise mitigation was discussed in the Environmental Noise Assessment (Appendix K of Volume III), in Section 3.9 of Volume II, and in Section 3.13 of Volume II. Mitigation provided therein is adequate to reduce noise impacts to less-than-significant levels. Additional mitigation, such as construction of a new road between I-505 and the Resort is not warranted as a result of the Proposed Project.

Refer to **Response to Comment 1-1** for additional information regarding construction of a new road from I-505 to the Resort.

5-26 Noise impacts from the proposed ballroom are specifically discussed under Impact 3.9.3 of Volume II. Operational noise impacts (including from the hotel and ancillary facilities) are discussed under Impacts 3.9.1, 3.9.2, and 3.9.3. As described therein, these impacts were determined to be less than significant.

5-27 Although the primary objective of the Proposed Project is to meet the demand for longer, overnight stays by existing patrons, it is noted throughout the Draft TEIR that overall patronage is also expected to increase as a result of the Proposed Project. This issue is addressed in Sections of the TEIR evaluating public services and utility service systems, among other places. The commenter incorrectly summarized the Draft TEIR's conclusions with regard to public services and utilities. The significance criteria, included in Section 3.10.3 of Volume II and based on the Checklist included as Appendix A of Volume III, state that a significant impact to public services would occur if the Proposed Project results in the construction or alteration of off-reservation governmental facilities. Impacts discussed in Section 3.10.3 were determined to be less than significant based on the conclusion that the incremental increase in patronage from the Proposed Project would not result in the construction of new or altered off-reservation governmental facilities. Potential non-physical impacts associated with the provision of public services

following project implementation are outside the scope of the TEIR and may addressed through the IGA between the Tribe and the County.

Refer to **Response to Comment 5-6** regarding the simultaneous usage of the ballroom and Club 88, and **Response to Comment 5-11** regarding the trip generation methodology.

5-28 Refer to **Response to Comments 1-1** regarding an alternative access road from I-505 to the Resort.

5-29 Refer to **Response to Comment 5-1** regarding comments received on the NOP and Supplemental NOP. Section 1.3.1 of Volume II acknowledged the commenter's concern regarding aesthetics and directed the commenter to Section 3.11, *Aesthetics*, for a discussion of impacts associated with aesthetics. As noted within Section 3.11 of Volume II, SR-16 not designated as a state scenic highway, although it is listed as eligible for designation. The Draft TEIR further states: "Scenic highway designation does not preclude nearby development; however, the program encourages development that does not degrade the scenic value of the highway corridor (Caltrans, 2016b)." As no routes in the vicinity of the Proposed Project site are designated as scenic highways, the Draft TEIR is correct in stating no impacts to scenic highways would occur as a result of the Proposed Project in Impact 3.11.2.

Section 4.0 of Volume II discusses the Reduced Intensity Alternative and No Action Alternative. Refer to **Response to Comment 5-2** regarding the Reduced Intensity Alternative.

5-30 Refer to **Response to Comment 5-5** regarding the architectural rendering of the Proposed Project. Refer to **Response to Comment 3-8** regarding off-reservation aesthetic impacts from the construction of the proposed hotel building, impacts from light and glare and proposed landscaping improvements. Section 4.0 of Volume II discusses the Reduced Intensity Alternative and No Action Alternative. Refer to **Response to Comment 5-2** regarding the Reduced Intensity Alternative.

5-31 Refer to **Response to Comment 5-1** regarding comments received on the NOP and Supplemental NOP. Section 1.3.1 of Volume II acknowledged the commenter's concern regarding cumulative aesthetic impacts and directed the commenter to Section 3.13.2, for a discussion of cumulative impacts associated with aesthetics.

The Checklist contained in the Compact state that the Proposed Project would result in a potentially significant impact if the project would create a new source of substantial light or glare which would adversely affect day or nighttime views of historic buildings or views in the area. The current views in the area include the existing Resort, including the electronic signs and headlights along SR-16 mentioned by the commenter. As described in Section 3.11.3, the

proposed hotel expansion would have an appearance similar to the existing Resort and would contain similar lighting features. External lighting would consist of downcast lamps and would be designed for public safety and security. The analysis found that the Proposed Project would create a potentially significant impact on off-reservation receptors from lighting and glare from the Proposed Project, and recommended the implementation of Mitigation Measure 3.11.3 which would minimize off-reservation light and glare impacts through the installation of lighting designed to prevent off-site light cast and by limiting the exterior lighting to uses and times needed to meet safety and security concerns. Therefore, with mitigation, the Proposed Project would not create a new source of substantial light or glare which would adversely affect day or nighttime views.

The use of headlights at night on any roadway is required by law for safety purposes and is consistent with the use of that road, regardless of the surrounding land uses to the roadway. Larger roadways can accommodate greater volumes of traffic and, consequently, more headlights at night should be anticipated. SR-16 is an undivided two-lane rural state route running east-west that provides direct, local, and regional access to the Capay Valley; therefore, the number of headlights on SR-16 would be greater than would be anticipated on a rural or private road. The use of headlights by new traffic generated by the Proposed Project would be in compliance with existing laws and would be consistent with the level of lighting anticipated on a state route. Further, the construction of additional hotel rooms could potentially reduce the amount of traffic leaving the Resort at night by encouraging patrons to overnight at the Resort, thereby reducing the light from headlights along SR-16.

5-32 Refer to **Response to Comment 4-3** regarding the methodology for determining impacts. Refer to **Response to Comment 1-1** for a discussion of the suggestion to construct a new road between I-505 and the Resort.

5-33 Refer to **Response to Comment 1-1** for a discussion of the suggestion to construct a new road between I-505 and the Resort.

5-34 As discussed in Section 1.1 of the Draft TEIR, the scope of the analysis was developed in accordance with the requirements of the Compact, which limit the scope of the analysis of potential impacts to the physical environment. The potential for the Proposed Project to result in the construction of new (or the alteration of existing) public health facilities is addressed in Impact 3.10.3 of the Draft TEIR and the reasonable compensation for County services regarding problem gambling is addressed in Section 10.8.8 of the Compact. Health care and problem gambling impacts that do not create physical environmental off-reservation impacts are outside the scope of the TEIR. County efforts to address problem gambling or health care may be appropriate topics for IGA negotiations.

5-35 The source cited by the commenter applies to restaurants. The Proposed Project is a hotel expansion project, with 9,475 square feet (sf) of additional restaurant space being a very small part of the total Project. Most new employees would not be employed by the restaurant component of the Project. Additionally, the source referenced by the commenter does not stand for the proposition cited. The commenter states that more than half of families of employees in full-service restaurants are enrolled in public assistance programs. The source referenced by the commenter states that less than half of such families are enrolled in public assistance programs (ROC, 2015).

As discussed in Section 1.1 of the Draft TEIR, the scope of the TEIR analysis was developed in accordance with the Checklist requirements of the Compact, which require the analysis of potential impacts to the physical environment. The commenter does not suggest that any off-reservation physical impacts would occur as a result of the Proposed Project. Impacts that do not create physical environmental off-reservation impacts are outside the scope of the TEIR. Potential effects on County assistance to low-income households may be an appropriate topic for IGA negotiations.

3.6 RESPONSE TO COMMENT LETTER 6 – CALIFORNIA DEPARTMENT OF TRANSPORTATION

6-1 Comment provides a summary of TEIR content. The correct number of new hotel rooms under the Proposed Project is 459, as described in Section 2.0 of Volume II. The total additional square footage of the Proposed Project is 499,747 sf.

6-2 Refer to **Response to Comments 3-1** and **3-2** regarding fair-share determination and the timing of mitigation. Additionally, a MMRP is included in **Section 4.0** of Volume I of this Final TEIR.

6-3 Comment noted. The Tribe will work with Caltrans to ensure impacts to state highways from the Proposed Project will be adequately mitigated. A discussion of transportation demand management strategies currently being implemented by the Tribe to reduce VMT on SR-16 was included within Section 3.10, *Public Services and Utilities and Service Systems*, of Volume II, under the heading of *Public Transit* (see pages 3.10-20 through 3.10-21), and within Appendix D of Volume III, under the headings of *Existing Transit Service* and *Existing Carpool and Vanpool Service*. Additionally, measures being implemented by the Tribe to reduce VMT were discussed within the context of GHG emissions within Section 3.13 of Volume II (pages 3.13-18 through 3.13-20). In addition to the employee ride-share and bus service programs which are estimated to reduce employee-related VMT by 10.2 million miles per year, 6 percent of patrons arrive via charter bus, further reducing VMT. In accordance with the first amendment to the IGA between the Tribe and the County dated January 29, 2008, the Tribe provides funding for Route 215 bus service and implements an education and incentive program to encourage the use of bus service

by employees and patrons to reduce vehicle trips and associated VMT. In coordination with the County and the Transit District, the Tribe will continue to subsidize Route 215 and provide paratransit service in the future, which will further reduce impacts. The Tribe appreciates the commenter's invitation to coordinate mitigation measures for the Proposed Project with the SR-16 Safety Improvement Project, and will confer with Caltrans in that regard.

6-4 Section 3.2 of Volume II includes construction traffic mitigation of the preparation of a TCP before each phase of Proposed Project development. As stated therein, this would be in accordance to applicable Caltrans regulations, such as Section 6C.01 of the 2014 California Manual on Uniform Traffic Control Devices (MUTCD).

6-5 As described in Appendix G of Volume III, *Grading and Drainage Study*, and in Section 3.7.3, Impact 3.7.4 of Volume II, the 3 percent increase in impervious surfaces results in approximately 0.5 acre-feet (af) of 100-year/24-hour duration storm event runoff.

As described in Appendix G of Volume III, *Grading and Drainage Study*, and Impact 3.7.4 of Volume II as revised, the existing runoff storage requirement for the 100-year, 24-hour storm event is 22 af; therefore, the post-project runoff would be 22.5 af (existing 22 af plus 0.5 af). The existing stormwater runoff detention system, including the culverts across SR-16, has a capacity of 24 af, which is greater than the total demand of the Proposed Project plus existing conditions (22.5 af). Specifically, the existing 48-inch diameter culvert under SH16 at the Winner's Way intersection has a no-surcharge capacity of 125 cfs. Runoff from a 100-year storm event at the Cache Creek Casino Resort site that flows through that culvert for the existing site development conditions is 91 cfs. The proposed development of Parking Lot F will increase the overall site's impermeable runoff area by less than 3percent. Increased runoff from the Parking Lot F area can easily be accommodated by the existing 48-inch culvert without causing any hydraulic surcharge. Therefore; runoff from the Proposed Project would not require modifications to the stormwater runoff system, including the culverts across SR-16.

6-6 Comment noted. The Proposed Project itself does not require work within the Caltrans right-of-way. Proposed transportation mitigation measures involving improvements to SR-16 would be subject to Caltrans approval and encroachment permits. The Tribe will coordinate with Caltrans as required.

3.7 RESPONSE TO PUBLIC HEARING TRANSCRIPT

Comments received at the public hearing held for the TEIR included commendations regarding the TEIR process set forth in the Compact. Commenters expressed appreciation for the clear communication that has been provided to the public; the thoroughness of the Draft TEIR; and an appreciation of the traffic mitigation measures proposed in the TEIR. There also was positive

feedback regarding the Tribe's responsiveness to comments from the public, and appreciation expressed for the Proposed Project's restaurant component. One commenter requested that the restaurant component include Mexican food. Commenters also expressed the beliefs that noise and traffic impacts, including traffic accidents, will be decreased by the Proposed Project by encouraging overnight stays. Comments provided at the public hearing did not raise significant environmental points; therefore, in accordance with Section 10.8.4 of the Compact, no response is required.

SECTION 4.0

MITIGATION MONITORING AND REPORTING PROGRAM

SECTION 4.0

MITIGATION MONITORING AND REPORTING PROGRAM

In order to minimize or avoid potentially significant impacts that could occur as a result of the Cache Creek Hotel Expansion Project (Proposed Project), mitigation measures have been developed and incorporated into this Tribal Environmental Impact Report (TEIR). The Mitigation Monitoring and Reporting Program (MMRP), which is comprised of **Table 4-1** below, is designed to provide information regarding the following:

- Mitigation Measures proposed to minimize or avoid potentially significant impacts;
- Parties responsible for monitoring and/or reporting mitigation;
- Timing of implementation; and
- Verification of implementation.

TABLE 4-1
MITIGATION MONITORING & REPORTING PROGRAM

Mitigation Number	Mitigation Measure	Responsible for Monitoring and/or Reporting	Timing of Implementation	Verification (Date and Initials)
3.2.1	**The Tribe shall prepare and implement, prior to commencing each phase of the Proposed Project development, a Construction Traffic Control Plan.** The Construction Traffic Control Plan shall be prepared in accordance with applicable Caltrans requirements and shall include information about times of construction, haul routes, delivery times for heavy equipment, and any other specific information required by Caltrans, to coordinate and reduce impacts on affected jurisdictions, businesses, and residences in the study area.	Tribe	Prior to construction.	
3.2.3	**Install Slow Vehicle Turnouts** a. **SR-16 between the Resort and CR-85**: The Tribe, in consultation with Caltrans, shall install one slow vehicle turnout in compliance with applicable Caltrans standards in each direction on SR-16 between the Resort and CR-85. The Proposed Project's proportionate share of the impact is 91 percent, but the Proposed Project's percentage of mitigation cost shall be determined in consultation with Caltrans. The exact locations of the slow vehicle turnouts shall be determined in consultation with Caltrans. Separate environmental review and analysis under the California Environmental Quality Act (CEQA) shall be required with respect to the slow vehicle turnouts once the precise locations of the turnouts have been determined. That review and analysis would have to be completed before commencement of construction of the turnout pockets. b. **SR-16 (westbound [WB]) between Esparto and CR-89:** The Tribe, in consultation with Caltrans, shall install one slow vehicle turnout in compliance with applicable Caltrans standards in the westbound direction on SR-16 between the Esparto town limits and CR-89. The Proposed Project's proportionate share of the impact is 29 percent, but the Proposed Project's percentage of mitigation cost shall be determined in consultation with Caltrans. The exact locations of the slow vehicle turnouts shall be determined in consultation with Caltrans. Separate environmental review and analysis under CEQA shall be required with respect to the slow vehicle turnouts once the precise locations of the turnouts have been determined. That review and analysis would have to be completed before commencement of construction of the slow vehicle turnouts. c. **SR-16 (WB) between CR-89 and I-505:** The Tribe, in consultation with Caltrans, shall install one slow vehicle turnout in compliance with applicable Caltrans standards in the westbound direction on SR-16 between CR-89 and I-505. The Proposed Project's proportionate share of the impact is 60 percent, but the Proposed Project's percentage of	Tribe, Caltrans	As determined by Caltrans.	

TABLE 4-1
MITIGATION MONITORING & REPORTING PROGRAM

Mitigation Number	Mitigation Measure	Responsible for Monitoring and/or Reporting	Timing of Implementation	Verification (Date and Initials)
	mitigation cost shall be determined in consultation with Caltrans. The exact locations of the slow vehicle turnouts shall be determined in consultation with Caltrans. Separate environmental review and analysis under CEQA shall be required with respect to the slow vehicle turnouts once the precise locations of the turnouts have been determined. That review and analysis would have to be completed before commencement of construction of the slow vehicle turnouts. d. **SR-16 between I-505 and CR-98:** The Tribe, in consultation with Caltrans, shall install one slow vehicle turnout in compliance with applicable Caltrans standards in each direction on SR-16 between I-505 and CR-98. The Proposed Project's proportionate share of the impact is 29 percent, but the Proposed Project's percentage of mitigation cost shall be determined in consultation with Caltrans. The exact locations of the slow vehicle turnouts shall be determined in consultation with Caltrans. Separate environmental review and analysis under CEQA shall be required with respect to the slow vehicle turnouts once the precise locations of the turnouts have been determined. That review and analysis would have to be completed before commencement of construction of the slow vehicle turnouts.			
3.4.1	**Nesting and Migratory Birds** If feasible, construction activities related to the Proposed Project, including movement of heavy equipment and grading, shall be conducted outside of the nesting period (generally between March and mid-September), and outside of the peak nesting period for most migratory bird species. If construction activities cannot be avoided during the nesting period, a qualified biologist shall conduct preconstruction surveys for raptor nests within 0.5 miles of those activities. These surveys shall be conducted for ground-nesting, tree-nesting, and utility pole–nesting birds. The surveys shall be conducted no less than 14 days and no more than 30 days before the beginning of construction. If construction activities are delayed or suspended for more than 30 days after the preconstruction survey is completed, the area within 0.5 miles of the construction activities shall be resurveyed. If no active bird nests are identified, no further mitigation is necessary. If active bird nests are identified, construction activities within 500 feet, or another distance as determined by a qualified biologist based on the identified species, shall be postponed until after the nesting season, or until after a qualified biologist has determined that the young have fledged and are	Tribe	Between 14 and 30 days prior to the beginning of construction, particularly if construction begins between March and mid-September.	

TABLE 4-1
MITIGATION MONITORING & REPORTING PROGRAM

Mitigation Number	Mitigation Measure	Responsible for Monitoring and/or Reporting	Timing of Implementation	Verification (Date and Initials)
	independent of the nest site. No known active nests shall be disturbed without a permit or other authorization from the USFWS and/or CDFW.			
M-3.4.1	**Protection of Species and Habitats from Traffic Mitigation** a. **Worker Awareness and Training:** Before initiation of vegetation removal, grading, or any other ground-disturbing activities related to off-reservation traffic mitigation, a qualified biologist shall conduct mandatory worker awareness training for all construction personnel. The awareness training shall provide information on how to avoid impacts on biological resources, particularly special-status species. The training shall also inform workers of the penalties for not complying with mitigation requirements. If new construction personnel are subsequently engaged for such mitigation, they shall also receive the training. b. **Nesting and Migratory Birds:** If feasible, construction activities related to off-reservation traffic mitigation, including vegetation removal, movement of heavy equipment, and grading, shall be conducted outside of the nesting period (generally between March and mid-September) and outside of the peak nesting period for most migratory bird species. If construction activities cannot be avoided during the nesting period, a qualified biologist shall conduct preconstruction surveys for raptor nests within 0.5 miles of those activities. These surveys shall be conducted for ground-nesting, tree-nesting, and utility pole–nesting birds. The surveys shall be conducted no less than 14 days and no more than 30 days before the beginning of construction. If construction activities related to traffic mitigation are delayed or suspended for more than 30 days after the preconstruction surveys are completed, the area within 0.5 miles of the construction activities shall be resurveyed. If no active bird nests are identified, no further mitigation is necessary. If active bird nests are identified, construction activities related to traffic mitigation within 500 feet of the identified nest(s), or another appropriate distance as determined by a qualified biologist based on the identified species, shall be postponed until after the nesting period, or until after a qualified biologist has determined that the young have fledged and are independent of the nest site. No known active nests shall be disturbed without a permit or other authorization from the USFWS and/or CDFW. c. **Swainson's Hawk:** A qualified biologist shall conduct preconstruction surveys for raptor nests in the vicinity of off-reservation traffic mitigation construction activities within 14 days prior to commencement of those activities. If active Swainson's hawk nests are identified, no construction	Tribe	Prior to construction of traffic mitigation.	

TABLE 4-1
MITIGATION MONITORING & REPORTING PROGRAM

Mitigation Number	Mitigation Measure	Responsible for Monitoring and/or Reporting	Timing of Implementation	Verification (Date and Initials)
	activities shall take place within 0.5 miles of active nests between March 1 and September 15, if feasible. If it is not feasible to postpone construction activities within the 0.5-mile buffer zone until after September 15, permission to infringe on the buffer region shall be obtained from the CDFW. A qualified biologist shall monitor the nest site until the biologist has determined that the nestlings have successfully fledged and are no longer dependent on the nest. If the biologist determines that the nest has been abandoned, the Tribe shall fund the recovery, rearing, and controlled release of the young by a qualified organization, such as the University of California, Davis Raptor Center. Impacts to Swainson's hawk nesting habitat shall be mitigated as follows: 1. No nesting tree (i.e. any tree that either has the potential to be used by Swainson's hawks to nest or has been documented by the CDFW as being used by Swainson's hawks in the past) shall be removed unless there is no feasible way of avoiding that removal. 2. When known or potential mature nest trees must be removed, the proper authorization must be obtained from CDFW prior to removal. This authorization would specify the time of year during which the tree may be removed (generally between October 1 and February 1) and the mitigation measures necessary to offset the loss of the tree.			
M-3.5.1	**Protection of Cultural Resources from Traffic Mitigation** a. **Preconstruction Record Search:** If more than 5 years pass prior to the construction of traffic improvements (i.e., after June 30, 2021), an updated record search shall be completed by the Northwest Information Center (NWIC) to identify any newly recorded cultural resources which may be impacted by construction of recommended traffic improvements. b. **Investigation of Known Archaeological Sites:** If any known archaeological resources are identified within the staging or construction footprints of an off-site traffic improvement area and the site(s) has been previously assessed as eligible or potentially eligible for listing on the California Register of Historic Resources (CRHR) or National Register of Historic Places (NRHP), an archaeological investigation of the to-be impacted portions of the improvement area shall be conducted prior to construction, which may include any or all of the following, as appropriate: development of a Treatment Plan, development of a Mitigation or Monitoring Plan, Phase II site testing and evaluation, Phase III data recovery, construction monitoring, or development and implementation of avoidance measures. If a resource may be impacted that has not been	Tribe	During construction of traffic mitigation.	

TABLE 4-1
MITIGATION MONITORING & REPORTING PROGRAM

Mitigation Number	Mitigation Measure	Responsible for Monitoring and/or Reporting	Timing of Implementation	Verification (Date and Initials)
	assessed for CRHR/NRHP eligibility, an eligibility assessment shall be completed prior to construction and mitigation measures shall be identified and implemented if it is found to be eligible for listing. c. **Historical Resource Viewshed Analysis:** Off-site traffic improvements that would result in permanent changes to the landscape (i.e., lane construction or intersection signalization) within one block of historical structures or districts (those resources identified as CRHR or NRHP eligible) shall be evaluated for their visual impacts on those resources by a qualified architectural historian, who may recommend site-specific mitigation to reduce any such impacts to less-than-significant levels. d. **Inadvertent Discovery:** In the event that buried archaeological materials, such as flaked stone, historic debris, structural formations, or unusual amounts of stone or shell are inadvertently discovered within the area of potential effects during ground-disturbing activities, all work shall be halted within 50 feet of the find and the Lead Agency and the Tribe (if the find is a prehistoric resource) shall be contacted immediately. The Tribe shall retain a qualified professional archaeologist to assess the find and determine an appropriate course of action in consultation with the Lead Agency and the Tribe. The process outlined in **Mitigation Measure M-3.5.1(b)** shall be followed.			
M-3.5.3	**Protection of Human Remains Following Inadvertent Discovery** If human remains are discovered during construction, pursuant to Public Resources Code (PRC) Section 5097.98 and Section 7050.5 of the California Health and Safety Code, all activities within a 100-foot radius of the find shall be halted immediately and the Tribe, Lead Agency, and Yolo County coroner shall be notified. California law recognizes the need to protect interred human remains, particularly Native American burials and items of cultural patrimony, from vandalism and inadvertent destruction. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code Section 7050.5[b]). If the coroner determines that the remains are those of a Native American, he or she must contact the Native American Heritage Commission (NAHC) by phone within 24 hours of making that determination (Health and Safety Code Section 7050[c]). The Lead Agency shall contact the Most Likely Descendent (MLD), as determined by the NAHC, regarding the remains. The MLD, in cooperation with the Lead Agency, Tribe, and a qualified professional archaeologist shall develop a plan of action to avoid or minimize significant effects on the human remains prior to resumption of ground-disturbing	Tribe	During construction of traffic mitigation.	

TABLE 4-1
MITIGATION MONITORING & REPORTING PROGRAM

Mitigation Number	Mitigation Measure	Responsible for Monitoring and/or Reporting	Timing of Implementation	Verification (Date and Initials)
	activities. Work may resume if the NAHC is unable to identify a descendant or the descendant fails to make a recommendation.			
3.6.1	**Protection of the Environment from Hazardous Materials during Construction** a. During construction of the Proposed Project, the Tribe shall ensure, through the enforcement of contractual obligations of the contractors performing such construction, that all contractors prepare HMBPs if quantities of hazardous materials to be used are above applicable threshold criteria, and that such contractors transport, store, and handle construction-related hazardous materials in a manner consistent with applicable regulations and guidelines. These requirements may include, but are not limited to, applicable federal, state, and/or local regulatory agency protocols for off-reservation transportation and storage of materials and applicable federal and Tribal protocols for on-trust land storage and handling of materials. b. As discussed in **Section 3.7**, **Hydrology and Water Quality**, a Stormwater Pollution Prevention Plan (SWPPP) shall be prepared for the Proposed Project that identifies best management practices (BMPs) to be implemented during construction of the Proposed Project, as required by the National Pollution Discharge Elimination System (NPDES) Construction Stormwater General Permit. All BMPs required by the NPDES General Permit shall be implemented to ensure that hazardous materials do not enter any nearby waterways. BMPs outlined in **Mitigation Measure 3.7.3** shall be implemented, including the following practices that pertain to reducing the potential for the release of hazardous materials during construction. 1. Hazardous materials such as fuels and solvents used in the construction of the Proposed Project shall be stored in covered containers and protected from rainfall, runoff, vandalism, and accidental release to the environment. All stored fuels and solvents shall be contained in an area of impervious surface with containment capacity equal to the volume of materials stored. 2. A stockpile of spill cleanup materials shall be readily available at the Proposed Project site. Construction workers shall be trained in spill prevention and cleanup, and individuals on each shift shall be designated as responsible for prevention and cleanup activities.	Tribe	Prior to and during construction.	

TABLE 4-1
MITIGATION MONITORING & REPORTING PROGRAM

Mitigation Number	Mitigation Measure	Responsible for Monitoring and/or Reporting	Timing of Implementation	Verification (Date and Initials)
	3. Equipment used in the construction of the Proposed Project shall be properly maintained in designated areas equipped with runoff and erosion control measures to minimize accidental release of pollutants.			
3.6.2	**Wildfire Prevention** Construction personnel shall follow written standard operating procedures (SOPs) for servicing and operating construction equipment and vehicles to reduce the potential for wildland fires. These SOPs shall address equipment use and the storage and use of hazardous materials during construction of the Proposed Project. The SOPs shall include the following procedures, to be implemented where feasible and when reasonable: 1. Refueling shall be conducted only with approved pumps, hoses, and nozzles; 2. Catch-pans shall be placed under equipment to catch potential spills during servicing; 3. All disconnected hoses shall be placed in containers to collect residual fuel from the hose; 4. Vehicle engines shall be shut down during refueling; 5. No smoking, open flames, or welding shall be allowed in refueling or service areas; 6. Service trucks shall be provided with fire extinguishers; 7. Staging areas, welding areas, and areas slated for development using spark-producing equipment shall be cleared of dried vegetation or other materials that could serve as fire fuel. To the extent feasible, the contractor shall keep these areas clear of combustible materials to maintain a firebreak; 8. Any construction equipment that normally includes a spark arrester shall be equipped with an arrester in good working order; and 9. All hazardous materials transported to or from the Proposed Project site shall be transported in accordance with applicable state and federal regulations as required based on quantity and class of materials.	Tribe	During construction.	
3.7.3	**Stormwater General NPDES Permit for Construction Activities** The Tribe shall comply with the terms of the United States Environmental Protection Agency's (USEPA's) Stormwater General NPDES Permit for Construction Activities prior to and during construction of the Proposed Project. As part of its compliance with the permit, the Tribe shall prepare and	Tribe	Prior to and during construction.	

TABLE 4-1
MITIGATION MONITORING & REPORTING PROGRAM

Mitigation Number	Mitigation Measure	Responsible for Monitoring and/or Reporting	Timing of Implementation	Verification (Date and Initials)
	implement a SWPPP for construction activities. The SWPPP shall identify pollutant sources that may affect the quality of stormwater discharge. The SWPPP shall include site-specific BMPs to reduce these pollutants and minimize the potential for their release into natural waters. BMPs may include, but are not limited to, the following: a. If excavation occurs during the rainy season, stormwater runoff from the construction area shall be regulated through a stormwater management/erosion control plan that shall include temporary on-site silt traps and/or basins with multiple discharge points to natural drainages and energy dissipaters. Stockpiles of loose material shall be covered and runoff diverted away from exposed soil material. If work stops due to rain, a positive grading away from slopes shall be provided to carry the surface runoff to areas where flow would be controlled, such as the temporary silt basins. Sediment basins/traps shall be located and operated to minimize the amount of off-reservation sediment transport. Any trapped sediment shall be removed from the basin or trap and placed at a suitable location on site, away from concentrated flows, or removed to an approved disposal site. b. Temporary erosion control measures (such as fiber rolls, staked straw bales, detention basins, check dams, geofabric, sandbag dikes, and temporary revegetation or other ground cover) shall be provided until perennial revegetation or landscaping is established and can minimize discharge of sediment into nearby waterways. For construction within 500 feet of a water body, appropriate erosion control measures shall be placed upstream adjacent to the water body. c. No disturbed surfaces shall be left without erosion control measures in place during the spring and winter months. d. Erosion protection shall be provided on all cut-and-fill slopes. Revegetation shall be facilitated by mulching, hydroseeding, or other methods and shall be initiated as soon as possible after completion of grading and prior to the onset of the rainy season. e. Hazardous materials such as fuels and solvents used on the construction site shall be stored in covered containers and protected from rainfall, runoff, vandalism, and accidental release to the environment. All stored fuels and solvents shall be contained in an area of impervious surface with containment capacity equal to the volume of materials stored. f. A stockpile of spill cleanup materials shall be readily available at all construction sites. Construction workers shall be trained in spill		SWPPP to be written and filed with EPA 10 days prior to construction. BMPs to be in place prior to the beginning of the rainy season (October 15th). Inspection of BMPs to occur periodically during construction, particularly immediately following a rain event.	

TABLE 4-1
MITIGATION MONITORING & REPORTING PROGRAM

Mitigation Number	Mitigation Measure	Responsible for Monitoring and/or Reporting	Timing of Implementation	Verification (Date and Initials)
	prevention and cleanup, and individuals shall be designated as responsible for prevention and cleanup activities. g. Equipment shall be properly maintained in designated areas with runoff and erosion control measures to minimize accidental release of pollutants.			
3.11.3	**Lighting Restrictions** The Tribe shall ensure that the following measures are implemented (through contractual requirements if and as needed) to minimize the effects of lighting and glare from the construction and operation of the Proposed Project: a. The Tribe shall limit construction activities for the Proposed Project to between 7:00 a.m. and 7:00 p.m. to the extent feasible and reasonable. If dusk or nighttime activities are necessary at the Proposed Project site, lighting for those activities shall be strictly limited to the minimum locations necessary for safety and security and shall be downcast onto the worksite to prevent lighting and glare impacts on off-reservation residential structures. b. Permanent exterior lighting for the Proposed Project shall be designed so as not to cast light off of the trust lands. To minimize off-reservation impacts of light and glare from the Proposed Project, exterior lighting of the Proposed Project shall adhere to the "full cutoff" standard developed by the Illuminating Engineering Society of North America (IES, 2001). c. Shielding, such as with a horizontal shroud, shall be used for all exterior lighting for the Proposed Project to ensure it is downcast. d. Timers for exterior lighting for the Proposed Project shall be utilized to limit such exterior lighting use to times appropriate to meet safety and security concerns.	Tribe	Incorporated in design and during construction.	
3.13.1	**Install a refuge lane along SR-16.** To mitigate impacts of the Proposed Project expected to occur in the 2035 Plus Proposed Project Condition, a refuge lane along SR-16shall be installed for northbound and southbound left turn users. This improvement would create a receiving lane for the side-street approach traffic to use, thereby reducing the delay to cross SR-16. Because the Proposed Project itself would not trigger the impact but would add to the unacceptable operation, the Proposed Project would be responsible for a proportionate share of the mitigation costs if and when the impact occurs. The results of the Traffic Impact Study (TIS) indicate that the Proposed Project's fair share contribution would be 14 percent. Modifying the intersection as recommended in this	Tribe	Prior to operation of the Proposed Project.	

TABLE 4-1
MITIGATION MONITORING & REPORTING PROGRAM

Mitigation Number	Mitigation Measure	Responsible for Monitoring and/or Reporting	Timing of Implementation	Verification (Date and Initials)
	mitigation measure would reduce the impact to a less-than-significant level and improve the intersection to an acceptable LOS D and LOS C on the side street during the Friday PM and Saturday PM peak hours, respectively (see Table 15 of **Appendix D**).			
3.13.2	**Install slow vehicle turnouts in each direction on SR-16 between the Resort and CR-85.** To mitigate the Proposed Project impacts expected to occur in 2035, **Mitigation Measure 3.2.2** shall be implemented. **Mitigation Measure 3.2.2** is to install a slow-vehicle turnout shall be installed in each direction on SR-16 between the Resort and CR-85. The Proposed Project's proportionate share of the impact would be 91 percent, but the Proposed Project's percentage of the mitigation costs shall be determined in consultation with Caltrans.	Tribe, Caltrans	As determined by Caltrans.	
3.13.3	**Install slow vehicle turnouts in each direction on SR-16 between the Esparto town limits and CR-89.** To mitigate the Proposed Project impacts expected to occur in 2035, a slow vehicle turnout shall be installed in both directions on SR-16 between the Esparto town limits and CR-89. The Proposed Project's proportionate share of the impact would be 29 percent, but the Proposed Project's percentage of the mitigation costs shall be determined in consultation with Caltrans.	Tribe, Caltrans	As determined by Caltrans.	
3.13.4	**Install slow vehicle turnouts in each direction on SR-16 between CR-89 and I-105 ramps.** To mitigate the Proposed Project impacts expected to occur in 2035, a slow vehicle turnout shall be installed in both directions on SR-16 between CR-89 and the I-505 ramps. The Proposed Project's proportionate share is 60 percent, but the Proposed Project's percentage of the mitigation costs shall be determined in consultation with Caltrans.	Tribe, Caltrans	As determined by Caltrans.	
3.13.5	**Install slow vehicle turnouts in each direction on SR-16 between I-505 and CR-98 ramps.** To mitigate the Proposed Project impacts expected to occur in 2035, **Mitigation Measure 3.2.5** shall be implemented. **Mitigation Measure 3.2.5** is to install a slow-vehicle turnout shall be installed in each direction on SR-16 between the I-505 ramps and CR-98. The Proposed Project's proportionate share of the impact would be 29 percent, but the Proposed Project's percentage of the mitigation costs shall be determined in consultation with Caltrans.	Tribe, Caltrans	As determined by Caltrans.	

SECTION 5.0

REPORT AUTHORS AND PERSONS CONSULTED

SECTION 5.0

REPORT AUTHORS AND PERSONS CONSULTED

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California Department of Transportation (Caltrans). 2002. *Guide for the Preparation of Traffic Impact Studies*. State of California Department of Transportation. Available online at: http://www.dot.ca.gov/hq/tpp/offices/ocp/igr_ceqa_files/tisguide.pdf. Accessed November 14, 2016.

Caltrans. 2016b. *Frequently Asked Questions*. Available online at: http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/faq.htm. Accessed April 21, 2016.

Kimley-Horn. 2016. *Traffic Impact Study*. November 2016. Included as **Appendix D**.

Placer County, 2013. Placer County General Plan. Available online at: https://www.placer.ca.gov/departments/communitydevelopment/planning/documentlibrary/commplans/placer-county-gp. Accessed December 2016.

Restaurant Opportunities Centers United (ROC). 2015. *Picking up the NRA's Tab: The Public Cost of Low Wages in the Full-Service Restaurant Industry.* Available online at: http://rocunited.org/wp2015b/wp-content/uploads/2015/04/REPORT_Public-Cost-of-Low-Wages-in-Full-Service-Restaurant-Industry.pdf. Accessed November 21, 2016.

Sutter County, 2011. Sutter County General Plan. Available online at: https://www.co.sutter.ca.us/contents/pdf/cs/ps/General_Plan_Policy_Document.pdf. Accessed December 2016.

United States Fish and Wildlife Service (USFWS). 2016. *Find Refuge by Zip Code*. Available online at: https://www.fws.gov/refuges/zipCodeLocator/index.cfm. Accessed November 15, 2016.

Yolo County, 2009. County of Yolo 2030 Countywide General Plan. Available online at http://www.yolocounty.org/general-government/general-government-departments/county-administrator/general-plan-update/adopted-general-plan. Accessed December 2016.

FINAL TRIBAL ENVIRONMENTAL IMPACT REPORT

YOCHA DEHE WINTUN NATION

CACHE CREEK HOTEL EXPANSION PROJECT

VOLUME II: REVISED DRAFT TRIBAL ENVIRONMENTAL IMPACT REPORT

JANUARY 2017

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VOLUME III

APPENDICES

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Appendix D	Traffic Impact Study (Revised)
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Appendix F	Water and Wastewater Feasibility Study
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EXECUTIVE SUMMARY

YOCHA DEHE WINTUN NATION
CACHE CREEK HOTEL EXPANSION PROJECT
DRAFT TRIBAL ENVIRONMENTAL IMPACT REPORT

EXECUTIVE SUMMARY

CACHE CREEK HOTEL EXPANSION PROJECT

ES.1 SUMMARY DESCRIPTION OF THE PROPOSED PROJECT

The Yocha Dehe Wintun Nation (Tribe) proposes to increase amenities at the existing Cache Creek Casino Resort (Resort). The Cache Creek Hotel Expansion Project (Proposed Project) consists of the following major elements:

- Hotel: The proposed hotel expansion would measure 346,801 square feet (sf) and would be located at the south end of the main Resort building. The hotel would have 459 rooms under the Proposed Project and would be 9 stories, or 121 feet, tall. The hotel's pool area would include a 100,000-gallon pool and a pool side lounge/seating area.
- Ballroom: The Proposed Project would include the development of a ballroom approximately 13,350 sf in size. The expansion would be constructed from the south side of the main Resort building. The ballroom would be able to accommodate up to 1,325 guests.
- Dining: The Proposed Project would result in a net gain of an additional 9,475 sf of dining space and 178 restaurant seats, which would be located in areas south of the existing gaming and dining areas.
- Parking: The proposed hotel expansion would be constructed within the existing south parking lot. The Tribe will construct 118 new parking stalls in Lot F, restripe existing lots to promote efficient use of space, expand valet services, and continue to encourage employees and visitors to use public transit and carpooling.
- Back-of-House: To meet the Resort's existing and anticipated needs, as well as to improve the efficiency and operations of support facilities, the Proposed Project includes approximately 102,956 sf of back-of-house space. A majority of this space constitutes non-office areas such as staging areas, employee dining, general storage, security spaces, engineering workshops, training rooms, basement, and additional circulation areas.

A conceptual site plan for the Proposed Project is provided as **Figure 2-1**. Access to the project site would continue to be via State Route (SR)-16. Regional access is provided by Interstate (I)-505, which connects I-80 in Vacaville to I-5 near the Yolo-Colusa County line.

Potable water is currently supplied to the Resort via three wells located on land owned by the Tribe. The Proposed Project would continue to rely on groundwater as the source of potable water, and surface water

to supplement irrigation needs not met by recycled water from the on-site wastewater treatment facility. The Proposed Project would continue to treat wastewater at the existing on-reservation wastewater treatment plant and use existing disposal options that entail recycling via toilet flushing and golf course and landscape irrigation, with winter storage in the current locations.

ES.2 ISSUES OF CONCERN

A Notice of Preparation (NOP) for the Proposed Project (**Appendix B**) was circulated for a public review period, which began March 21, 2016, and ended April 21, 2016. On July 22, 2016, the NOP was supplemented to reflect a change in the Proposed Project, and the comment period was extended to August 11, 2016. The NOP and Supplemental NOP included brief descriptions of the Proposed Project, the location (on both a detailed topographic map and regional map), and a summary of potential environmental impacts to off-reservation resources that could result from the Proposed Project. Comments received on the NOP and Supplemental NOP (**Appendix C**) were considered in the preparation of this Draft Tribal Environmental Impact Report (TEIR). General issues and specific comments made in response to the public review of the NOP are summarized in **Section 1.0**, **Introduction**, organized according to resource area. Potentially significant off-reservation environmental impacts are addressed in **Section 3.0**, **Environmental Analysis**. Mitigation is proposed where warranted.

ES.3 ALTERNATIVES TO THE PROPOSED PROJECT

The following two alternatives to the Proposed Project are discussed in detail in **Section 4.0**, **Alternatives**, of this Draft TEIR:

ES.3.1 REDUCED INTENSITY ALTERNATIVE

- 399-room hotel,
- 13,350-sf ballroom,
- 9,475 sf of additional dining space, and
- 102,956 sf of new back-of-house.

Other aspects of the Reduced Intensity Alternative (RIA) would be consistent with the Proposed Project.

ES.3.2 NO ACTION ALTERNATIVE

The Resort would not be expanded and conditions would remain consistent with current operations.

ES.4 ENVIRONMENTAL IMPACTS AND PROPOSED MITIGATION

ES.4.1 UNAVOIDABLE AND IRREVERSIBLE SIGNIFICANT IMPACTS

The environmental analyses provided in **Section 3.0**, **Environmental Analysis**, address all potential off-reservation environmental impacts of the Proposed Project, as required by the Tribe's gaming Compact with the State of California (Compact). With the implementation of mitigation measures, all potentially significant off-reservation impacts would be reduced to less-than-significant levels. There are no unavoidable or irreversible significant impacts attributable to the Proposed Project.

ES.4.2 IMPACTS AND MITIGATION SUMMARY

Table ES-1 presents a summary of potential off-reservation environmental impacts of the Proposed Project and RIA and recommended mitigation measures that would avoid or minimize potentially significant off-reservation impacts. This table is based on the analysis of identified off-reservation environmental impacts attributable to the Proposed Project and RIA presented in **Section 3.0**, **Environmental Analysis**, and **Section 4.0**, **Alternatives**. In this table, the level of significance of each off-reservation environmental impact is indicated both before and after the application of the recommended mitigation measure(s). For detailed discussions of all identified off-reservation environmental impacts attributable to the Proposed Project and corresponding mitigation measures, the reader is referred to the individual environmental analysis sections within **Section 3.0**, **Environmental Analysis**, of this Draft TEIR.

TABLE ES-1
IMPACTS AND MITIGATION MEASURES SUMMARY TABLE

Impact		Level of Significance: Proposed Project / Reduce Intensity Alternative	TEIR-Identified Mitigation Measure		Residual Significance: Proposed Project / Reduce Intensity Alternative
3.2	**Transportation/Traffic**				
3.2.1	Construction worker trips and delivery of construction materials and equipment during construction of the Proposed Project would increase off-reservation traffic, which could be substantial in relation to the existing traffic load and capacity of the street system and/or could exceed the applicable level of service (LOS) standard.	PS / PS	**3.2.1**	**The Tribe shall prepare and implement, prior to commencing each phase of the Proposed Project development, a Construction Traffic Control Plan.** The Construction Traffic Control Plan shall be prepared in accordance with applicable Caltrans requirements and shall include information about times of construction, haul routes, delivery times for heavy equipment, and any other specific information required by Caltrans, to coordinate and reduce impacts on affected jurisdictions, businesses, and residences in the study area.	LTS / LTS
3.2.2	Operation of the Proposed Project would generate new vehicle trips that would cause an increase in off-reservation traffic; however, this increase would not cause any study area intersection to exceed the applicable LOS standard.	LTS / LTS		None warranted	LTS / LTS
3.2.3	Operation of the Proposed Project would generate new vehicle trips that would cause an increase in off-reservation traffic that could exceed the applicable LOS standard along certain study area roadway segments. *SR-16 between the Resort and Country Road 85 (CR-85)*	PS / PS	**3.2.3**	**Install Slow Vehicle Turnouts** a. **SR-16 between the Resort and CR-85**: The Tribe, in consultation with Caltrans, shall install one slow vehicle turnout in compliance with applicable Caltrans standards in each direction on SR-16 between the Resort and CR-85. The Proposed Project's proportionate share of the impact is 91 percent, but the Proposed Project's percentage of mitigation cost shall be determined in consultation with Caltrans. The exact locations of the slow vehicle turnouts shall be determined ~~at the time the significant impact is experienced and~~	LTS / LTS

PS = Potentially Significant NI = No Impact LTS = Less than Significant

TABLE ES-1
IMPACTS AND MITIGATION MEASURES SUMMARY TABLE
(PS=Potentially Significant, NI= No Impact; LTS= Less than Significant)

Impact	Level of Significance: Proposed Project / Reduce Intensity Alternative	TEIR-Identified Mitigation Measure	Residual Significance: Proposed Project / Reduce Intensity Alternative
		~~shall be acceptable to~~ in consultation with Caltrans. Separate environmental review and analysis under the California Environmental Quality Act (CEQA) shall be required with respect to the slow vehicle turnouts once the ~~impacts are experienced and the~~ precise locations of the turnouts have been determined. That review and analysis would have to be completed before commencement of construction of the turnout pockets.	
SR-16 between Esparto and CR-89	PS / PS	b. **SR-16 (westbound [WB]) between Esparto and CR-89:** The Tribe, in consultation with Caltrans, shall install one slow vehicle turnout in compliance with applicable Caltrans standards in the westbound direction on SR-16 between the Esparto town limits and CR-89. The Proposed Project's proportionate share of the impact is 29 percent, but the Proposed Project's percentage of mitigation cost shall be determined in consultation with Caltrans. The exact locations of the slow vehicle turnouts shall be determined ~~at the time the significant impact is experienced and shall be acceptable to~~ in consultation with Caltrans. Separate environmental review and analysis under CEQA shall be required with respect to the slow vehicle turnouts once the ~~impacts are experienced and the~~ precise locations of the turnouts have been determined. That review and analysis would have to be completed before commencement of construction of the slow vehicle turnouts.	LTS / LTS
SR-16 between CR-89 and I-505	PS / PS	c. **SR-16 (WB) between CR-89 and I-505:** The Tribe, in consultation with Caltrans, shall install one slow vehicle turnout in compliance with applicable Caltrans standards in the westbound direction on SR-16 between CR-	LTS / LTS

TABLE ES-1
IMPACTS AND MITIGATION MEASURES SUMMARY TABLE
(PS=Potentially Significant, NI= No Impact; LTS= Less than Significant)

Impact	Level of Significance: Proposed Project / Reduce Intensity Alternative	TEIR-Identified Mitigation Measure	Residual Significance: Proposed Project / Reduce Intensity Alternative
		89 and I-505. The Proposed Project's proportionate share of the impact is 60 percent, but the Proposed Project's percentage of mitigation cost shall be determined in consultation with Caltrans. The exact locations of the slow vehicle turnouts shall be determined ~~at the time the significant impact is experienced and shall be acceptable to~~ in consultation with Caltrans. Separate environmental review and analysis under CEQA shall be required with respect to the slow vehicle turnouts once the ~~impacts are experienced and the~~ precise locations of the turnouts have been determined. That review and analysis would have to be completed before commencement of construction of the slow vehicle turnouts.	
SR-16 between I-505 and CR-98	PS / PS	d. **SR-16 between I-505 and CR-98:** The Tribe, in consultation with Caltrans, shall install one slow vehicle turnout in compliance with applicable Caltrans standards in each direction on SR-16 between I-505 and CR-98. The Proposed Project's proportionate share of the impact is 29 percent, but the Proposed Project's percentage of mitigation cost shall be determined in consultation with Caltrans. The exact locations of the slow vehicle turnouts shall be determined ~~at the time the significant impact is experienced and shall be acceptable to~~ in consultation with Caltrans. Separate environmental review and analysis under CEQA shall be required with respect to the slow vehicle turnouts once the ~~impacts are experienced and the~~ precise locations of the turnouts have been determined. That review and analysis would have to be	LTS / LTS

TABLE ES-1
IMPACTS AND MITIGATION MEASURES SUMMARY TABLE
(PS=Potentially Significant, NI= No Impact; LTS= Less than Significant)

Impact		Level of Significance: Proposed Project / Reduce Intensity Alternative	TEIR-Identified Mitigation Measure	Residual Significance: Proposed Project / Reduce Intensity Alternative
			completed before commencement of construction of the slow vehicle turnouts.	
3.2.4	Operation of the Proposed Project would result in the addition of new vehicle trips along the study area roadway network; however, this increase would not substantially increase hazards associated with an incompatible design feature or hazards to bicycles and pedestrians or farm equipment.	LTS / LTS	None warranted	LTS / LTS
3.2.5	Operation of the Proposed Project would not result in inadequate emergency access for off-reservation responders.	LTS / LTS	None warranted	LTS / LTS
3.3	**Land Use, Agricultural Resources, Population and Housing, and Recreation and Parks**			
3.3.1	The Proposed Project would not conflict with any off-reservation land use plan (including any Habitat Conservation Plan [HCP] or Natural Community Conservation Plan [NCCP]), policy, or regulation of an agency adopted for the purpose of avoiding or mitigating an environmental effect.	NI / NI	None warranted.	NI / NI
3.3.2	The Proposed Project would not involve changes in the existing environment that, due to their location or nature, could result in conversion of off-reservation farmland to non-agricultural use.	NI / NI	None warranted	NI / NI
3.3.3	The Proposed Project would not induce substantial off-reservation population growth, nor would it displace any existing housing; therefore, the Proposed Project would not necessitate the construction of off-reservation housing.	LTS / LTS	None warranted	LTS / LTS
3.3.4	The Proposed Project would not increase the use of existing off-reservation neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility could occur or be accelerated.	LTS / LTS	None warranted	LTS / LTS

TABLE ES-1
IMPACTS AND MITIGATION MEASURES SUMMARY TABLE
(PS=Potentially Significant, NI= No Impact; LTS= Less than Significant)

Impact		Level of Significance: Proposed Project / Reduce Intensity Alternative	TEIR-Identified Mitigation Measure		Residual Significance: Proposed Project / Reduce Intensity Alternative
3.3.5	The Proposed Project is not likely to result in substantial adverse physical impacts associated with the provision of new or physically altered off-reservation parks, the construction of which could cause significant environmental impacts, to maintain acceptable service ratios, response times, or other performance objectives for off-reservation parks.	NI / NI		None warranted	NI / NI
3.4	**Biological Resources**				
3.4.1	The Proposed Project could potentially have a substantial adverse impact, either directly or through habitat modifications, on any species identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife (CDFW) or United States Fish and Wildlife Service (USFWS).	PS / PS	**3.4.1**	**Nesting and Migratory Birds** If feasible, construction activities related to the Proposed Project, including movement of heavy equipment and grading, shall be conducted outside of the nesting period (generally between March and mid-September), and outside of the peak nesting period for most migratory bird species. If construction activities cannot be avoided during the nesting period, a qualified biologist shall conduct preconstruction surveys for raptor nests within 0.5 miles of those activities. These surveys shall be conducted for ground-nesting, tree-nesting, and utility pole–nesting birds. The surveys shall be conducted no less than 14 days and no more than 30 days before the beginning of construction. If construction activities are delayed or suspended for more than 30 days after the preconstruction survey is completed, the area within 0.5 miles of the construction activities shall be resurveyed. If no active bird nests are identified, no further mitigation is necessary.	LTS / LTS
				If active bird nests are identified, construction activities within 500 feet, or another distance as determined by a qualified biologist based on the identified species, shall be postponed until after the nesting season, or until after a qualified biologist has determined that the young have fledged and are independent of the nest site. No known active nests shall be disturbed without a permit or other authorization from the USFWS and/or CDFW.	

TABLE ES-1
IMPACTS AND MITIGATION MEASURES SUMMARY TABLE
(PS=Potentially Significant, NI= No Impact; LTS= Less than Significant)

Impact		Level of Significance: Proposed Project / Reduce Intensity Alternative	TEIR-Identified Mitigation Measure	Residual Significance: Proposed Project / Reduce Intensity Alternative
3.4.2	The Proposed Project would not have a substantial adverse effect on any off-reservation riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFW or USFWS.	NI / NI	None warranted	NI / NI
3.4.3	The Proposed Project would not have a substantial adverse effect on federally protected off-reservation wetlands as defined by Section 404 of the Clean Water Act (CWA).	NI / NI	None warranted	NI / NI
3.4.4	The Proposed Project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.	NI / NI	None warranted	NI / NI
3.4.5	The Proposed Project would not conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or state HCP.	NI / NI	None warranted	NI / NI
M-3.4.1	Construction and operation of the off-reservation traffic mitigation measures described in **Sections 3.2** and **3.13** could have a substantial adverse effect, either directly or through habitat modifications, on any species identified in local or regional plans, policies or regulations or by the CDFW or USFWS.	PS / PS	**M-3.4.1 Protection of Species and Habitats from Traffic Mitigation** a. **Worker Awareness and Training:** Before initiation of vegetation removal, grading, or any other ground-disturbing activities related to off-reservation traffic mitigation, a qualified biologist shall conduct mandatory worker awareness training for all construction personnel. The awareness training shall provide information on how to avoid impacts on biological resources, particularly special-status species. The training shall also inform workers of the penalties for not complying with mitigation requirements. If new construction personnel are subsequently engaged for such mitigation, they shall also receive the training.	LTS / LTS

TABLE ES-1
IMPACTS AND MITIGATION MEASURES SUMMARY TABLE
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Impact	Level of Significance: Proposed Project / Reduce Intensity Alternative	TEIR-Identified Mitigation Measure	Residual Significance: Proposed Project / Reduce Intensity Alternative
		b. **Nesting and Migratory Birds:** If feasible, construction activities related to off-reservation traffic mitigation, including vegetation removal, movement of heavy equipment, and grading, shall be conducted outside of the nesting period (generally between March and mid-September) and outside of the peak nesting period for most migratory bird species. If construction activities cannot be avoided during the nesting period, a qualified biologist shall conduct preconstruction surveys for raptor nests within 0.5 miles of those activities. These surveys shall be conducted for ground-nesting, tree-nesting, and utility pole–nesting birds. The surveys shall be conducted no less than 14 days and no more than 30 days before the beginning of construction. If construction activities related to traffic mitigation are delayed or suspended for more than 30 days after the preconstruction surveys are completed, the area within 0.5 miles of the construction activities shall be resurveyed. If no active bird nests are identified, no further mitigation is necessary. If active bird nests are identified, construction activities related to traffic mitigation within 500 feet of the identified nest(s), or another appropriate distance as determined by a qualified biologist based on the identified species, shall be postponed until after the nesting period, or until after a qualified biologist has determined that the young have fledged and are independent of the nest site. No known active nests shall be disturbed without a permit or other authorization from the USFWS and/or CDFW. c. **Swainson's Hawk:** A qualified biologist shall conduct preconstruction surveys for raptor nests in the vicinity of off-reservation traffic mitigation construction activities within 14 days prior to commencement of those activities. If active Swainson's hawk nests are	

TABLE ES-1
IMPACTS AND MITIGATION MEASURES SUMMARY TABLE
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Impact	Level of Significance: Proposed Project / Reduce Intensity Alternative	TEIR-Identified Mitigation Measure	Residual Significance: Proposed Project / Reduce Intensity Alternative
		identified, no construction activities shall take place within 0.5 miles of active nests between March 1 and September 15, if feasible. If it is not feasible to postpone construction activities within the 0.5-mile buffer zone until after September 15, permission to infringe on the buffer region shall be obtained from the CDFW. A qualified biologist shall monitor the nest site until the biologist has determined that the nestlings have successfully fledged and are no longer dependent on the nest. If the biologist determines that the nest has been abandoned, the Tribe shall fund the recovery, rearing, and controlled release of the young by a qualified organization, such as the University of California, Davis Raptor Center. Impacts to Swainson's hawk nesting habitat shall be mitigated as follows: 1. No nesting tree (i.e. any tree that either has the potential to be used by Swainson's hawks to nest or has been documented by the CDFW as being used by Swainson's hawks in the past) shall be removed unless there is no feasible way of avoiding that removal. 2. When known or potential mature nest trees must be removed, the proper authorization must be obtained from CDFW prior to removal. This authorization would specify the time of year during which the tree may be removed (generally between October 1 and February 1) and the mitigation measures necessary to offset the loss of the tree.	
M-3.4.2 Construction and operation of off-reservation traffic mitigation measures described in **Sections 3.2** and **3.13** would not have a substantial adverse effect on any off-reservation riparian habitat or other sensitive natural community	NI / NI	None warranted	NI / NI

TABLE ES-1
IMPACTS AND MITIGATION MEASURES SUMMARY TABLE
(PS=Potentially Significant, NI= No Impact; LTS= Less than Significant)

	Impact	Level of Significance: Proposed Project / Reduce Intensity Alternative	TEIR-Identified Mitigation Measure	Residual Significance: Proposed Project / Reduce Intensity Alternative
	identified in local or regional plans, policies, regulations, or by the CDFW or USFWS.			
M-3.4.3	Construction and operation of off-reservation traffic mitigation measures described in **Sections 3.2** and **3.13** would not adversely affect federally protected off-reservation wetlands as defined by Section 404 of the CWA.	NI / NI	None warranted	NI / NI
M-3.4.4	Construction and operation of off-reservation traffic mitigation measures described in **Sections 3.2** and **3.13** would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.	NI / NI	None warranted	NI / NI
M-3.4.5	Construction and operation of the off-reservation traffic mitigation measures described in **Sections 3.2** and **3.13** would not conflict with the provisions of an adopted HCP/NCCP, or other approved local, regional, or state HCP.	LTS / LTS	None warranted	LTS / LTS
3.5	**Cultural and Paleontological Resources**			
3.5.1	The Proposed Project would not cause a substantial adverse change in the significance of an off-reservation historical or archaeological resource.	NI / NI	None warranted	NI / NI
3.5.2	The Proposed Project would not directly or indirectly destroy an off-reservation unique paleontological resource or a unique geologic feature.	NI / NI	None warranted	NI / NI
3.5.3	The Proposed Project would not disturb any off-reservation human remains, including those interred outside of formal cemeteries.	NI / NI	None warranted	NI / NI

TABLE ES-1
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Impact	Level of Significance: Proposed Project / Reduce Intensity Alternative	TEIR-Identified Mitigation Measure	Residual Significance: Proposed Project / Reduce Intensity Alternative
M-3.5.1 The Proposed Project could cause a substantial adverse change in the significance of a significant off-reservation historical or archaeological resource.	PS / PS	**M-3.5.1 Protection of Cultural Resources from Traffic Mitigation** **a. Preconstruction Record Search:** If more than 5 years pass prior to the construction of traffic improvements (i.e., after June 30, 2021), an updated record search shall be completed by the Northwest Information Center (NWIC) to identify any newly recorded cultural resources which may be impacted by construction of recommended traffic improvements. b. **Investigation of Known Archaeological Sites:** If any known archaeological resources are identified within the staging or construction footprints of an off-site traffic improvement area and the site(s) has been previously assessed as eligible or potentially eligible for listing on the California Register of Historic Resources (CRHR) or National Register of Historic Places (NRHP), an archaeological investigation of the to-be impacted portions of the improvement area shall be conducted prior to construction, which may include any or all of the following, as appropriate: development of a Treatment Plan, development of a Mitigation or Monitoring Plan, Phase II site testing and evaluation, Phase III data recovery, construction monitoring, or development and implementation of avoidance measures. If a resource may be impacted that has not been assessed for CRHR/NRHP eligibility, an eligibility assessment shall be completed prior to construction and mitigation measures shall be identified and implemented if it is found to be eligible for listing. c. **Historical Resource Viewshed Analysis:** Off-site traffic improvements that would result in permanent changes to the landscape (i.e., lane construction or intersection signalization) within one block of historical structures or districts (those resources	LTS / LTS

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		identified as CRHR or NRHP eligible) shall be evaluated for their visual impacts on those resources by a qualified architectural historian, who may recommend site-specific mitigation to reduce any such impacts to less-than-significant levels. d. **Inadvertent Discovery:** In the event that buried archaeological materials, such as flaked stone, historic debris, structural formations, or unusual amounts of stone or shell are inadvertently discovered within the area of potential effects during ground-disturbing activities, all work shall be halted within 50 feet of the find and the Lead Agency and the Tribe (if the find is a prehistoric resource) shall be contacted immediately. The Tribe shall retain a qualified professional archaeologist to assess the find and determine an appropriate course of action in consultation with the Lead Agency and the Tribe. The process outlined in **Mitigation Measure M-3.5.1(b)** shall be followed.	
M-3.5.2 The Proposed Project would not directly or indirectly destroy an off-reservation unique paleontological resource or a unique geologic feature.	NI / NI	None warranted	NI / NI
M-3.5.3 The Proposed Project could disturb off-reservation human remains, including those interred outside of formal cemeteries.	PS / PS	**M-3.5.3 Protection of Human Remains Following Inadvertent Discovery** If human remains are discovered during construction, pursuant to Public Resources Code (PRC) Section 5097.98 and Section 7050.5 of the California Health and Safety Code, all activities within a 100-foot radius of the find shall be halted immediately and the Tribe, Lead Agency, and Yolo County coroner shall be notified. California law recognizes the need to protect interred human remains, particularly Native American burials and items of cultural patrimony, from vandalism and inadvertent destruction. The coroner is required to examine all discoveries of human remains within 48	LTS / LTS

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				hours of receiving notice of a discovery on private or state lands (Health and Safety Code Section 7050.5[b]). If the coroner determines that the remains are those of a Native American, he or she must contact the Native American Heritage Commission (NAHC) by phone within 24 hours of making that determination (Health and Safety Code Section 7050[c]). The Lead Agency shall contact the Most Likely Descendent (MLD), as determined by the NAHC, regarding the remains. The MLD, in cooperation with the Lead Agency, Tribe, and a qualified professional archaeologist shall develop a plan of action to avoid or minimize significant effects on the human remains prior to resumption of ground-disturbing activities. Work may resume if the NAHC is unable to identify a descendant or the descendant fails to make a recommendation.	
3.6	**Hazards and Hazardous Materials**				
3.6.1	The Proposed Project could create a hazard to the off-reservation public and/or off-reservation environment through routine transport, use, or disposal of hazardous materials, or through reasonably foreseeable upset and accident involving the release of hazardous materials into the off-reservation environment during construction, but not operation, of the Proposed Project.	PS / PS	**3.6.1**	**Protection of the Environment from Hazardous Materials during Construction** a. During construction of the Proposed Project, the Tribe shall ensure, through the enforcement of contractual obligations of the contractors performing such construction, that all contractors prepare HMBPs if quantities of hazardous materials to be used are above applicable threshold criteria, and that such contractors transport, store, and handle construction-related hazardous materials in a manner consistent with applicable regulations and guidelines. These requirements may include, but are not limited to, applicable federal, state, and/or local regulatory agency protocols for off-reservation transportation and storage of materials and applicable federal and Tribal protocols for on-trust land storage and handling of materials. b. As discussed in **Section 3.7**, **Hydrology and Water Quality**, a Stormwater Pollution Prevention Plan	LTS / LTS

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Impact	Level of Significance: Proposed Project / Reduce Intensity Alternative	TEIR-Identified Mitigation Measure	Residual Significance: Proposed Project / Reduce Intensity Alternative
		(SWPPP) shall be prepared for the Proposed Project that identifies best management practices (BMPs) to be implemented during construction of the Proposed Project, as required by the National Pollution Discharge Elimination System (NPDES) Construction Stormwater General Permit. All BMPs required by the NPDES General Permit shall be implemented to ensure that hazardous materials do not enter any nearby waterways. BMPs outlined in **Mitigation Measure 3.7.3** shall be implemented, including the following practices that pertain to reducing the potential for the release of hazardous materials during construction. 1. Hazardous materials such as fuels and solvents used in the construction of the Proposed Project shall be stored in covered containers and protected from rainfall, runoff, vandalism, and accidental release to the environment. All stored fuels and solvents shall be contained in an area of impervious surface with containment capacity equal to the volume of materials stored. 2. A stockpile of spill cleanup materials shall be readily available at the Proposed Project site. Construction workers shall be trained in spill prevention and cleanup, and individuals on each shift shall be designated as responsible for prevention and cleanup activities. 3. Equipment used in the construction of the Proposed Project shall be properly maintained in designated areas equipped with runoff and erosion control measures to minimize accidental release of pollutants.	
3.6.2 The Proposed Project would not emit hazardous emissions or involve handling of hazardous materials, substances, or waste within one-	NI / NI	None warranted	NI / NI

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quarter mile of an existing or proposed off-reservation school.			
3.6.3 The Proposed Project would expose off-reservation people or structures to a significant risk of loss, injury, or death involving wildland fires during construction but not operation of the Proposed Project.	PS / PS	**3.6.2 Wildfire Prevention** Construction personnel shall follow written standard operating procedures (SOPs) for servicing and operating construction equipment and vehicles to reduce the potential for wildland fires. These SOPs shall address equipment use and the storage and use of hazardous materials during construction of the Proposed Project. The SOPs shall include the following procedures, to be implemented where feasible and when reasonable: 1. Refueling shall be conducted only with approved pumps, hoses, and nozzles; 2. Catch-pans shall be placed under equipment to catch potential spills during servicing; 3. All disconnected hoses shall be placed in containers to collect residual fuel from the hose; 4. Vehicle engines shall be shut down during refueling; 5. No smoking, open flames, or welding shall be allowed in refueling or service areas; 6. Service trucks shall be provided with fire extinguishers; 7. Staging areas, welding areas, and areas slated for development using spark-producing equipment shall be cleared of dried vegetation or other materials that could serve as fire fuel. To the extent feasible, the contractor shall keep these areas clear of combustible materials to maintain a firebreak; 8. Any construction equipment that normally includes a spark arrester shall be equipped with an arrester in good working order; and 9. All hazardous materials transported to or from the Proposed Project site shall be transported in accordance with applicable state and federal	LTS / LTS

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Impact		Level of Significance: Proposed Project / Reduce Intensity Alternative	TEIR-Identified Mitigation Measure	Residual Significance: Proposed Project / Reduce Intensity Alternative
			regulations as required based on quantity and class of materials.	
3.7	**Hydrology and Water Quality**			
3.7.1	The Proposed Project would not violate any water quality standards or waste discharge requirements (WDRs).	LTS / LTS	None warranted	LTS / LTS
3.7.2	The Proposed Project would not substantially deplete off-reservation groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or lowering of the local groundwater table (e.g., cause the production rate of pre-existing nearby wells to drop to a level that would not support existing land uses or planned uses for which permits have been granted).	LTS / LTS	None warranted	LTS / LTS
3.7.3	Construction of the Proposed Project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of a course of a stream or river, in a manner that would result in substantial erosion or siltation off site, or provide substantial additional sources of polluted runoff off reservation, but could result in off-reservation siltation from erosion or polluted off-reservation runoff.	PS / PS	**3.7.3 Stormwater General NPDES Permit for Construction Activities** The Tribe shall comply with the terms of the United States Environmental Protection Agency's (USEPA's) Stormwater General NPDES Permit for Construction Activities prior to and during construction of the Proposed Project. As part of its compliance with the permit, the Tribe shall prepare and implement a SWPPP for construction activities. The SWPPP shall identify pollutant sources that may affect the quality of stormwater discharge. The SWPPP shall include site-specific BMPs to reduce these pollutants and minimize the potential for their release into natural waters. BMPs may include, but are not limited to, the following: a. If excavation occurs during the rainy season, stormwater runoff from the construction area shall be regulated through a stormwater management/erosion control plan that shall include temporary on-site silt traps and/or basins with multiple discharge points to natural drainages and	LTS / LTS

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Impact	Level of Significance: Proposed Project / Reduce Intensity Alternative	TEIR-Identified Mitigation Measure	Residual Significance: Proposed Project / Reduce Intensity Alternative
		energy dissipaters. Stockpiles of loose material shall be covered and runoff diverted away from exposed soil material. If work stops due to rain, a positive grading away from slopes shall be provided to carry the surface runoff to areas where flow would be controlled, such as the temporary silt basins. Sediment basins/traps shall be located and operated to minimize the amount of off-reservation sediment transport. Any trapped sediment shall be removed from the basin or trap and placed at a suitable location on site, away from concentrated flows, or removed to an approved disposal site. b. Temporary erosion control measures (such as fiber rolls, staked straw bales, detention basins, check dams, geofabric, sandbag dikes, and temporary revegetation or other ground cover) shall be provided until perennial revegetation or landscaping is established and can minimize discharge of sediment into nearby waterways. For construction within 500 feet of a water body, appropriate erosion control measures shall be placed upstream adjacent to the water body. c. No disturbed surfaces shall be left without erosion control measures in place during the spring and winter months. d. Erosion protection shall be provided on all cut-and-fill slopes. Revegetation shall be facilitated by mulching, hydroseeding, or other methods and shall be initiated as soon as possible after completion of grading and prior to the onset of the rainy season. e. Hazardous materials such as fuels and solvents used on the construction site shall be stored in covered containers and protected from rainfall, runoff, vandalism, and accidental release to the environment. All stored fuels and solvents shall be contained in an area of impervious surface with	

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			containment capacity equal to the volume of materials stored. f. A stockpile of spill cleanup materials shall be readily available at all construction sites. Construction workers shall be trained in spill prevention and cleanup, and individuals shall be designated as responsible for prevention and cleanup activities. g. Equipment shall be properly maintained in designated areas with runoff and erosion control measures to minimize accidental release of pollutants.	
3.7.4	Construction of the Proposed Project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding off-site.	LTS / LTS	None warranted	LTS / LTS
3.7.5	The Proposed Project would not place within a 100-year flood hazard area any structure, and therefore would not impede or redirect off-reservation flood flows.	NI / NI	None warranted	NI / NI
3.7.6	The Proposed Project would not expose off-reservation people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a dam or levee	NI / NI	None warranted	NI / NI
3.8	**Air Quality**			
3.8.1	The Proposed Project would emit ozone precursors in the Sacramento Valley Air Basin (SVAB), which is designated as severe nonattainment for ozone under the National Ambient Air Quality Standards (NAAQS); however, these emissions would not conflict with or obstruct the implementation of the applicable ozone air quality plan, violate the ozone air	LTS / LTS	None warranted	LTS / LTS

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	Impact	Level of Significance: Proposed Project / Reduce Intensity Alternative	TEIR-Identified Mitigation Measure	Residual Significance: Proposed Project / Reduce Intensity Alternative
	quality standard, or contribute to the existing or projected air quality violation related to the emissions of ozone precursors.			
3.8.2	The Proposed Project would not emit odors detectable in the off-reservation environment and the off-reservation environment in the vicinity of the Proposed Project site does not include a substantial number of people; therefore, implementation of the Proposed Project would not create objectionable odors affecting a substantial number of people off reservation.	NI / NI	None warranted	NI / NI
3.8.3	The Proposed Project would not cause high concentrations of carbon monoxide (CO); therefore, implementation of the Proposed Project would not expose off-reservation sensitive receptors to substantial CO concentrations.	LTS / LTS	None warranted	LTS / LTS
3.8.4	The Proposed Project would not cause high concentrations of diesel particulate matter (DPM); therefore, implementation of the Proposed Project would not expose off-reservation sensitive receptors to substantial DPM concentrations.	LTS / LTS	None warranted	LTS / LTS
3.9	**Noise**			
3.9.1	The Proposed Project would not expose off-reservation persons to noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	LTS / LTS	None warranted	LTS / LTS
3.9.1	The Proposed Project would not expose off-reservation persons to excessive groundborne vibration or groundborne noise levels.	LTS / LTS	None warranted	LTS / LTS
3.9.3	The Proposed Project would not result in a substantial permanent increase in ambient noise levels in the off-reservation vicinity of the Proposed Project.	LTS / LTS	None warranted	LTS / LTS

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Impact		Level of Significance: Proposed Project / Reduce Intensity Alternative	TEIR-Identified Mitigation Measure	Residual Significance: Proposed Project / Reduce Intensity Alternative
3.9.4	During construction, the Project would not result in a substantial temporary increase in ambient noise levels in the off-reservation vicinity of the Proposed Project.	LTS / LTS	None warranted	LTS / LTS
3.10	**Public Services, Utilities, and Service Systems**			
3.10.1	*Public Facilities – Fire Protection*. Although the Proposed Project could increase demands for off-reservation fire protection services, it would not result in the need for the construction of new or the alteration of existing off-reservation governmental fire protection facilities.	NI / NI	None warranted	NI / NI
3.10.2	*Public Facilities – Other – Emergency Medical Services*. Although the Proposed Project could increase demands for off-reservation emergency medical services, it would not result in the need for the construction of new or the alteration of existing off-reservation governmental emergency medical facilities.	NI / NI	None warranted	NI / NI
3.10.3	*Public Facilities – Other – Public Health*. Although the Proposed Project could increase demands for off-reservation public health systems, it would not result in the need for the construction of new or the alteration of existing public health facilities.	NI / NI	None warranted	NI / NI
3.10.4	*Public Facilities – Police Protection and Law Enforcement*. Although the Proposed Project could increase demands on off-reservation police protection and law enforcement services, it would not result in the need for the construction of new or the alteration of existing off-reservation governmental law enforcement facilities.	NI / NI	None warranted	NI / NI
3.10.5	*Public Facilities – Other – Criminal Justice*. Although the Proposed Project could increase the workload of the County criminal justice system, it would not result in the need for the construction	NI / NI	None warranted	NI / NI

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	Impact	Level of Significance: Proposed Project / Reduce Intensity Alternative	TEIR-Identified Mitigation Measure	Residual Significance: Proposed Project / Reduce Intensity Alternative
	of new or the alteration of existing governmental criminal justice facilities.			
3.10.6	*Public Facilities – Public Schools*. The Proposed Project would not affect performance objectives for off-reservation public schools and therefore would not result in the need for the construction of new or the alteration of existing off-reservation public school facilities.	NI / NI	None warranted	NI / NI
3.10.7	*Utilities – Water and Wastewater Treatment Facilities*. The Proposed Project would not require the construction of any new water or wastewater treatment facilities or the expansion of existing facilities, the construction of which could cause significant off-reservation environmental effects.	NI / NI	None warranted	NI / NI
3.10.8	*Utilities – RWQCB Requirements*. The Proposed Project would not exceed off-reservation wastewater treatment requirements of the Central Valley Regional Water Quality Control Board (CVRWQCB).	LTS / LTS	None warranted	LTS / LTS
3.10.9	*Utilities – Stormwater Drainage Facilities*. The Proposed Project would not require the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant off-reservation environmental impacts.	NI / NI	None warranted	NI / NI
3.10.10	*Public Facilities – Other – Landfill*. The Proposed Project would not affect performance objectives for the Yolo County Landfill and therefore would not result in the need for the construction of new or the alteration of existing off-reservation governmental landfill facilities.	LTS / LTS	None warranted	LTS / LTS
3.10.11	*Public Facilities – Other – Electricity.* The Proposed Project would not require or result in the construction of new energy production	NI / NI	None warranted	NI / NI

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	facilities or expansion of existing facilities, the construction of which could cause significant off-reservation environmental effects.			
3.10.12	*Public Facilities – Public Transit*. The Proposed Project would not affect availability of public transit and therefore would not result in the need for the construction of new or the alteration of existing off-reservation public transit facilities.	LTS / LTS	None warranted	LTS / LTS
3.11	**Aesthetics**			
3.11.1	The Proposed Project would not affect any off-reservation scenic vista.	LTS / LTS	None warranted	LTS / LTS
3.11.2	The Proposed Project would not substantially damage any off-reservation scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings adjacent to a state scenic highway.	LTS / LTS	None warranted	LTS / LTS
3.11.3	The Proposed Project would add additional sources of lighting and glare at the Resort, which could affect off-reservation day or night-time views in the area.	PS / PS	**3.11.3 Lighting Restrictions** The Tribe shall ensure that the following measures are implemented (through contractual requirements if and as needed) to minimize the effects of lighting and glare from the construction and operation of the Proposed Project: a. The Tribe shall limit construction activities for the Proposed Project to between 7:00 a.m. and 7:00 p.m. to the extent feasible and reasonable. If dusk or nighttime activities are necessary at the Proposed Project site, lighting for those activities shall be strictly limited to the minimum locations necessary for safety and security and shall be downcast onto the worksite to prevent lighting and glare impacts on off-reservation residential structures. b. Permanent exterior lighting for the Proposed Project shall be designed so as not to cast light off of the trust lands. To minimize off-reservation impacts of light and glare from the Proposed Project, exterior lighting of the Proposed Project shall adhere to the “full	LTS / LTS

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			cutoff" standard developed by the Illuminating Engineering Society of North America (IES, 2001). c. Shielding, such as with a horizontal shroud, shall be used for all exterior lighting for the Proposed Project to ensure it is downcast. d. Timers for exterior lighting for the Proposed Project shall be utilized to limit such exterior lighting use to times appropriate to meet safety and security concerns.	
3.12	**Geology, Soils, and Mineral Resources**			
3.12.1	The Proposed Project would not expose off-reservation people or structures to substantial adverse effects caused by rupture of a known earthquake fault or other strong seismic ground shaking.	LTS / LTS	None warranted	LTS / LTS
3.12.2	The Proposed Project would not expose off-reservation people or structures to substantial adverse effects involving seismic-related ground failure, including liquefaction.	NI / NI	None warranted	NI / NI
3.12.3	The Proposed Project would not expose off-reservation people or structures to substantial adverse effects involving landslides.	NI / NI	None warranted	NI / NI
3.12.4	The Proposed Project could result in substantial off-reservation soil erosion or the loss of topsoil.	PS / PS	Implement **Mitigation Measure 3.7.3**.	LTS / LTS
3.12.5	The Proposed Project would not result in the loss of availability of a known off-reservation mineral resource or locally important resource recovery site.	NI / NI	None warranted	NI / NI
3.13	**Growth-Inducing and Cumulative Impacts**			
			Growth-Inducing	
	While the Proposed Project would increase the number of employees at the Resort, the predicted number of unemployed persons within Yolo	NI / NI	None warranted	NI / NI

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County would exceed the increase in employees at the Resort. The Proposed Project would not require the off-reservation expansion of utilities and services, such as water, wastewater, fire protection, and law enforcement. Therefore, the Proposed Project would not create significant off-reservation growth-inducing impacts.				
Cumulative				
Transportation/Traffic Impacts to transportation may be cumulatively considerable to study intersections and roadway segments should all the growth anticipated in the Yolo County 2030 General Plan be experienced.				
SR-16/CR-94B	PS / PS	**3.13.1**	**Install a ~~two-way left-turn~~refuge lane along SR-16.** To mitigate impacts of the Proposed Project expected to occur in the 2035 Plus Proposed Project Condition, a ~~two-way left-turn~~refuge lane shall be installed along SR-16 for northbound and southbound left turn users. This improvement would create a receiving lane for the side-street approach traffic to use, thereby reducing the delay to cross SR-16. Because the Proposed Project itself would not trigger the impact but would add to the unacceptable operation, the Proposed Project would be responsible for a proportionate share of the mitigation costs if and when the impact occurs. The results of the Traffic Impact Study (TIS) indicate that the Proposed Project's fair share contribution would be 14 percent. Modifying the intersection as recommended in this mitigation measure would reduce the impact to a less-than-significant level and improve the intersection to an acceptable LOS D and LOS C on the side street during the Friday PM and Saturday PM peak hours, respectively (see Table 15 of **Appendix D**).	LTS / LTS
SR-16 between the Resort and CR-85	PS / PS	**3.13.2**	**Install slow vehicle turnouts in each direction on SR-**	LTS / LTS

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Impact	Level of Significance: Proposed Project / Reduce Intensity Alternative	TEIR-Identified Mitigation Measure		Residual Significance: Proposed Project / Reduce Intensity Alternative
			16 between the Resort and CR-85. To mitigate the Proposed Project impacts expected to occur in 2035, **Mitigation Measure 3.2.2** shall be implemented. **Mitigation Measure 3.2.2** is to install a slow-vehicle turnout shall be installed in each direction on SR-16 between the Resort and CR-85. The Proposed Project's proportionate share of the impact would be 91 percent, but the Proposed Project's percentage of the mitigation costs shall be determined in consultation with Caltrans	
SR-16 between Esparto Town Limits and CR-89	PS / PS	**3.13.3**	**Install slow vehicle turnouts in each direction on SR-16 between the Esparto town limits and CR-89.** To mitigate the Proposed Project impacts expected to occur in 2035, a slow vehicle turnout shall be installed in both directions on SR-16 between the Esparto town limits and CR-89. The Proposed Project's proportionate share of the impact would be 29 percent, but the Proposed Project's percentage of the mitigation costs shall be determined in consultation with Caltrans.	LTS / LTS
SR-16 between CR-89 and I-505	PS / PS	**3.13.4**	**Install slow vehicle turnouts in each direction on SR-16 between CR-89 and I-105 ramps.** To mitigate the Proposed Project impacts expected to occur in 2035, a slow vehicle turnout shall be installed in both directions on SR-16 between CR-89 and the I-505 ramps. The Proposed Project's proportionate share is 60 percent, but the Proposed Project's percentage of the mitigation costs shall be determined in consultation with Caltrans.	LTS / LTS
SR-16 between I-505 and CR-98	PS / PS	**3.13.5**	**Install slow vehicle turnouts in each direction on SR-16 between I-505 and CR-98 ramps.** To mitigate the Proposed Project impacts expected to occur in 2035, **Mitigation Measure 3.2.5** shall be implemented. **Mitigation Measure 3.2.5** is to install a slow-vehicle turnout shall be installed in each direction on SR-16 between the I-505 ramps and CR-98. The	LTS / LTS

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		Proposed Project's proportionate share of the impact would be 29 percent, but the Proposed Project's percentage of the mitigation costs shall be determined in consultation with Caltrans.	
Land Use, Agriculture, Population and Housing, and Recreation and Parks The Proposed Project would not result in cumulatively considerable impacts with respect to off-reservation land use plans, population growth, housing availability, agricultural resources, or to recreation and park facilities.	LTS / LTS	None warranted	LTS / LTS
Biological Resources The Proposed Project would not result in cumulatively considerable impacts on off-reservation biological resources.	LTS / LTS	None warranted	LTS / LTS
Cultural The Proposed Project would not result in cumulatively considerable impacts on off-reservation cultural resources.	LTS / LTS	None warranted	LTS / LTS
Hazards and Hazardous Materials The Proposed Project would not result in cumulatively considerable off-reservation impacts with respect to hazardous materials.	PS / PS	Refer to **Mitigation Measure 3.6.1** and **Mitigation Measure 3.7.3**.	LTS / LTS
Because impacts to fire-fighting services would be less than significant (**Section 3.10**), the Proposed Project would not result in cumulatively considerable impacts concerning wildland fires.	LTS / LTS	None warranted	LTS / LTS
Hydrology and Water Quality The Proposed Project would not result in cumulatively considerable impacts with respect to off-reservation drainage and flooding.	LTS / LTS	None warranted	LTS / LTS

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The Proposed Project would not result in cumulatively considerable impacts with respect to off-reservation surface water quality.	LTS / LTS	Refer to **Mitigation Measure 3.7.3**.	LTS / LTS
Implementation of the Proposed Project and either water supply option would not result in cumulatively considerable impacts with respect to off-reservation groundwater in the region.	LTS / LTS	None warranted	LTS / LTS
The Proposed Project would not result in cumulatively considerable impacts with respect to off-reservation groundwater quality.	LTS / LTS	None warranted	LTS / LTS
Air Quality			
Operational emissions of the Proposed Project in the cumulative year 2035 would not result in cumulatively considerable impacts to off-reservation air quality.	LTS / LTS	None warranted	LTS / LTS
The Proposed Project would not result in cumulatively considerable impacts respect to off-reservation CO emissions.	LTS / LTS	None warranted	LTS / LTS
The Yolo County General Plan assumes a larger expansion of the Resort than would take place under the Proposed Project; therefore, the greenhouse gas (GHG) emissions would be less than those considered in the plan. With the implementation of GHG-reducing project components and the use of recycled water, the Proposed Project would not result in a cumulatively considerable impact to GHGs.	LTS / LTS	None warranted	LTS / LTS
Noise			
Vehicle noise attributable to the Proposed Project is not considered cumulatively considerable.	LTS / LTS	None warranted	LTS / LTS
Operation of the Proposed Project would not result in cumulatively considerable impacts to the off-reservation noise environment.	LTS / LTS	None warranted	LTS / LTS

TABLE ES-1
IMPACTS AND MITIGATION MEASURES SUMMARY TABLE
(PS=Potentially Significant, NI= No Impact; LTS= Less than Significant)

Impact	Level of Significance: Proposed Project / Reduce Intensity Alternative	TEIR-Identified Mitigation Measure	Residual Significance: Proposed Project / Reduce Intensity Alternative
Public Services and Utilities and Service Systems			NI / NI
The Proposed Project would not result in cumulatively considerable impacts to fire protection and emergency services.	NI / NI	None warranted	
The Proposed Project would not result in cumulatively considerable impacts to law enforcement.	NI / NI	None warranted	NI / NI
The Proposed Project would not result in a cumulatively considerable impact on any off-reservation public water or wastewater facilities.	NI / NI	None warranted	NI / NI
The Proposed Project would not result in cumulatively considerable impacts with respect to solid waste disposal.	LTS / LTS	None warranted	LTS / LTS
Aesthetics			
The Proposed Project would not have a cumulatively considerable impact with respect to off-reservation aesthetics.	PS / PS	Refer to **Mitigation Measure 3.11.3**	LTS / LTS
Geology, Soils, and Mineral Resources			
The Proposed Project would not have a cumulatively considerable impact with respect to off-reservation geology, soils, and mineral resources.	PS / PS	Refer to **Mitigation Measure 3.7.3**	LTS / LTS

SECTION 1.0

INTRODUCTION

SECTION 1.0
INTRODUCTION

1.1 BACKGROUND AND PURPOSE OF THE TRIBAL ENVIRONMENTAL IMPACT REPORT

The Yocha Dehe Wintun Nation (Tribe) owns and operates the Cache Creek Casino Resort (Resort) on lands in Yolo County that are held in trust by the United States of America for the Tribe. The Resort is located at 14455 Highway 16, Brooks, California.

The Resort is owned and operated by the Tribe pursuant to federal law and a gaming compact between the Tribe and the State of California (Compact). The Compact requires that, before beginning construction of any new "Project" (as defined in the Compact) at the Resort, the Tribe must cause to be prepared a Tribal Environmental Impact Report (TEIR) that analyzes the potential off-reservation environmental impacts of that Project. The environmental analysis required by the Compact must be conducted pursuant to the process described in the Compact.

Under the Compact, "off reservation" refers to all locations other than land held in trust for the Tribe. Thus, a TEIR must identify and analyze potentially significant environmental impacts that may occur off trust land.

The scope of a TEIR is established by Section 10.8 of the Compact, which requires that a TEIR consider all of the potential off-reservation environmental impacts listed in the Environmental Impact Analysis Checklist attached to the Compact as Exhibit A (Checklist). A copy of the Checklist is included as **Appendix A** of this TEIR.

The Tribe proposes to enhance the existing Resort by the construction of the Cache Creek Hotel Expansion Project (Proposed Project), consisting of the addition and expansion of amenities and functional spaces at the Resort. The Proposed Project includes the development of additional hotel rooms, a ballroom, more dining options, and additional administrative support (back-of-house) space. The Proposed Project meets the definition of a "Project" under the Compact and therefore the Tribe has prepared this TEIR in accordance with Section 10.8 of the Compact.

The Tribe will use this TEIR, the scope of which conforms to the Checklist (**Appendix A**), to determine whether the construction and operation of the Proposed Project would likely result in potentially significant impacts on the off-reservation environment. Notice of Preparation (NOP) comments were considered during the preparation of this TEIR, including the descriptions of the environmental setting of

the Proposed Project, as well as the analysis of potential off-reservation environmental impacts. A description of the Proposed Project is provided in **Section 2.0**, **Project Description**, of this TEIR. The existing off-reservation environmental setting and the potentially significant off-reservation environmental impacts of the Proposed Project are addressed in detail in **Section 3.0**, **Environmental Analysis**, of this TEIR.

The TEIR also evaluates two alternatives to the Proposed Project: a Reduced Intensity Alternative (RIA) and a No Action Alternative. The RIA and the Resort No Action Alternative are addressed in **Section 4.0**, **Alternatives**.

1.2 GENERAL SETTING OF THE PROPOSED PROJECT

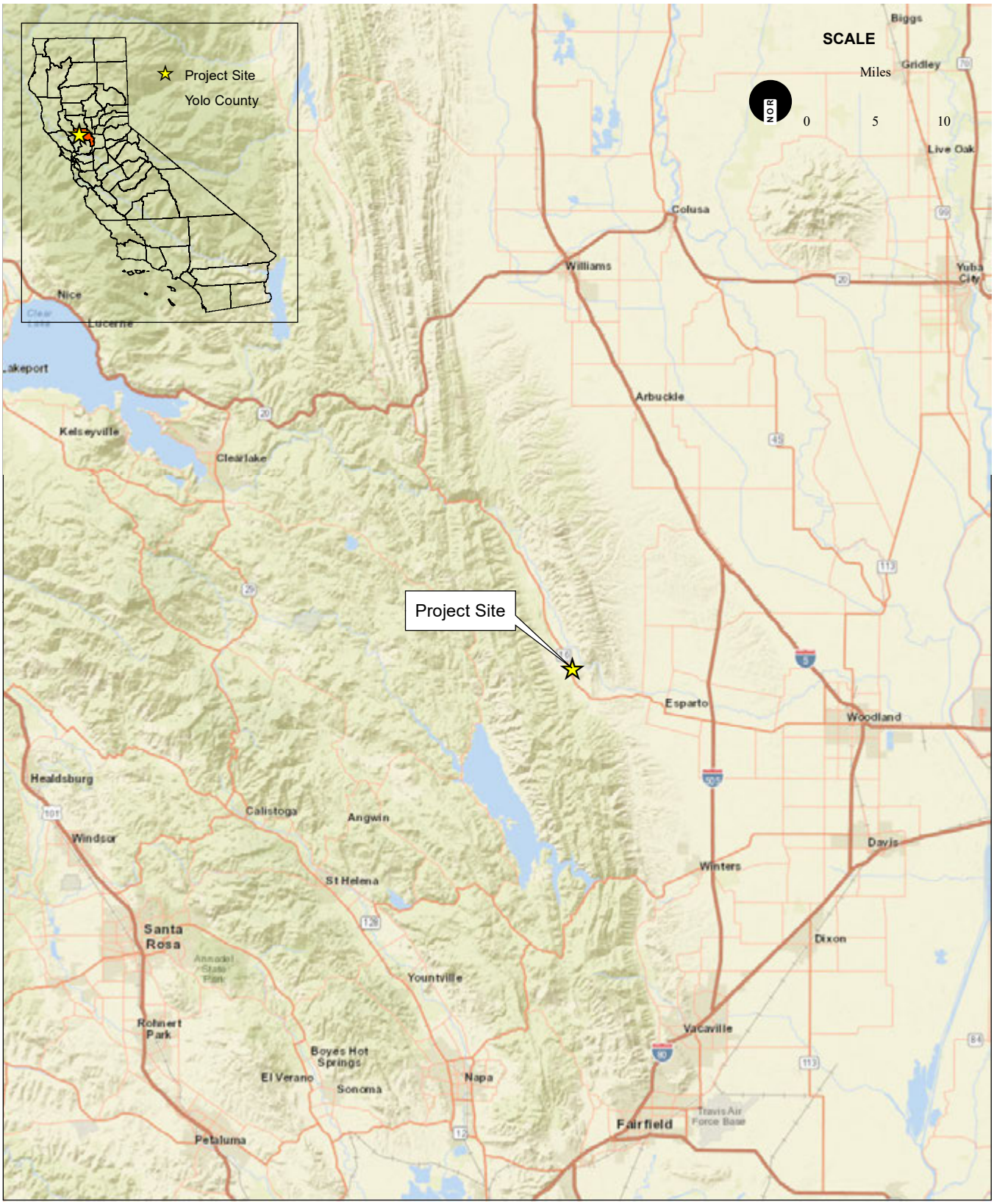
The Proposed Project is located in the Capay Valley of western Yolo County, California (**Figure 1-1**), adjacent to the unincorporated community of Brooks. Regional access to the Proposed Project is provided by Interstate (I)-505, which connects I-80 in Vacaville and I-5 near the Yolo-Colusa County line. State Route (SR)-16 provides direct access to the Proposed Project. The Proposed Project is located in the lower Cache Creek basin, approximately 3,000 feet southwest of the creek. Low annual rainfall and hot, dry summers characterize the region. Nearby communities include Esparto to the east and Guinda to the northwest.

The Proposed Project would be constructed entirely within the 188-acre trust lands that encompass the current Resort property. The Proposed Project site consists of lands that were previously disturbed for the construction of the Resort, including the existing casino, hotel, and parking structures, as well as surface parking and landscaped areas. The Yocha Dehe Golf Club and Cache Creek are located east of the Proposed Project site. Surrounding land uses in the immediate vicinity consist of agricultural land, rangeland, rural residences, and SR-16. **Figure 1-2** provides an aerial view of the Proposed Project site and the immediate vicinity.

1.3 TEIR PROCESS

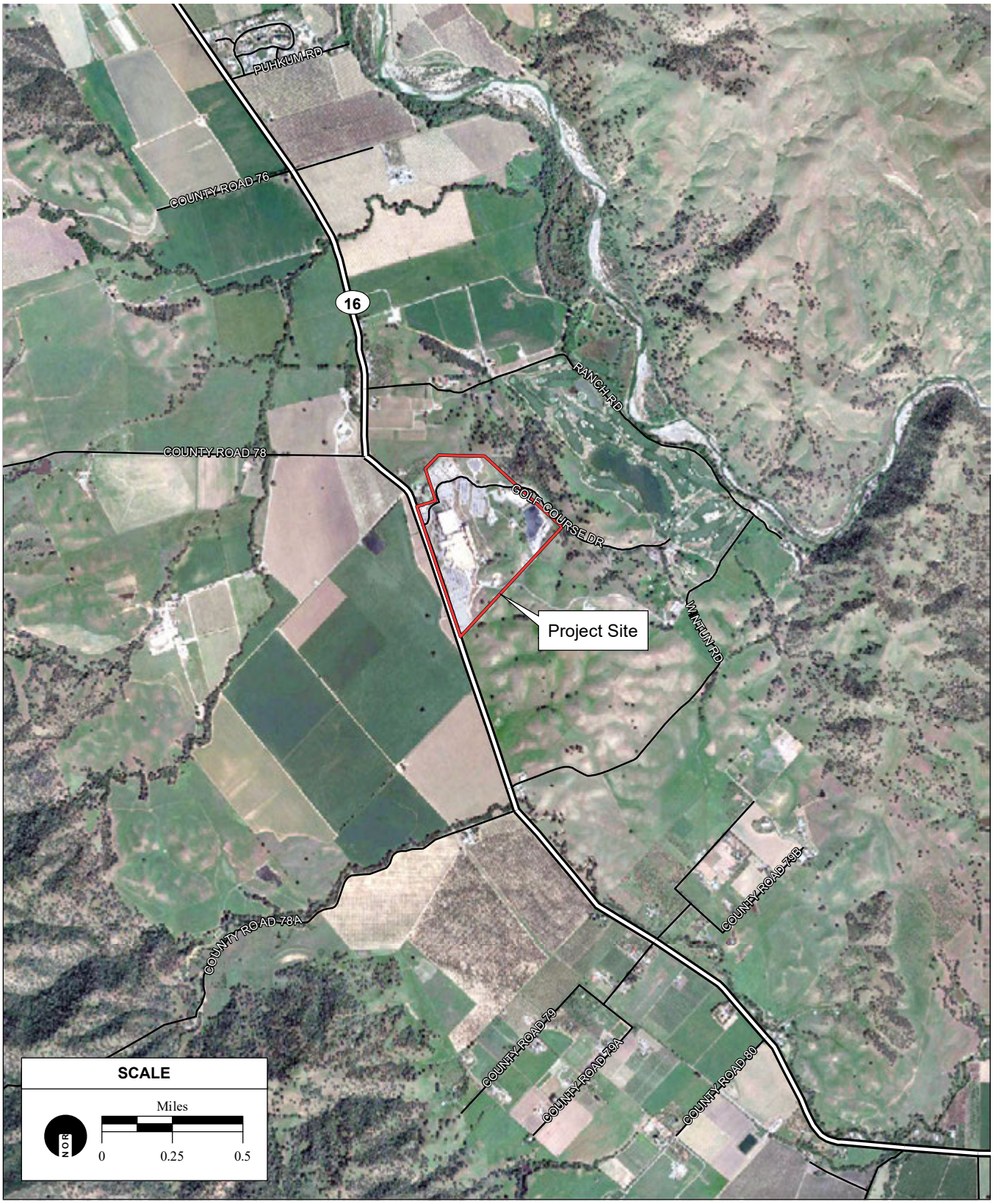
This document was prepared in compliance with Sections 10.8.1 through 10.8.7 of the Compact, which require that a TEIR be prepared before the commencement of a Project. "Project" is defined by the Compact to include the construction or expansion of any gaming facility, or the construction or expansion of a facility with a principal purpose to serve the gaming facility, provided that such construction and/or expansion causes a direct or indirect physical change in the off-reservation environment (refer to Section 10.8.7 of the Compact). The Proposed Project is a Project under the Compact.

This TEIR identifies existing areas of potential off-reservation environmental impacts attributable to the Proposed Project and Alternatives, analyzes potential off-reservation environmental impacts of the Proposed Project and Alternatives, and recommends mitigation measures to eliminate or minimize the



SOURCE: ESRI Data, 2016; AES, 4/18/2016

Figure 1-1
Regional Location



SOURCE: DigitalGlobe aerial photograph, 4/1/2015; ESRI Data, 2016; AES, 4/18/2016

Figure 1-2
Site and Vicinity

identified potentially significant off-reservation environment impacts. The Checklist (**Appendix A**) was used to guide and determine the scope and format of this TEIR. In accordance with the Checklist, the potential off-reservation environmental impacts are identified for each specific environmental resource area included in the Checklist.

1.3.1 NOTICE OF PREPARATION AND COMMENTS (SECTION 10.8.2 OF THE COMPACT)

Pursuant to the Compact, the Tribe issued a NOP of TEIR for Cache Creek Hotel Expansion Project on March 21, 2016, soliciting comments concerning the off-reservation impacts to be addressed within the TEIR for the Proposed Project. In response to the NOP (included in **Appendix B**), the Tribe received three comment letters, copies of each of which are included in this TEIR as **Appendix C** (NOP Comments). Subsequent to the circulation of the NOP, the Proposed Project was refined to increase the number of proposed hotel rooms, with a corresponding adjustment to the back-of-house area. Although not required to do so by the Compact, the Tribe issued a Supplemental NOP on July 21, 2016, for an additional 20 days of review and comment to ensure that interested stakeholders were provided with a reasonable opportunity to identify potentially significant off-reservation environmental impacts (and any reasonable mitigation measures to address those impacts) resulting from the Proposed Project refinements. The NOP and Supplemental NOP are included in this TEIR as **Appendix B**. In response to the Supplemental NOP, the Tribe received three comment letters, copies of which are included in this TEIR as **Appendix C** (NOP Comments).

COMMENTS ON THE MARCH 21, 2016 NOTICE OF PREPARATION

The Tribe received comment letters from the California Department of Transportation (Caltrans), Central Valley Regional Water Quality Control Board (CVRWQCB), and the County of Yolo, Office of the County Administrator (County) in response to the NOP (**Appendix C**). The letters were carefully reviewed, and environmental issues within the scope of off-reservation environmental review required by Sections 10.8.1 and 10.8.2 of the Compact were considered for incorporation within this TEIR. A brief summary of the general issues raised regarding the NOP, and the specific comments made by Caltrans, CVRWQCB, and the County, is provided below.

Caltrans Comments

Caltrans' comments on the NOP pertained to the regional transportation network and are summarized as follows:

- Caltrans requested that a Traffic Impact Study (TIS) be completed for the Proposed Project. Caltrans' requests included particular scenarios to be included within the TIS, including the Base Year (the year the project opens for business), project only, and Base Year Plus Project. Caltrans also requested specific methodologies to be incorporated into the study. Caltrans requested that the TIS include the analyses of particular intersections, provide information and maps of specific

transportation-related facilities, and include a discussion of assumptions made and methodologies used.

*A TIS has been developed for the Proposed Project and Alternatives in accordance with the recommendations from Caltrans. The TIS is included as **Appendix D** of this TEIR. The TIS includes a description of the study area roadway network and methodologies used to analyze off-reservation impacts of the Proposed Project and RIA on that roadway network. A summary of the results of the TIS is provided in **Section 3.2**, **Transportation/Traffic** (Proposed Project); **Section 3.13**, **Growth-inducing and Cumulative Off-reservation Impacts** (Proposed Project), and **Section 4.0**, **Alternatives** (Alternatives), of this TEIR.*

- Caltrans requested that a Traffic Management Plan be prepared, should traffic restrictions and detours be required on or affect state highways.

  *Recommended mitigation measures with regard to traffic restrictions and detours are presented in **Section 3.2**, **Transportation/Traffic**, and **Section 3.13**, **Growth-inducing and Cumulative Off-reservation Impacts**, for the Proposed Project and in **Section 4.0**, **Alternatives**, for the RIA.*

- Caltrans requested that outfalls be identified in relation to the state right-of-ways (ROWs) and that no additional runoff be directed toward the state ROWs.

  ***Section 3.7**, **Hydrology and Water Quality**, of this TEIR describes potential off-reservation runoff rates and conveyance of stormwater to drainage basins.*

- Caltrans indicated that any project along or within the state's ROW would require an encroachment permit issued by Caltrans.

  *Traffic-related mitigation measures, including encroachment permits, are presented in **Sections 3.2** and **3.13** for the Proposed Project and in **Section 4.0** for the Alternatives.*

CVRWQCB Comments

CVRWQCB provided comments on the NOP that related to water resources and necessary federal and/or state permits. CVRWQCB's comments are summarized below.

- The CVRWQCB states that all wastewater discharges must comply with the Anti-degradation Policy, which is a mandatory element of the National Pollutant Discharge Elimination System (NPDES) and Waste Discharge Requirement (WDR) permitting process. The CVRWQCB states that the TEIR should evaluate potential impacts on both surface water and groundwater quality.

  *Impacts on water resources, including required NPDES and WDR permits as well as groundwater and surface water quality, are addressed in **Section 3.7**, **Hydrology and Water Quality**, of this TEIR for the Proposed Project and in **Section 4.0**, **Alternatives**, for the RIA.*

- The CVRWQCB indicates that the Proposed Project may require the Construction General Permit, a Stormwater Pollution Prevention Plan (SWPPP), Phase I and II Municipal Separate

Storm Sewer System Permits, compliance with the Industrial Stormwater General Permit, Clean Water Act (CWA) Section 404 Permit under the United States Army Corps of Engineers (USACE), CWA Section 401 Permit, Dewatering Permit, and/or coverage under the Irrigated Lands Regulatory Program

*Required permits with respect to water resources are addressed in **Section 3.7**, **Hydrology and Water Quality**, of this TEIR for the Proposed Project and in **Section 4.0**, **Alternatives**, for the RIA.*

County Comments

The County's comments on the NOP included a range of suggested analysis, including transportation and traffic, water resources, and housing and growth. The County's comments are summarized below, organized according to resource area or general topic.

- The County comments state that the TIS should address traffic congestion impacts associated with both ordinary traffic volumes and peak-hour traffic volumes. The County further states that the Proposed Project is likely to create significant traffic impacts, which should be reflected by mitigation, and such mitigation should be implemented prior to completion of the Proposed Project.

  *A TIS has been developed which takes into account the comment letters on the NOP from the County and Caltrans and comments received in consultation during the preparation of this TEIR. The TIS is included as **Appendix D** and is summarized in **Sections 3.2**, **3.13**, and **4.2** of this TEIR.*

- The County comments state that this TEIR should include an analysis of groundwater overdraft, increased usage of Cache Creek water resources, viability of extensive leach fields, and discharge of wastewater into Cache Creek. The County also states that the TEIR should address the procurement of federal water discharge permits and the compatibility of the Proposed Project with county and state groundwater regulations.

  ***Section 3.7**, **Hydrology and Water Quality**, of this TEIR addresses impacts on off-reservation hydrology and water quality from construction and operation of the Proposed Project. **Section 4.0**, **Alternatives**, addresses the off-reservation hydrology and water quality impacts of the Alternatives. These sections include identified off-reservation impacts on surface and groundwater resources and associated water quality impacts. A groundwater assessment, including impact modeling, was conducted for this TEIR and is included as **Appendix E**. The results of the study are summarized in **Sections 3.7** and **4.2**. A Water and Wastewater Feasibility Study was also completed for the Proposed Project and the Alternatives and is included as **Appendix F**. The information from that study was used during the development of the project description and the setting descriptions and analyses within **Sections 3.0** and **4.0**.*

- The County comments state that the TEIR should address impacts on county services based on the anticipated number of new employees. The County states that the analysis should include

analysis of impacts on affordable housing, including availability, and that the TEIR should include necessary mitigation measures.

*Impacts on off-reservation population and housing, to the extent required by the Compact, are addressed in **Section 3.3**, **Land Use, Agricultural Resources, Population and Housing, and Recreation and Parks**, of this TEIR for the Proposed Project and in **Section 4.2** for the RIA.*

- The County comments state that the TEIR should include an analysis of direct and indirect significant effects of the Proposed Project on the off-reservation environment and feasible mitigation measures for the Proposed Project.

  *Direct and indirect impacts of the Proposed Project and the Alternatives are addressed throughout **Sections 3.0** and **4.0** of this TEIR. **Section 4.0** provides the analysis of the Alternatives, including the RIA. Growth-inducing and cumulative impacts are addressed in **Section 3.13** for the Proposed Project and in **Section 4.2** for the RIA.*

COMMENTS ON THE SUPPLEMENTAL NOTICE OF PREPARATION

The Tribe received comment letters from Capay Valley Vineyards (CVV), Rumsey House Bed and Breakfast (Rumsey B&B), and the Capay Valley Coalition (CVC) in response to the Supplemental NOP (**Appendix C**). The letters were carefully reviewed and environmental issues within the scope of off-reservation environmental review required by Sections 10.8.1 and 10.8.2 of the Compact were considered for incorporation within this TEIR. A brief summary of the issues raised in comments made by CVV, Rumsey B&B, and the CVC, is provided below.

Capay Valley Vineyards Comments

The CVV's comments on the NOP pertained to cumulative, traffic, noise, air quality, aesthetics, and water resource impacts and are summarized as follows:

- CVV comments requested that cumulative socioeconomic effects on local business, Esparto, and Capay be addressed, and that cumulative water availability for adjacent properties be addressed. CVV comments request that cumulative traffic impacts be addressed for Esparto, Capay, and all residents, farms, and businesses that utilize SR-16.

  *Cumulative impacts associated with traffic and water availability and growth inducing impacts are addressed in **Section 3.13**, **Population Growth-inducing and Cumulative Off-reservation Environmental Impacts**, of this TEIR. The cumulative setting used for analysis is described in **Section 3.13.2** and considers regional growth within the County that would contribute to traffic along SR-16. An analysis of socioeconomic effects is not required by **Appendix A**, Off-Reservation Checklist, and thus is not within the scope of this TEIR; however, the TEIR does address socioeconomic issues such as population growth, housing, and access to public services, as required by the Checklist.*

- CVV comments indicate concern regarding the legal accountability and enforcement mechanisms for mitigation measures resulting from the Proposed Project.

  Pursuant to Section 10.8.8 of the Tribal-State Gaming Compact, before the commencement of a project, the Tribe and the County must enter into an enforceable written agreement with respect to timely mitigation. A discussion of compliance with this provision of the Compact is included in ***Section 1.3.5*** *of this TEIR.*

- CVV comments indicate concern that mitigation measures will require widening of SR-16. Additionally, CVV suggests the Proposed Project include building new access to the Proposed Project site.

  Mitigation measures regarding roadways in the vicinity of the project site are described in ***Section 3.2, Transportation/Traffic****. Site access is discussed in* ***Section 3.2.2****.*

- The CVV requests a discussion of impacts from light, noise, and odors. CVV requests that specific heights and to-scale drawings be provided. CVV further requests that physical on-site framework be erected to show the proposed height of the hotel expansion before the comment period of the Draft TEIR. CVV requests that mitigation measures for screening of tribal property from neighboring properties be considered.

  Impacts from light to off-reservation receptors is discussed in ***Section 3.11****,* ***Aesthetics****, impacts from noise are discussed in* ***Section 3.9****,* ***Noise****, and impacts from odors are discussed in* ***Section 3.8****,* ***Air Quality****. The construction of a physical on-site framework is not necessary to evaluate the aesthetic impacts of the Proposed Project. An architectural rendering and visual simulations illustrating the height of the hotel expansion and changes in off-reservation views are provided in* ***Section 2.0****,* ***Project Description****. Aesthetic impacts are discussed in* ***Section 3.11****,* ***Aesthetics****, with mitigation measures identified where warranted.*

- CVV comments indicate concern about groundwater overdraft impacting neighboring properties, particularly the CVV property. CVV requests that mitigation including connecting the CVV property to a hydrant located on SR-16 be considered.

  Impacts to groundwater are discussed in ***Section 3.7****,* ***Hydrology and Water Quality****. Mitigation measures are provided where warranted. Additionally,* ***Appendix E****, CapayIGSM Update and Scenario Analysis Draft Report, provides details on groundwater supplies in the area.*

Rumsey House Bed and Breakfast Comments

The Rumsey B&B's comments on the NOP pertained to aesthetics, traffic, and water use impacts and are summarized as follows:

- The Rumsey B&B comments requested that aesthetic impacts of the Proposed Project on Capay Valley as a whole be addressed. The Rumsey B&B expressed concern regarding traffic and water use impacts.

*Aesthetic impacts are addressed in **Section 3.11**, **Aesthetics**, traffic impacts are addressed in **Section 3.2**, **Transportation/Traffic**, and water use impacts are discussed in **Section 3.7**, **Hydrology and Water Quality**, and **Section 3.10**, **Public Services and Utilities and Service Systems**.*

- The Rumsey B&B comments request an analysis of impacts to local commerce, particularly lodging providers and local businesses. Additionally, the Rumsey B&B requests that mitigation be considered for local businesses.

  *Refer to **Section 2.2**, **Project Objectives**, for a discussion of demand for on-site hotel rooms at the Resort. The purpose of the Proposed Project is to meet existing demand. Purely economic impacts are beyond the scope of the TEIR established by Section 10.8 of the Compact, which requires that a TEIR consider all of the potential off-reservation environmental impacts that are listed in the Off-reservation Checklist (see **Appendix A**).*

Capay Valley Coalition Comments

The CVC's comments on the NOP included comments on all resource areas and are summarized as follows:

- The CVC requests NOP recirculation due to changes in the Proposed Project.

  *As stated in **Section 1.1**, although not required by the Compact, the Tribe issued a Supplemental NOP on July 21, 2016 for an additional 20 days of review and comment to ensure that interested stakeholders were provided with a reasonable opportunity to identify potentially significant off-reservation environmental impacts (and any reasonable mitigation measures to address those impacts) resulting from the refinements to the Proposed Project. NOP circulation requirements have been met pursuant to Section 10.8.2 of the Tribal-State Gaming Compact.*

- The CVC comments indicate that SR-16 is a scenic State Route. CVC further requests that the height of the facility is specified, and the profile of the hotel expansion be provided from different vantage points as common to residents and visitors. CVC requests that light and glare impacts be addressed, and cumulative impacts of light and glare be discussed.

  *As discussed in **Section 3.11**, **Aesthetics**, SR-16 is not an officially designated State Scenic Route. Facility height, views of the Proposed Project site, and light and glare impacts are discussed in **Section 3.11**, **Aesthetics**. An architectural rendering of the Proposed Project is provide as **Figure 2-2**. Cumulative aesthetic impacts are discussed in **Section 3.13**, **Growth-inducing and Cumulative Off-reservation Environmental Impacts**.*

- The CVC requests that a reduced alternative and no expansion alternative be evaluated.

  *Alternatives are discussed in **Section 4.0**, **Alternatives**, and include the RIA and No Action Alternative (**Sections 4.2** and **4.3**, respectively).*

- The CVC requests that development related to the expansion (such as water and wastewater management) that might impact land uses beyond the footprint of the hotel expansion be addressed.

  *An analysis of off-reservation impacts resulting from the Proposed Project and associated infrastructure improvements is provided in **Section 3.0** of the TEIR. Impacts associated with water and wastewater are specifically discussed in **Section 3.7**, **Hydrology and Water Quality**, and **Section 3.10**, **Public Services and Utilities and Service Systems**.*

- The CVC requests discussions of emission controls and mitigation; climate change for Yolo County; mitigation for traffic-related emissions; calculations of emissions from construction and operation; calculation of trip generation rates; whether electricity is provided by a renewable energy source or carbon offsets will be purchased for non-renewable energy used by the Proposed Project; the YSAQMD air quality plan; information on the air quality particulate sampler in Esparto regarding an upgrade; and odors from wastewater treatment.

  *Air quality and greenhouse gas impacts are discussed in **Section 3.8**, **Air Quality**, which includes discussions of climate change, calculations of construction and operation emissions, the YSAQMD rules and regulations, and odors. Climate Change is also discussed in **Section 3.13**, **Growth-inducing and Cumulative Off-reservation Impacts**. Mitigation measures are discussed in **Section 3.8**, **Air Quality**, as warranted. The upgrade to the air monitoring station noted by the commenter has not been completed, nor is it related to the proposed Cache Creek Hotel Expansion Project. The project's air quality emissions were quantified using the California Emissions Estimator Model, Version 2013.2.2 (CalEEMod) which estimates construction emissions of criteria air pollutants (CAPs) from land uses by utilizing the most up-to-date EPA, CARB, and/or district-specific emission factors and California meteorological data. Therefore, the upgrade to the air monitoring stations is not necessary to analyze the potential impacts of the Proposed Project.*

  *Trip generation rates are discussed both in **Appendix D**, TIS, and **Section 3.2**, **Transportation/Traffic**. Refer to **Section 2.0**, **Project Description**, for a discussion of the power supply source under the Proposed Project.*

- The CVC requests clarification on the jurisdiction of the Yolo County Habitat Conservation Plan (HCP)/Natural Community Conservation Plan (NCCP) in relation to the Proposed Project. The CVC requests a discussion of riparian impacts from Cache Creek water extraction. The CVC requests that nighttime lighting impacts on wildlife movement and behavior be addressed.

  *The Yolo County HCP/NCCP is discussed in **Section 3.4**, **Biological Resources**. There will be no increase in water extraction from Cache Creek as a result of the Proposed Project. Potential effects from the Proposed Project on Cache Creek are discussed in **Section 3.7**, **Hydrology and Water Quality**. Impacts from lighting are discussed in **Section 3.11**, **Aesthetics**.*

- The CVC suggests that Capay Valley as a whole is a significant cultural resource. The CVC requests that development of a road from I-505 to the Proposed Project site be considered as mitigation.

  *Cultural resources are defined and discussed in **Section 3.5**, **Cultural and Paleontological Resources**. Appropriate traffic mitigation is provided in **Section 3.2**, **Transportation/Traffic**, as recommended by **Appendix D**, TIS.*

- The CVC requests that the current California drought be discussed. The CVC requests that water use and wastewater issues be addressed in conjunction with the drought. The CVC requests discussion of groundwater quality impacts and Cache Creek surface water impacts. The CVC requests a discussion of impacts to non-tribal wells, and impacts to Cache Creek flows.

  *Historical water years are discussed in **Section 3.7**, **Hydrology and Water Quality**, and **Appendix E**, CapayIGSM Update and Scenario Analysis Draft Report. Water and wastewater services at the Proposed Project site are discussed in **Section 3.10**, **Public Services and Utilities and Services Systems**, and both groundwater and surface water (including Cache Creek) are discussed in **Section 3.7**, **Hydrology and Water Quality**.*

- The CVC requests that noise from the hotel expansion, future ballroom events, and increased traffic, particularly on roadside businesses and residences, be addressed. The CVC requests that mitigation be provided for residences and businesses exposed to increased noise levels. The CVC requests that the Park and Ride facility be included as mitigation.

  *Noise as a result of the Proposed Project is discussed in **Section 3.9**, **Noise**. The Park and Ride facility is discussed in **Section 3.10**, **Public Services and Utilities and Service Systems**.*

- The CVC requests that new employee housing, new employee wages and ability to afford housing, and traffic impacts from employee trips be discussed.

  *Housing impacts from new employees are discussed in **Section 3.3**, **Land Use, Agricultural Resources, Population and Housing, and Recreation and Parks**. Traffic impacts are discussed in **Section 3.2**, **Transportation/Traffic**.*

- The CVC requests discussions of increased demand on fire protection personnel and equipment, delays in emergency vehicle responses, demand on law enforcement personnel and equipment, and demand on the County criminal justice system. The CVC requests a discussion of casino-related crime, as well as increased demand on the County's health care system with respect to the low-income population, gambling addictions, and secondhand smoke.

  *Impacts to fire protection services, emergency medical services, law enforcement services, and health care are discussed in **Section 3.10**, **Public Services and Utilities and Service Systems**. The Proposed Project does not include an expansion of the casino gaming floor, therefore casino-related crime and gambling addictions are not within the scope of this TEIR.*

- The CVC comments expressed concern about farms moving equipment on SR-16. The CVC requests that the Proposed Project include a transportation alternative to reduce impacts to greenhouse gases. The CVC requests that the independent study commissioned by the County in 2008 be used as a standard of analysis for traffic impacts. The CVC requests that cumulative impacts to traffic be considered.

  *Public transportation alternatives are discussed in **Section 3.10, Public Services and Utilities and Service Systems**. Impacts to greenhouse gases are discussed in **Section 3.8, Air Quality**. The methods of analysis for traffic impacts are discussed in **Section 3.2, Transportation/Traffic**, and **Appendix D**, TIS. Cumulative traffic impacts are discussed in **Section 3.13, Growth-inducing and Cumulative Off-reservation Environmental Impacts**.*

- The CVC comment letter expressed concern about wastewater management, including impacts of leach fields on groundwater, nitrate contamination, and wastewater discharge into Cache Creek or other lands.

  *Wastewater impacts are discussed in **Section 3.10, Public Services and Utilities and Service Systems**, and **Appendix F**, Water and Wastewater Feasibility Study.*

- The CVC requests that cumulative impacts are addressed for each resource area.

  *Cumulative impacts are discussed in **Section 3.13, Growth-inducing and Cumulative Off-reservation Environmental Impacts**, and include each resource area discussed in **Section 3.0, Environmental Analysis**.*

- The CVC requests that impacts to public assistance programs and taxpayer money used for public assistance programs be addressed with respect to the expansion of low-income employment.

  *Impacts related to employment are discussed in **Section 3.3, Land Use, Agricultural Resources, Population and Housing, and Recreation and Parks**.*

- The CVC requests that smoking and secondhand smoke is addressed with respect to its impact on casino employees, the costs of health care as a result of smoking within the casino, and future health coverage of casino employees.

  Pursuant to the Checklist, on-reservation air quality and potential private health care are not within the scope of the TEIR.

- The CVC requests a discussion of the demand for child care be included.

  *Refer to **Section 3.13.1** for a discussion of projected employment and resulting demand on child care facilities. Additionally, pursuant to the Checklist, potential impacts to child care facilities are not within the scope of the TEIR.*

- The CVC requests a discussion of problem and pathological gambling.

  The Proposed Project does not include an expansion of the casino gaming floor. In addition, problem and pathological gambling is not within the scope of this TEIR defined by the Checklist.

- The CVC requests that renewable resources be considered for the provision of energy to the Proposed Project.

  *Refer to **Section 2.0**, **Project Description**, for a discussion of the power supply source under the Proposed Project.*

1.3.2 DRAFT TEIR (SECTION 10.8.1 OF THE COMPACT)

This document is the Draft TEIR for the Proposed Project. It contains a description of the Proposed Project, a description of the environment, discussions of potential off-reservation environmental impacts, discussions of recommended measures to be implemented to mitigate identified and anticipated potentially significant off-reservation environmental impacts, discussions of any unavoidable or irreversible potentially significant off-reservation environmental impacts, and an analysis of alternatives to the Proposed Project as required by the Compact.

1.3.3 PUBLIC REVIEW OF THE DRAFT TEIR (SECTION 10.8.3 OF THE COMPACT)

This TEIR ~~is being~~was submitted to the State Clearinghouse, the California Department of Justice, and the County, as well as ~~being~~ distributed to local, state, and federal agencies and to interested persons and entities who previously requested in writing the opportunity to review and comment on this TEIR. A Notice of Completion of this Draft TEIR ~~is being~~was made available to the public in the manner required by the Compact. Submission of this TEIR to the State Clearinghouse and the County marks the beginning of a 45-day public review and comment period, during which period the Tribe ~~will~~ accepted written comments regarding this TEIR at the following address:

Yocha Dehe Wintun Nation
18960 Puhkum Road
P.O. Box 18
Brooks, CA 95606

A public meeting to present a summary of this Draft TEIR and to solicit comments from the public ~~will be~~was held at the ~~Yocha Dehe Community Center~~Séka Hills Olive Mill. Public comments received during the public meeting ~~will be~~were treated as comments received on this Draft TEIR, and a full transcript ~~will be~~was made of the public meeting to ensure that comments made during the meeting are appropriately addressed in a Final TEIR.

1.3.4 FINAL TEIR (SECTION 10.8.4 OF THE COMPACT)

Timely written comments on this Draft TEIR ~~will be~~were carefully reviewed by the preparer of the TEIR and ~~will be~~are addressed in a final TEIR for the Proposed Project and Alternatives (Final TEIR). The Final TEIR ~~will~~ includes comments, responses to comments, and any resulting updates, modifications, or revisions to this TEIR as ~~are~~ were warranted after review of the comments received by the Tribe. Upon

completion, the Final TEIR will be presented to the Tribe's Tribal Council, which will then consider approval and certification of the Final TEIR as required by the Compact. If the Final TEIR is certified, the Tribe will make the certified Final TEIR available to the County as required by the Compact.

1.3.5 INTERGOVERNMENTAL AGREEMENT (SECTION 10.8.8 OF COMPACT)

The Compact requires that the Tribe, not later than the issuance of the Final TEIR to Yolo County, offer to commence negotiations with the County for an Intergovernmental Agreement (IGA) between the Tribe and the County covering the matters described in Section 10.8.8 of the Compact. The Tribe anticipates that the County will accept the Tribe's offer to negotiate, and that negotiations for such an IGA will occur. One of the subjects to be covered in the IGA negotiations described in Section 10.8.8 of the Compact is the mitigation of potentially significant impacts on the off-reservation environment that are attributable to the Proposed Project as identified in the Final TEIR. The IGA negotiations must also cover other subjects listed in the Compact that are not covered by this Draft TEIR and will not be covered by the Final TEIR. If the Tribe and the County have not agreed on the terms and conditions of an IGA within 55 days after the date on which the Final TEIR is provided to the County, then either the Tribe or the County may demand that the terms and conditions of such IGA be determined by arbitration pursuant to the arbitration process described in Section 10.8.9 of the Compact.

1.4 DRAFT TEIR ORGANIZATION

This TEIR is organized into eight chapters as described below.

- **Executive Summary.** This summary includes a brief description of the Proposed Project and Alternatives, a list of potentially significant off-reservation environmental impacts attributable to the Proposed Project, and a summary of the potentially significant off-reservation environmental impacts identified in this TEIR and recommended mitigation measures for those impacts. The executive summary includes a table of potential off-reservation environmental impacts and associated recommended mitigation measures.
- **Section 1.0 – Introduction.** This section describes the purpose and organization of this TEIR and the TEIR preparation, review, and certification process. It also includes a list of acronyms and defined terms that are used in this TEIR.
- **Section 2.0 – Project Description.** This section describes the Proposed Project and outlines the objectives of the Proposed Project. Components of the Proposed Project are described, including design features to reduce anticipated potentially significant off-reservation environmental impacts.
- **Section 3.0 – Environmental Analysis.** For each environmental resource area listed in the Checklist (**Appendix A**), this section describes the applicable regulatory setting for the Proposed Project and the existing off-reservation environmental setting; discusses the potentially significant

off-reservation environmental impacts attributable to the construction and operation of the Proposed Project, including direct, growth-inducing, and cumulative off-reservation impacts; and recommends mitigation measures for those impacts.

- **Section 4.0 – Alternatives.** This section describes potential alternatives to the Proposed Project, including a RIA and a No Action Alternative. In accordance with the Compact, this TEIR "include(s) sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison". This section discusses the potentially significant off-reservation environmental impacts associated with the construction and operation of the Alternatives, including direct, growth-inducing, and cumulative off-reservation impacts, and recommends mitigation measures for those impacts. A discussion of other alternatives considered and a comparison of the merits of the Proposed Project and the Alternatives are also included in this section.
- **Section 5.0 –Report Authors and Persons Consulted.** This section provides the names of the authors who participated in, and agencies or individuals consulted during, preparation of this TEIR.
- **Section 6.0 – Bibliography.** This section provides a list of reference materials.
- **Appendices.** The appendices to this TEIR consist of the following:
  - **Appendix A** – Off-reservation Environmental Impact Analysis Checklist
  - **Appendix B** – Notice of Preparation and Supplemental Notice of Preparation
  - **Appendix C** – Notice of Preparation Comment Letters
  - **Appendix D** – Traffic Impact Study
  - **Appendix E** – CapayIGSM Update and Scenario Analysis Draft Report
  - **Appendix F** – Water and Wastewater Feasibility Study
  - **Appendix G –** Grading and Drainage Study
  - **Appendix H** – Special Status Species Searches
  - **Appendix I** – Cultural Resource Record Search
  - **Appendix J** – CalEEMod Input and Output Files
  - **Appendix K** – Environmental Noise Assessment

1.5 ACRONYMS AND DEFINED TERMS USED IN THIS TEIR

The acronyms and defined terms that are used throughout this TEIR, their definitions, and the page the acronym is defined are located in **Table 1-1**.

TABLE 1-1
ACRONYMS AND DEFINITIONS

Acronym	Definition
°F	degrees Fahrenheit
%TSF	percent time spent following
µg/L	micrograms per liter
µg/m^3	micrograms per cubic meter
µm	micrometers
µmhos/cm	micro-mhos per centimeter
AB	Assembly Bill
AES	Anlytical Environmental Services
af	acre-feet
af/yr	acre-feet per year
agritourism	agricultural tourism
ALERT	Area Law Enforcement Response Team
A-N	Agricultural Intensive
AMR	American Medical Response
amsl	above mean sea level
APCD	Air Pollution Control District
AQMD	Air Quality Management District
AST	aboveground storage tank
AWSC	all-way stop controlled
A-X	Agricultural Extensive
Basin Plan	Regional Water Quality Control Plan
BEPA	Bald Eagle Protection Act
BIA	Bureau of Indian Affairs
bgs	below ground surface
BLM	Bureau of Land Management
BMP	Best Management Practice
B.P.	Before Present
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAGR	compound annual growth rate
CalEEMod	California Emissions Estimator Modle
CalEPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
CalRecycle	California Department of Resources Recycling and Recovery
CALSTAR	California Shock Trauma Air Rescue
Caltrans	California Department of Transportation
CAP	criteria air pollutant
CapayIGSM	Capay Valley Integrated Groundwater and Surface Water Model
CARB	California Air Resources Board
CAT	Climate Action Team

Acronym	Definition
CBC	California Building Code
CCAA	California Clean Air Act
CCCR	Cache Creek Casino Resort
CCL	Contaminant Candidate List
CCNA	Cache Creek Natural Area
CCR	California Code of Regulations
CDE	California Department of Education
CDFW	California Department of Fish and Wildlife
CDPH	California Department of Public Health
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CESQG	Conditionally Exempt Small Quantity Generator
CFR	Code of Federal Regulations
cfs	cubic feet per second
CGS	California Geological Survey
CH_4	methane
Checklist	Environmental Impact Analysis Checklist in the Tribal-State Compact
CHP	California Highway Patrol
CNDDB	California Native Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
COLD	waters designated for cold freshwater habitat
CPR	cardiopulmonary resuscitation
CR	County Road
CRHR	California Register of Historic Resources
CRLF	Calfiornia red-legged frog
CRSBB	Coast Range Sierran Block Boundary
CRZ	clear recovery zone
CTS	California Tiger Salamander
CVC	Capay Valley Coalition
CVFPD	Capay Valley Fire Protection District
CVRWQCB	Central Valley Regional Water Quality Control Board
CVV	Capay Valley Vineyards
CWA	Clean Water Act
dB	decibels
dBA	A-weighted decibels
Delta	Sacramento/San Joaquin Delta

Acronym	Definition
DO	dissolved oxygen
DOC	California Department of Conservation
DOF	California Department of Finance
DPM	diesel particulate matter
DPS	distinct population segment
D_{ref}	reference distance
D_{source}	distance to noise source
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources
EB	eastbound
EBMUD	East Bay Municipal Utilities District
ED	Ephemeral Drainage
EDR	Environmental Data Resources, Inc.
EFPD	Esparto Fire Protection District
EIR	Environmental Impact Report
EMT	Emergency Medical Technician
EOC	Emergency Operations Center
ESA	Environmental Site Assessment
FD	Fire Department
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FICON	Federal Interagency Committee on Noise
FMMP	Farmland Mapping and Monitoring Program
FPD	Fire Protection District
FPPA	Farmland Protection Policy Act
FTA	Federal Transit Administration
FYLF	foothill yellow legged frog
g/yr	grams per year
GHG	greenhouse gas
gpd	gallons per day
gpm	gallons per minute
H_2O	water
HCD	California Department of Housing and Community Development
HCl	hydrochloric acid
HCM	Highway Capacity Manual
HCP	Habitat Conservation Plan
HFC	hydrofluorocarbon
HMBP	Hazardous Materials Business Plan
HUD	United States Department of Housing and Urban Development
HVAC	heating, ventilation, and air conditioning
HWCA	Hazardous Waste Control Act

Acronym	Definition
I	Interstate
IES	Illuminating Engineers Society of North America
IGA	Intergovernmental Agreement
IGRA	Indiant Gaming Regulatory Act
ILS	influent lift station and screening
IPCC	Intergovernmental Panel on Climate Change
IS	Initial Study
ITE	Institute of Transportation Engineers
JPA	Yolo County Habitat Conservation Joint Powers Authority
kVA	kilovolt-ampere
LCFS	low carbon fuels standard
LDL	Larson Davis Laboratories
Ldn	interior average day night noise level
LED	light-emitting diode
Leq	equivalent noise level
Lmax	maximum measured noise level
Lmin	minimum measured noise level
LOS	level of service
MBR	membrane bioreactor
MCL	maximum contaminant level
MFI	Median Family Income
MFPD	Madison Fire Protection District
mg	milligram
MG	million gallon
MG/yr	millions of gallons per year
mg/L	milligrams per liter
MLD	most likely descendant
MMI	Modified Mercali Intensity
MND	Mitigated Negative Declaration
MOU	Memorandum of Understanding
mph	miles per hour
MPN	most probable number
MRZ	Mineral Resource Zone
MT	metric ton
MTP	Metropolitan Transportation Plan
MUN	waters designated for domestic and municipal supply
Mutual Aid Agreement	Yolo County Fire Services Mutual Aid Agreement
MW	megawatt
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NaOCl	sodium hypochlorite

Acronym	Definition
NB	northbound
NCCP	Natural Community Conservation Plan
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
ng/L	Nanograms per liter
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOI	Notice of Intent
NOP	Notice of Preparation
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRCS	National Resource Conservation Service
NRHP	National Register of Historic Places
NSR	new source review
NTU	Nephelometric Turbidity Units
NWIC	Northwest Information Center
O_3	ozone
OES	Office of Emergency Services
Pb	lead
pCi/L	picocuries per liter
PD	police department
PFC	perflourocarbons
PG&E	Pacific Gas and Electric Company
PM	particulate matter
PM_{10}	particulate matter of size less than 10 microns
$PM_{2.5}$	particulate matter of size less than 2.5 microns
ppm	parts per million
PPV	peak particle velocity
PQP	Public/Quasi-Public
P-R	Parks and Recreation
PRC	Public Resources Code
Proposed Project	Cache Creek Hotel Expansion Project
psi	pounds per square inch
RAL	Regulatory Action Level
RAS	Return Activated Sludge
RCRA	Resource Conservation and Recovery Act
REACH	Redwood Empire Air Care Helicopter
REC	Recognized Environmental Conditions
REC-1	waters designated for contact recreation
Resort	Cache Creek Casino Resort
RHNA	Regional Housing Needs Assessment

Acronym	Definition
RHNP	Regional Housing Needs Plan
RIA	Reduced Intensity Alternative
ROW	right-of-way
ROG	reactive organic gas
Rumsey B&B	Rumsey House Bed and Breakfast
RV	recreational vehicle
RWD	report of waste discharge
RWQCB	Regional Water Quality Control Board
SACOG	Sacramento Area Council of Governments
SB	southbound
SB	Senate Bill
SCS	Sustainable Communities Strategy
sf	square foot
SF_6	sulfur hexafluoride
SGMA	Sustainable Groundwater Management Act
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SMARA	Surface Mining and Reclamation Act
SOP	standard operating procedure
SO_2	sulfur dioxide
SO_x	sulfur oxides
SPWN	waters designated for spawning freshwater habitat
SR	State Route
SVAB	Sacramento Valley Air Basin
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminants
TCCR	Transportation Corridor Concept Report
TDS	total dissolved solids
TEIR	Tribal Environmental Impact Report
THPO	Tribal Historic Preservation Officer
TIP	Tribal Implementation Plan
TIS	Traffic Impact Study
TMDL	total maximum daily load
TNW	traditional navigable waterways
TSCA	Toxic Substances Control Act
TWSC	two-way stop controlled
UCMP	University of California Museum of Paleontology
US	United States
USACE	United States Army Corp of Engineers
USC	United States Code
USDA	United States Department of Agriculture

Acronym	Definition
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	Underground Storage Tank
UTCD Manual	California Manual of Uniform Traffic Control Devices
VELB	valley elderberry longhorn beetle
VMT	vehicle miles traveled
VOC	volatile organic compound
VSEP	Vibratory Shear Enhanced Process
WARM	waters designated for warm freshwater habitat
WB	westbound
WCI	Western Regional Climate Initiative
WDR	Waste Discharge Requirement
WDTF	water desalination treatment facility
WRCC	Western Regional Climate Center
WSA	Water Services Agreement
WWTP	wastewater treatment plant
Y-16 SIP	Yolo County SR-16 Safety Improvement Project
YCBS	Yolo County Bomb Squad
YCCL	Yolo County Central Landfill
YCFCWCD	Yolo County Flood Control and Water Conservation District
YCHIP	Yolo County Healthcare for Indigents Program
YCTD	Yolo County Transportation Department
YDFD	Yocha Dehe Fire Department
YDWN	Yocha Dehe Wintun Nation
YECA	Yolo Emergency Communications Agency
YHC	Yolo Habitat Conservancy
YSAQMD	Yolo/Solano Air Quality Management District

SECTION 2.0

PROJECT DESCRIPTION

SECTION 2.0
PROJECT DESCRIPTION

2.1 OVERVIEW AND BACKGROUND

The Yocha Dehe Wintun Nation (Tribe), a federally recognized sovereign Indian tribe, proposes to expand its Cache Creek Casino Resort (Resort), located in the Capay Valley of Yolo County, California, by constructing the Proposed Project described below. **Figure 1-1** shows the Proposed Project's regional location and **Figure 1-2** provides an aerial view of the 188± acre site on which the Resort has been built and which would be the site of the Proposed Project.

The Tribe's first gaming facility was originally constructed as a bingo hall on the Tribe's federally owned trust land. The Tribe has since constructed the existing approximately 414,000-square foot (sf) facility, which currently includes a casino, hotel, spa, restaurants, entertainment facilities, and approximately 3,760 parking spaces provided by a parking structure and surface parking lots.

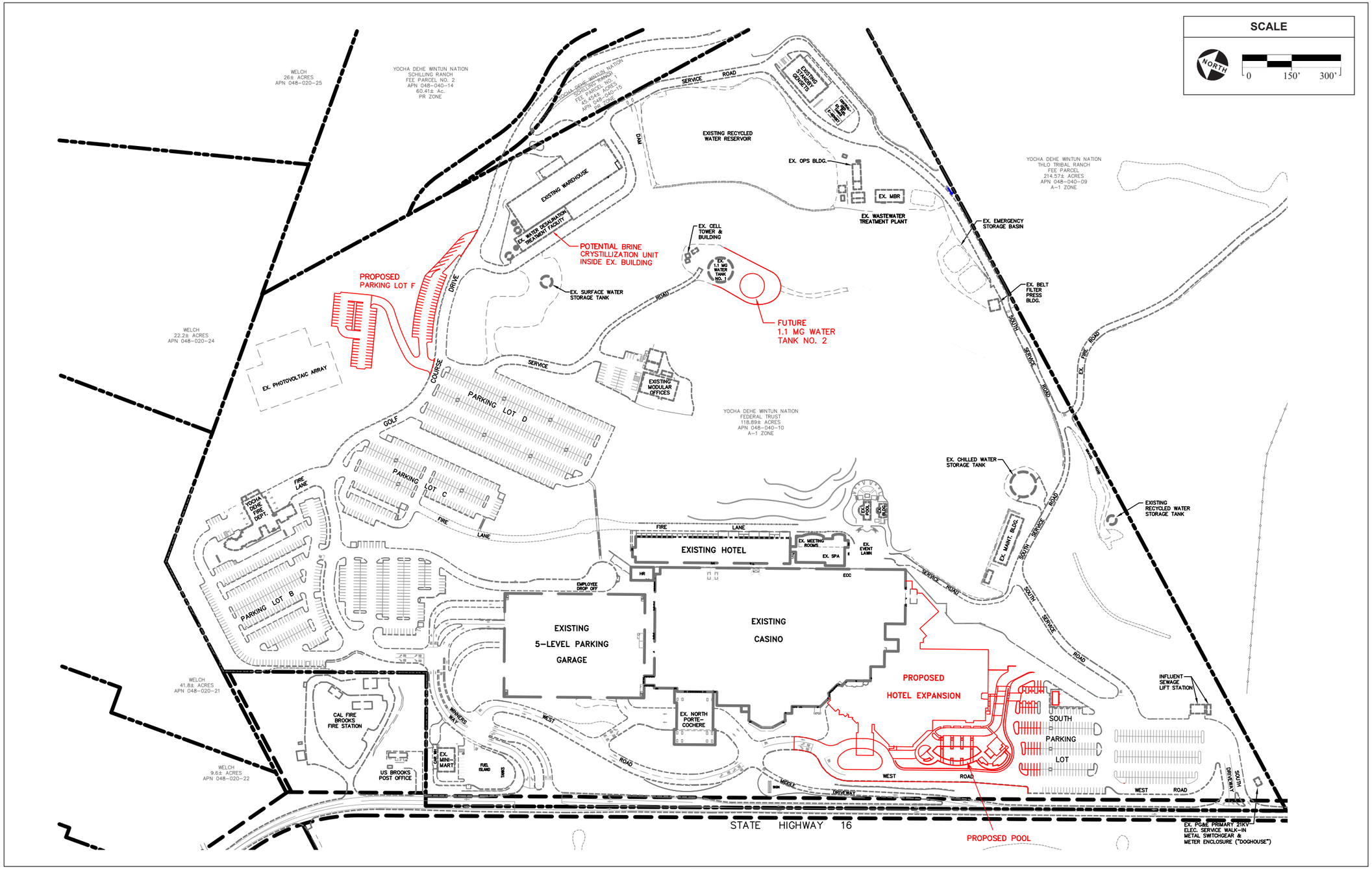
The Proposed Project would be constructed entirely on previously developed trust lands and would include 459 additional hotel rooms, a 13,350-sf ballroom, new and expanded restaurants, and additional administrative support (back-of-house) space. The components of the Proposed Project are described in more detail in **Section 2.4**. A site plan and an architectural rendering of the Proposed Project are provided as **Figure 2-1** and **Figure 2-2**, respectively.

2.2 PROJECT OBJECTIVES

The objectives of the Proposed Project are presented below.

The Proposed Project would meet the demand for overnight stays by existing patrons by adding hotel rooms. The existing 200-room hotel has been operating at capacity since its opening and, particularly on weekends, many guests are unable to extend their visits due to lack of lodging. The Proposed Project would also provide additional amenities related to dining and entertainment that are in demand from existing patrons and that are not currently available in the area. Offering the new amenities would enable the facility to remain competitive as a premier casino/resort in northern California, and continue to provide a sustainable, long-term economic base for the Tribal Government.

The proposed expansion of the back-of-house area would support both existing needs and additional anticipated needs under the Proposed Project. Additional back-of-house space would be developed to



SOURCE: Langenour & Meikle, 2016; AES, 8/1/2016

Figure 2-1
Proposed Project Site Plan

SOURCE: HBG, 2016; AES, 8/2/2016

Figure 2-2
Architectural Rendering – Proposed Project

provide relief from significant existing space constraints and layout issues and to improve operational efficiency.

2.3 EXISTING CACHE CREEK CASINO RESORT

The Resort is located on the Tribe's trust land at 14455 State Route (SR)-16 in Brooks, California, within the Capay Valley of Yolo County. Hereafter, for the purposes of this Draft Tribal Environmental Impact Statement (TEIR), the Resort is defined as the area that incorporates the existing gaming, dining, hotel, and spa facilities, associated parking structures and areas, and landscaped and open spaces. The definition of the Resort does not include additional existing facilities such as the on-site water treatment facility, water tanks, wastewater treatment plant (WWTP), tribal offices, golf course, mini-mart, fire station, warehouse, and solar power generating facilities, which are almost entirely located on trust land. The Yocha Dehe Golf Club, which is owned and operated by the Tribe, and Cache Creek are located east of the Resort and SR-16 is located to the west. SR-16 provides direct access to the Resort.

Surrounding land uses and features in the immediate vicinity of the Proposed Project site are listed below.

- North: Agricultural land, rural residences, and Tribal governmental uses
- South: Agricultural land and rural residences
- East: Golf course, Cache Creek, and rangeland
- West: SR-16, agricultural land, rural residences, and the Tribe's Séka Hills Olive Mill

The main Resort building consists of approximately 414,000 sf, which includes a 200-room hotel, a health spa, nine restaurants, and a gift shop. The Resort is currently supported by an on-site 1,867-space parking structure, water and wastewater treatment facilities, a mini-mart, a gas station, and the Tribe's fire station. The Resort currently employs approximately 2,180 employees and is managed by the Tribe.

2.4 DESCRIPTION OF THE PROPOSED PROJECT

The Proposed Project would include the construction of new hotel rooms, a new pool area, new and expanded restaurants in the existing Resort, and associated support facilities, all of which would be located on trust land. The proposed expansion and additions would be on trust land adjacent to the existing Resort structures in areas that have been previously disturbed. The building site for the proposed hotel expansion and pool area is located in the south parking lot of the existing Resort and is presently paved and landscaped. Under the Proposed Project, all excavation, fill, construction staging, and construction parking would be on trust land. Key elements of the Proposed Project are shown in **Table 2-1**.

The Tribal-State Compact (Compact) required the Tribe to adopt a tribal building ordinance that meets or exceeds the requirements of the California Building Code (CBC) and includes all fire, plumbing,

electrical, mechanical, and related codes in effect at the time of construction. The Tribe has adopted such an ordinance, and it remains in effect. The Proposed Project would be constructed under the existing tribal building ordinance and would comply with building standards and requirements that meet or exceed the standards and requirements set forth in the CBC.

TABLE 2-1
PROPOSED RESORT EXPANSION ELEMENTS

Element	Existing	Proposed (new) (net gain)	Total
Hotel	137,320 sf 200 rooms	346,801 sf 459 rooms	484,121 sf 659 rooms
Spa	11,800 sf	--	11,800 sf
Gaming Floor	94,505 sf	--	94,505 sf
Ballroom	0 sf 0 seats	13,350 sf 1,325 seats	13,350 sf 1,325 seats
Restaurants	32,353 sf	9,475 sf	41,828 sf
Miscellaneous Public Spaces	40,857 sf	27,165 sf	68,022 sf
Back of House	97,275 sf	102,956 sf	200,231 sf
Total Square Feet	**414,110 sf**	**499,747 sf**	**913,857 sf**

Design of the Proposed Project would comply with the Americans with Disabilities Act. The Proposed Project would also comply with the following regulations and standards:

- The Tribe's Tribal Gaming Agency would ensure that the Proposed Project meets all applicable construction codes, and would issue a certificate of occupancy for the Proposed Project prior to occupancy;
- The Tribe would maintain food and beverage handling standards for the Proposed Project that are no less stringent than state public health standards for food and beverage handling, consistent with existing operations at the Resort;
- The Tribe would maintain workplace and occupational health and safety standards for the Proposed Project that are no less stringent than federal workplace and occupational health and safety standards, consistent with existing operations at the Resort;
- The Tribe would, during operation of the Proposed Project, comply with Tribal codes and applicable federal law regarding public health and safety; and
- The Tribe would, during operation of the Proposed Project, make reasonable provisions for emergency, fire, medical, and related relief and disaster services for the additional patrons and employees, and these provisions would be integrated into the existing Resort operations.

2.4.1 HOTEL

The Resort's existing 200-room hotel is located east of the casino and dining area and southeast of the existing parking structure. A new 459-room hotel expansion, totaling 346,801 sf, is proposed to be developed as an expansion from the south side of the main Resort building in the area that is currently a paved surface used as patron parking (**Figure 2-1**). The height of the hotel expansion would be 121 feet above ground level and would consist of 9 stories. The first floor would be dedicated to reception, a new hotel lobby bar, and back of house; the second floor would be a mezzanine; and the remaining seven floors would consist of hotel rooms. The proposed hotel expansion roof level would be at an elevation of 495.5 feet above mean sea level (amsl), which is 27.5 feet above the highest point of the existing hotel. A new pool area would be developed to the west of the hotel. The pool area would include an approximately 100,000-gallon pool and a pool-side lounge/seating area.

The hotel expansion would allow more guests to stay for longer periods and allow them to enjoy the Resort's casino, spa, and related facilities, and also to participate in other recreational and tourism opportunities in the Capay Valley.

2.4.2 BALLROOM

A ballroom, totaling approximately 13,350 sf, is proposed to be developed south of the existing gaming floor. The ballroom would be able to accommodate up to 1,325 guests for public and private events, including meetings, banquets, parties, receptions, live entertainment, and other community events. Events at the proposed ballroom facility would occur only when the Tribe's existing entertainment venue (known as Club 88) is not open; in other words, the Resort would not host simultaneous special events at both Club 88 and the proposed ballroom.

2.4.3 DINING EXPANSION

The Resort's existing dining options currently consist of an Asian restaurant, a Mexican restaurant, a Chinese restaurant, a deli, a bakery, a café, a buffet, a steak and seafood restaurant, and a sports bar, all of which are located along the periphery of the existing gaming floor. To better serve casino patrons, one of these restaurants would be closed, two restaurants would be expanded, and two new restaurants would be developed as part of the Proposed Project. Overall, there would be a net increase of 9,475 sf in restaurant space (approximately 178 restaurant seats). The new restaurant areas would be located just south of the existing gaming and dining areas and would reduce existing wait times for dining seating and service.

2.4.4 EXPANDED BACK OF HOUSE

Currently, existing Resort back-of-house spaces for employee dining, employee office space, storage, and other administrative support facilities are inadequate and do not allow for efficient operation. To address this existing need as well as the needs of the Proposed Project, the project includes approximately 102,956 sf of additional back-of-house space. This is the second largest component of the Proposed

Project (by square footage). Most of this additional space constitutes non-office areas such as staging areas and associated space for general storage, security, engineering workshops, training rooms, and additional circulation areas. These areas comprise approximately 95 percent of the proposed back-of-house expansion. The remaining 5 percent would provide additional employee office space for Resort employees.

2.4.5 PARKING

The expansion of the Resort as a result of the Proposed Project would permanently eliminate 429 parking spaces in the south parking lot (see **Figure 2-1**). Additionally, during construction activities, all 808 spaces in the south parking lot would be used for construction staging and construction vehicle parking. No off-site parking or staging would be allowed during construction.

The Resort currently has approximately 3,787 total parking spaces. The parking areas currently at the Resort have been designed and sized to accommodate the peak parking demand for special events and occasions; therefore, they are seldom filled to capacity.

As part of the Proposed Project, the following strategies would be applied to manage available parking during peak demand periods and ensure adequate services are provided to patrons:

- **Construct 115 New Parking Stalls in Lot F –** Before construction activities begin in the south lot, new Lot F would be constructed, providing an additional 118 parking stalls at the Resort.
- **Restripe Parking Lots to Include More Compact Spaces** – Currently, all Resort parking lots and the parking garage are striped to standard parking stall sizes; no compact car stalls exist on the property. Fifty percent of the surface lots and the parking garage would be restriped as compact parking stalls. Restriping the parking areas to include compact parking would provide an additional 156 parking spaces.
- **Expanded Valet Service** – Valet parking is more efficient in that less space is required per parked vehicle and more restrictive organization (e.g., stacked/tandem) can be used.
- **Employee Parking –** An employee parking policy would be put into place on peak days, restricting employee parking ~~to~~ along Golf Course Drive outside of traffic lanes, freeing up an additional 105 spaces within the surface lots for patrons.
- **Incentives for Employee Use of Public Transit and Carpooling** – The Resort currently provides discount fares to employees who use public transit and carpooling. During peak times, such as events, incentives would be increased to encourage more employees to use these commuting methods, thereby increasing the number of parking spaces available for patrons.

Additional strategies for managing parking demands may include a parking information system that informs patrons of the number of available spaces on Variable Message Sign trailblazing or monument signs located in front of the main parking facilities could improve utilization of the various parking lots.

2.4.6 GRADING AND DRAINAGE

Runoff from impervious surfaces at the existing Resort, fire station, mini-mart, warehouse building, and utility yards (located adjacent to the warehouse building) is collected by means of a piping system that empties into underground settling chambers on trust land, near the inlets to each of three existing culverts that run beneath SR-16. Sand-oil separators are installed at the fire station, mini-mart, warehouse, and casino utility yard. In the settling chamber, heavier solids settle to the bottom, while floatables and free oil and grease rise to the top. When inflows exceed the design flow of the separator, high flows are routed over the weir, bypassing the tank and preventing resuspension of pollutants. From the settling chambers, stormwater is channeled through the culverts under SR-16 to an existing off-site basin southwest of the Resort on the Ponotla Piht property. The earthen basin has a total capacity of 24 acre-feet (af) and was designed with sufficient capacity to accommodate the Resort's flows during a 100-year storm event. The storage requirement for the 100-year, 24-hour storm event under existing conditions is 22 af; therefore, the basin has 2 af of available capacity. A drainage pump station installed at the northwest corner of the earthen basin discharges northerly into the small channel on Ponotla Piht property at a rate not exceeding 26.8 cubic feet per second (cfs). A gravel-surfaced service road provides all-weather access to the basin.

With the exception of the proposed Lot F and the water storage tank yard, construction of the Proposed Project would mainly occur on existing paved areas. For the development on existing paved areas, post-project runoff rates and volumes would be nearly identical to current runoff conditions. The added impervious areas of proposed Lot F and the water storage tank yard would yield approximately 0.5 af during a 100-year, 24-hour duration storm event, which is less than 3 percent of the total impervious area of the Resort's current runoff area. Because the earthen basin currently has 2 af of available capacity, the basin can accommodate the additional 0.5 af of runoff generated by the Proposed Project without any modifications. As shown in the Grading and Drainage Study (**Appendix G**), the Proposed Project would require the removal and rerouting of certain small sections of the existing on-site drainage system to accommodate the proposed hotel expansion and related site improvements. The rerouted sections of on-site drainage system would be similar in size and capacity to the original system being replaced. No modifications to the existing off-site drainage system are required for the Proposed Project. The existing drainage facilities shall continue to be routinely cleaned and repaired, when necessary, as part of the Resort's normal operation and maintenance program.

As discussed in the Grading and Drainage Study (**Appendix G**), grading activities during the construction of the Proposed Project would consist primarily of excavation of approximately 30,000 cubic yards of earth fill to construct the hotel building pad, 5,000 cubic yards of earth fill to construct Lot F, and 1,000 cubic yards of earth cut to expand the existing hilltop water storage tank yard. The remaining grading would be minor because other areas are already level. Earth excavated from the hilltop water storage tank yard (1,000 cubic yards) would be used for fill at Lot F. Soil needed for the balance of Lot F fill and for hotel building pad construction (approximately 34,000 total cubic yards) would be excavated from the area east of the existing south parking lot, on the Casino Trust Parcel. The excavated area would be

contoured to blend into the adjoining land, and the sloped areas would be constructed with protective erosion control features. All earthwork, including excavation, fill, and construction of earth building pads, would be performed in accordance with the geotechnical engineering study for the Proposed Project. Earthwork activities would be monitored and inspected by the project geotechnical engineer. A Stormwater Pollution Prevention Plan (SWPPP), including an erosion and sedimentation control plan, would be incorporated into the grading and drainage construction documents for the project.

2.4.7 WATER SUPPLY

EXISTING WATER SUPPLY AND INFRASTRUCTURE FOR THE RESORT AND GOLF CLUB

The current average water demand for the Resort and auxiliary support and commercial facilities is approximately 300,000 gallons per day (gpd), which does not include water consumption for golf course irrigation. The portion of this water demand that must be met with groundwater is significantly reduced through the recycling of tertiary-treated wastewater (recycled water) from the Tribe's existing WWTP, located east of the Resort on trust land (**Figure 2-1**). Recycled water from the WWTP is currently recirculated for use in toilet flushing and golf course irrigation, thereby reducing the need to rely on potable water for those uses. By using recycled water, rather than potable water, for these uses, the existing potable water usage for toilet flushing alone is reduced by approximately 55,000 gpd.

The current potable water demand for the Resort and auxiliary support and commercial facilities is met by using potable water from existing groundwater wells located on Tribal property west of the Resort and SR-16. The Resort's potable groundwater supply system consists of three wells, all owned by the Tribe. The three groundwater wells have pumping capacities of approximately 547,000 gpd, 454,000 gpd, and 288,000 gpd. Based on the existing capacities of these wells, only one well pump is required to run at any given time to meet the current total groundwater demand of approximately 245,000 gpd for the Resort and auxiliary support and commercial facilities. These wells are further described in **Section 3.7**, **Hydrology and Water Quality**.

Groundwater drawn from the Tribe's wells is currently treated by an electro-dialysis reversal system that is part of the Tribe's existing water desalination treatment facility (WDTF), located on trust land adjacent to the existing warehouse east of the Resort (**Figure 2-1**). Electro-dialysis reversal is a water treatment process that removes dissolved solids and reduces hardness (i.e., salinity) from the groundwater; treatment requirements of the electro-dialysis reversal system are further discussed in **Section 3.7**, **Hydrology and Water Quality**. The electro-dialysis reversal system consists of four lines (process trains) with three stages per line, with a total peak day capacity of 475,000 gpd (with one line on standby). The WDTF has a recovery rate of more than 95 percent, with less than 5 percent of the total water processed sent to the brine concentrate storage tank for disposal. The treated groundwater is disinfected with chlorine before being conveyed through a pipeline system to a 1.1-million-gallon (MG) water storage tank located on trust land on the hillside east of the main Resort building (**Figure 2-1**). The storage capacity of the hillside water storage tank provides sufficient water for fire protection at the

Resort facilities, as well as equalization of the differences between average-day and peak-day water demands (holidays or special events).

Brine[1] resulting from the electro-dialysis reversal process and other treatment systems is collected and sent to a Vibratory Shear Enhanced Process (VSEP) brine concentrator. VSEP is an enhanced form of reverse osmosis that applies a vibratory shear force to the membrane filter pack to minimize fouling and increase water recovery rates. The VSEP permeate (clean product water) is conveyed to the blend tank along with treated water from the electro-dialysis reversal system and raw groundwater. This additional product water recovery increases overall recovery efficiency of the WDTF. The concentrated brine from the VSEP system is sent to the brine storage tank until it is trucked off site for disposal by East Bay Municipal Utilities District (EBMUD) at the Oakland Main WWTP. Currently, an average of two truck trips per day are required to haul the brine off site, with a high of three trips. Each haul truck carries approximately 5,000 gallons of brine. Brine disposal is further discussed in **Section 3.10**, **Public Services and Utilities and Service Systems**.

The Tribe's existing golf course, which is located east of the Resort and outside the immediate area of the Proposed Project site, has an average irrigation water demand of 495 acre-feet per year (af/yr). As described above, a portion of this demand is met with recycled water from the WWTP (addressed below in **Section 2.4.8**); the remainder is supplied by surface water from Cache Creek under an existing contract with the Yolo County Flood Control and Water Conservation District. The Tribe's utilization of Cache Creek as a water supply is further described in **Section 3.7**, **Hydrology and Water Quality**. Because surface water from Cache Creek is not currently used as a potable water supply, no treatment of surface water is currently necessary. Recycled water from the WWTP is currently blended with untreated surface water from Cache Creek before irrigating the golf course. Because portions of the golf course that are irrigated with recycled water from the WWTP are located off trust land, the quality of recycled water used on these portions of the golf course is subject to regulations of the Central Valley Regional Water Quality Control Board (CVRWQCB) as well as the United States Environmental Protection Agency (USEPA). Recycled water is further discussed in **Section 3.7**, **Hydrology and Water Quality**.

PLANNED WATER SUPPLY AND INFRASTRUCTURE

The following infrastructure is being planned independently from the Proposed Project and may be developed with or without the development of the Proposed Project.

Brine Disposal

As discussed above, the current WDTF treatment loss is slightly less than 5 percent, equal to the volume of brine necessary for disposal. The Tribe is currently evaluating a proposal to replace the VSEP brine concentration step with a brine crystallization system. The brine crystallization system would perform the same function with improved efficiency and lower operating cost. Unlike the VSEP, the removed brine

[1] "Brine" is defined as water saturated with salt.

would be concentrated into a dry cake which is mostly solid and can be hauled to landfill or beneficially reused; more treated water would be returned as product water due to improved recovery rate. This system would significantly reduce the volume of salts that must be disposed, reducing truck trips and improving overall WDTF water treatment efficiency.

Water Storage

As discussed in the Grading and Drainage Study (**Appendix G**), the existing 1.1-MG water storage tank has sufficient capacity to meet the emergency, fire protection, and operational storage requirements of the existing facility plus the Proposed Project. However, the Tribe is planning to add a second 1.1-MG storage tank for redundancy, which would be installed adjacent to the current tank and would become the primary tank for storing water for fire suppression, ensuring fire protection water supply is reserved at all times. This new tank would allow the existing 1.1-MG water storage tank to be dedicated to providing operational and emergency storage, with the added capacity for these functions providing additional operational flexibility.

WATER SUPPLY FOR THE PROPOSED PROJECT

Implementation of the Proposed Project would increase total average water demand by approximately 160,000 gpd, for a total water demand of 460,000 gpd (300,000 gpd [existing Resort and auxiliary support and commercial facilities] + 160,000 gpd [incremental increase from Proposed Project]). Due to the anticipated increase in the amount of recycled water used for re-circulation in toilet flushing in restrooms of the Proposed Project and related landscaping, the total potable water demand for the Proposed Project would be reduced by approximately 15,000 gpd. This a 15,000-gpd reduction, together with the existing 55,000-gpd reduction attributable to recycled water use at the Resort, results in a total reduction in groundwater demand of 70,000 gpd. Therefore, with the Proposed Project, the Resort and ancillary support and commercial facilities total average potable water demand (after the reduction for recycled water use) would equal approximately 390,000 gpd. This amount is expected to be even further reduced through the elimination of bathtubs within the proposed hotel expansion rooms, which is expected to save on average 15 gallons per room per day (total savings of 6,885 gpd).

The golf course irrigation demand would not change as a result of the Proposed Project.

Water Supply

Water supply for the Proposed Project would be provided by the Tribe's existing wells. As noted above, the capacities of the three Resort wells range from 288,000 gpd to 547,000 gpd. The existing capacities of the three wells, taking into consideration the existing and planned water storage capacities, are more than adequate to meet the increased potable water demands of the Proposed Project.

Water Infrastructure

As described in **Appendix F**, the projected net peak day water demand of the Proposed Project would exceed the current production capacity of the WDTF, assuming one electro-dialysis reversal line continues to be reserved as standby. In order to accommodate the additional demand of the Proposed Project, a fifth electro-dialysis reversal process train will be added to the WDTF in the existing space reserved for that equipment. This will allow average and peak base demands to be met even if an electro-dialysis reversal train is out of service.

Additionally, capacity would need to be increased for brine concentration. This would be accomplished in one of two ways. The first option is to add up to two additional VSEP stacks to the existing three operational stacks to increase the capacity for brine concentration. The increase in demand for water generated by the Proposed Project would increase the average number of truck trips for brine disposal to approximately three trucks per day. Adding these elements will provide sufficient capacity to serve the additional demands of the Proposed Project while providing operational flexibility and redundancy. The second option would consist of the replacement of the entire VSEP brine concentration step with the Brine Crystallization System, described above. If the Tribe implements the Brine Crystallization System, the number of truck trips would for brine disposal would be reduced to 21 trucks per year (compared to three trucks per day). The potential off-reservation impacts of both of these options are evaluated in this TEIR.

Figure 2-3 shows the proposed potable water process flow diagram and **Figure 2-1** shows where the proposed facilities would be located within the trust land.

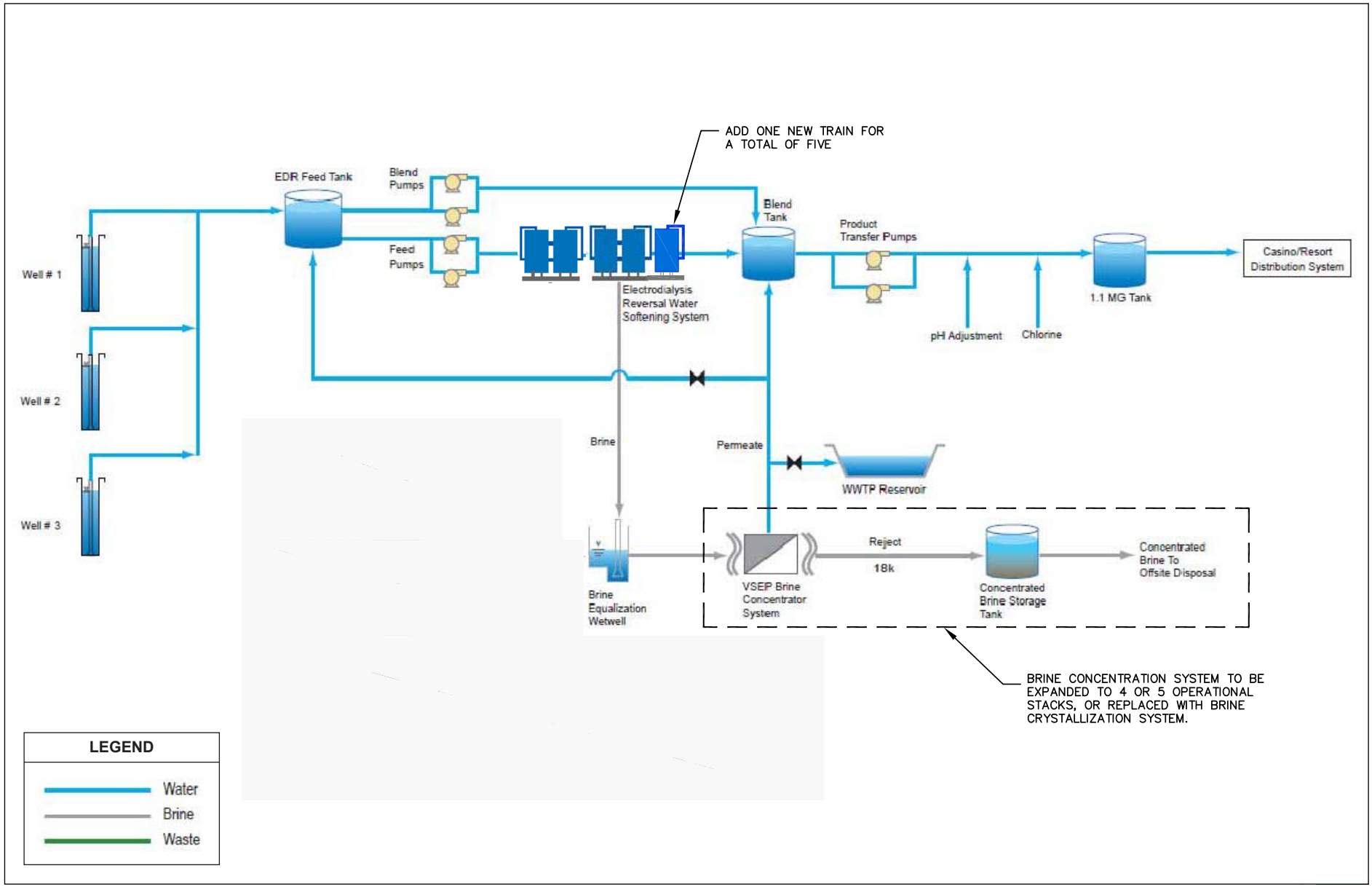
Water Storage

As described in **Appendix F**, the Proposed Project would result in a total water storage requirement for the Resort of 1.023 MG which could be accommodated by the Resort's existing 1.1-MG storage tank. However, as noted above the Tribe is also planning to add a 1.1-MG tank for redundancy and supplemental capacity. Although not necessary to serve the Proposed Project, the potential off-reservation impacts from the development of this planned 1.1-MG tank are evaluated in the TEIR. The location of the additional 1.1-MG tank is shown on **Figure 2-1**.

2.4.8 WASTEWATER TREATMENT AND DISPOSAL

EXISTING WASTEWATER FACILITIES

The Resort and auxiliary support and commercial facilities generate an average of approximately 238,000 gpd of wastewater. All wastewater generated by these sources is collected at an influent lift station and screening (ILS) facility located on trust land near the south entrance to the Resort and conveyed to the WWTP east of the Resort. The ILS facility includes two wet wells with submersible pumps with a firm pumping capacity of approximately 400 gallons per minute (gpm; 580,000 gpd) each.



SOURCE: HydroScience, 2016; AES, 7/13/2016

Figure 2-3
Proposed Potable Water Process Flow Diagram

The WWTP consists of an initial screening of bulk materials and then microfiltration through an existing membrane bioreactor (MBR) system. The MBR currently includes two process trains that are designed to provide reduction of waste contaminants using microfiltration and biological processes such as biological oxidation, nitrification, denitrification, and solids removal. This WWTP has been in operation since 2002 and, since that time, has met all regulatory requirements.

The WWTP includes a 234,000-gallon emergency storage basin located near the headworks of the WWTP, as well as an 83,000-gallon overflow basin located just south of the existing MBR, providing a total emergency storage volume of 317,000 gallons. Solids generated from the WWTP process (biosolids) are dewatered with a belt press (concentrated) and then sent to a permitted landfill. After the biosolids are concentrated and separated from the wastewater stream, the excess water is sent back to the WWTP for processing, thereby reducing recycled water loss associated with treatment.

Treated wastewater from the WWTP is currently reused for toilet flushing in casino restrooms, golf course irrigation, and landscape irrigation at the Resort. Sodium hypochlorite is used as a disinfectant prior to use of recycled water. For distribution of recycled water on trust land to the toilet and urinals in the casino, a 64,000-gallon storage tank is located on the hill above the ILS. Additionally, recycled water from the WWTP is seasonally stored on trust land in an upper reservoir adjacent to the WWTP, which has a usable storage capacity volume of approximately 51 af (17 MG), and in the golf course's South Lake, which has an effective seasonal storage capacity of approximately 300 af (98 MG).

PROPOSED WASTEWATER FACILITIES

Implementation of the Proposed Project would result in an increase of approximately 128,000 gpd of wastewater generation. The Tribe's wastewater collection system's existing ILS facility is adequate to meet the needs of the Proposed Project, with the exception of the grease interceptors. Additional grease interceptors would be installed as part of the Proposed Project to protect the WWTP from excessive fats, oil, and grease.

To accommodate increased wastewater treatment demands from the Proposed Project, the WWTP would be improved. All improvements would be made within the existing footprint of the WWTP. Specific improvements are discussed in detail in Section 5.2.2 of the Water and Wastewater Feasibility Study (**Appendix F**) and summarized below:

- MBR – Expand the quantity of membranes in each MBR train such that each train has 3.5 to 4 fully populated cassettes.
- Return Activated Sludge (RAS) Pumps – Replace RAS pumps and modify the recycle piping to provide additional operational control.
- Aeration System – Modify blower drives and controls to allow finer control of air feed and dissolved oxygen in the aeration basin, for improved biological treatment efficiency.
- Scour Air Blowers – Adjust belts and sheaves to higher air flow.

- Belt Press – Increase hours of operation to process additional solids.
- Disinfection – Supplement active contact basin capacity by restoring to active service an existing contact basin that currently operates in a "flow-through" passive mode back into the disinfection system. Modify dosing system and controls.

Figure 2-4 shows the proposed wastewater process flow diagram and **Figure 2-5** shows where the proposed wastewater facilities would be located in relation to the existing WWTP (see **Figure 2-1** for the location within the Proposed Project site).

RECYCLED WATER DISTRIBUTION AND STORAGE

The Proposed Project would result in an increase in treated wastewater that would require recycling, storage, or disposal. As described in **Appendix F**, adequate storage and disposal capacity is available for the Proposed Project, assuming continued golf course irrigation and toilet/urinal flushing, with leach fields on standby. Therefore, the existing disposal and storage facilities would require no expansion.

2.4.9 POWER SUPPLY

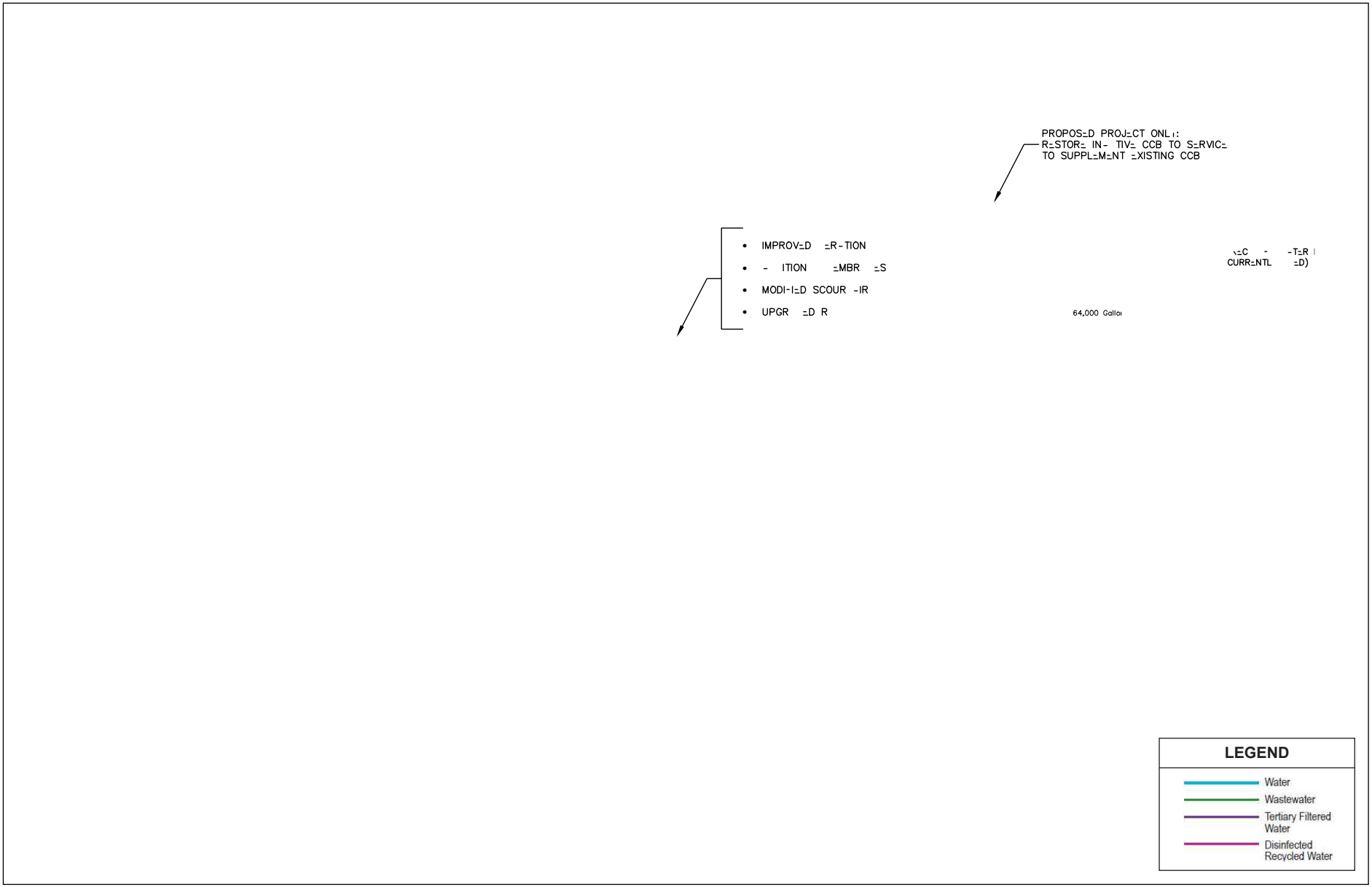
CURRENT POWER USAGE

The current peak electricity usage at the Resort and auxiliary support and commercial facilities is 6 megawatts (MW). This includes electricity usage for the WWTP, existing dam warehouse, fire station, gas station, golf club, mini-mart, and the Resort. Electricity is provided to the Resort and auxiliary support and commercial facilities primarily by Pacific Gas and Electric Company (PG&E) through power lines along SR-16. Natural gas purchased from PG&E is delivered to the trust land through an existing 6.8-mile pipeline extending from PG&E lines east of the Proposed Project near Yolo County Road 15B.

ON-SITE POWER GENERATION

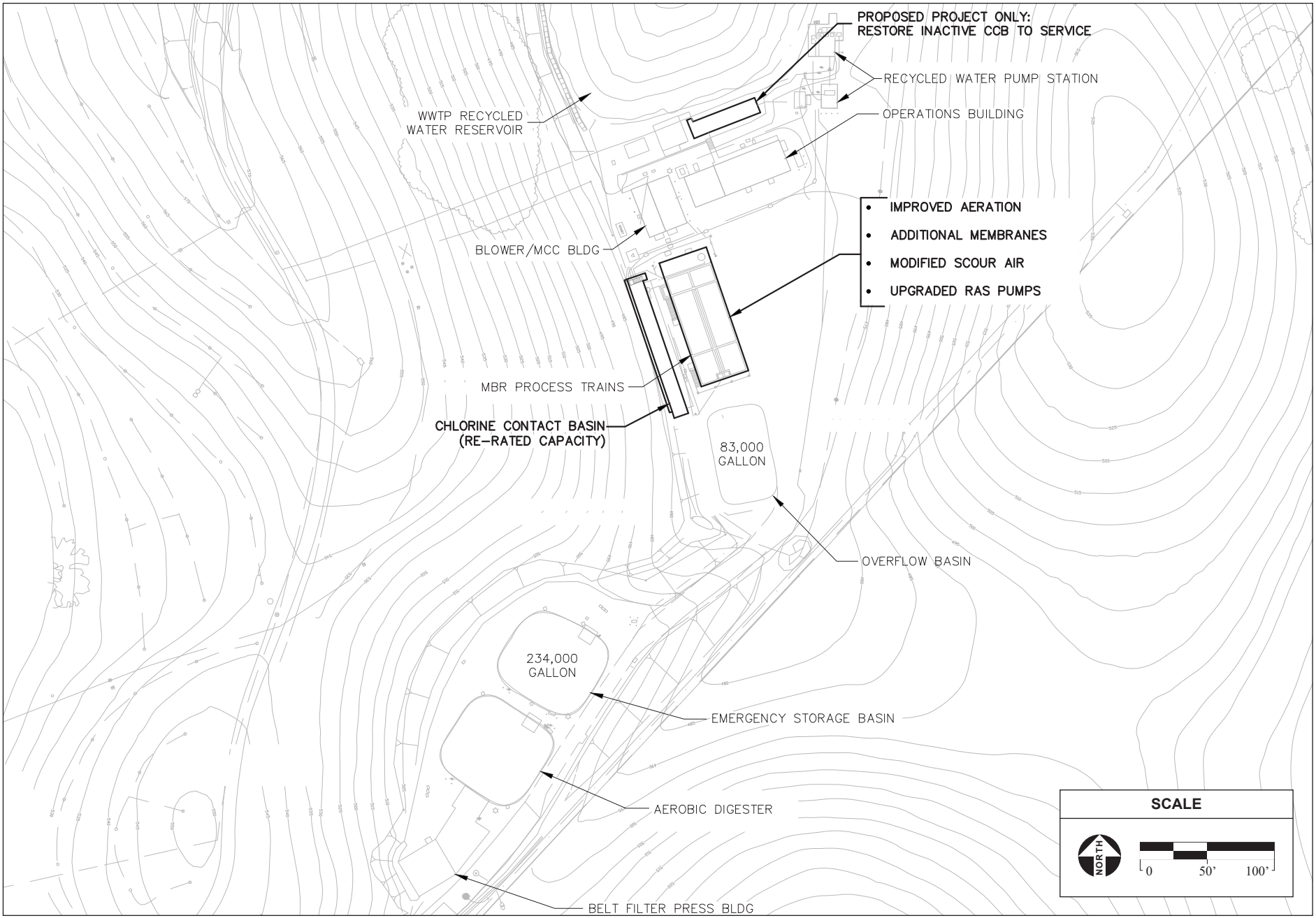
The Resort augments its electricity supply from PG&E with a photovoltaic array, which is located on the hillside northeast of the casino and hotel (**Figure 2-1**). The photovoltaic array provides 0.275 MW of alternating current power at peak generation. Additionally, an emergency generator system, standby generator plant, and 21-kilowatt power supply loop provide a complete backup power system for the Resort (**Figure 2-1**).

An existing standby generator facility provides a centralized system for backup energy supply, providing power to all Resort and auxiliary support and commercial facilities. The standby generator facility contains four 3-MW generators (for a total generation capacity of 12 MW), with the capacity for one additional generator to be added at a future date if needed. Diesel is used by the generators when in operation. The diesel fuel is stored in two 20,000-gallon aboveground storage tanks within the standby generator facility that allow for 48 hours of operation at peak load. There is a smaller "day tank" associated with each generator. All fuel storage tanks and an oil storage area are dual-walled for spill



SOURCE: HydroScience, 2016; AES, 7/13/2016

Figure 2-4
Proposed Wastewater Flow Process Diagram



SOURCE: HydroScience, 2016; AES, 8/3/2016

Figure 2-5
Proposed Wastewater Treatment Plant Layout

containment. A 20-foot wide road along the east side of the standby generator facility allows access for fuel delivery and fire trucks (**Figure 2-1**).

THERMAL STORAGE

Due to the size of the Resort buildings, the heating and cooling system must have a heat source and a chill source at all times; these are mixed in different combinations to create a desired ambient temperature. A 1.364-MG thermal energy storage tank along the south service road on the southern portion of the trust land is used to store chilled water (**Figure 2-1**). Water in the tank is cooled during the nighttime hours when energy demand on the PG&E grid is low. The storage tank keeps the water chilled for use during the day, substantially decreasing energy consumption at the Resort and associated facilities during peak periods when demands on the PG&E energy grid are high.

PROPOSED PROJECT POWER USAGE AND GENERATION

Energy Demands

The Proposed Project would be designed to meet or exceed the standards of Title 24 of the California Code of Regulations, which sets minimum efficiency requirements for building construction materials and energy-consuming equipment in California. Under baseline conditions, the Proposed Project would increase peak electrical energy demand for the Resort and auxiliary support and commercial facilities from 6 MW to 10.5 MW (a 4.5-MW increase). ~~The Tribe is actively participating in PG&E's "Savings by Design" program, however~~A number of measures have been incorporated into the design of the Proposed Project to reduce energy demands, with a goal of achieving a 10 percent reduction in energy demands below Title 24 standards. ~~The Savings by Design program promotes energy efficiency by offering up-front design assistance by PG&E engineers that is supported by financial incentives based on project performance. Although it is likely that electrical demands resulting from the Proposed Project would be reduced as result of participation in the Savings by Design program~~Regardless, this TEIR conservatively assumes a base-case increase in peak electrical demands of 4.5 MW.

Stand-by Electrical Power

The existing 12-MW standby generator facility discussed above allows the Tribe to generate electrical energy on site during standby situations and would be capable of generating enough energy to meet the increased electrical energy demands resulting from the Proposed Project.

Energy Sources and Potential Infrastructure Upgrades

The Tribe is considering several on-site alternative energy solutions to meet the increased energy demands of the existing Resort and Proposed Project, including, but not limited to, use of a rooftop solar array. However, because detailed plans have not been developed for potential on-site alternative energy sources, this TEIR conservatively assumes that all of the energy demands resulting from the Proposed Project would be met through a service agreement with PG&E.

Consultation with PG&E indicates that upgrades to its Madison substation would be required to serve future regional demand. Upgrades would consist of replacing existing equipment with larger units in the same general position; all improvements would take place entirely within the existing fenced area of the existing substation and would not require earth-disturbing activities (Hoogerhyde, 2016).
There is also a possibility that projected growth in the region in combination with the Proposed Project may require upgrades to the existing transmission and distribution network to which the Madison substation and the Resort are connected. PG&E has not yet completed its final evaluation of the need for transmission line upgrades to serve the needs of regional growth; however, it has indicated that any upgrades would consist of installing new conductors on existing overhead lines rather than installing new lines. These transmission upgrades, if any, would be required to serve regional growth with or without the Proposed Project and are not considered to be part of the Proposed Project.

2.4.10 LIGHTING

The proposed expansion of the Resort onto the southern parking lot would result in the removal of approximately 26 existing light poles, which would reduce the total amount of outdoor lighting at the Proposed Project site. External lighting at the expanded Resort would consist of downcast light-emitting diode (LED) lamps designed for public safety and security, consistent with applicable requirements, and would be similar to existing lighting fixtures on the outside of the Resort structures.

2.4.11 ACCESS

The existing ingress and egress points for the Resort would be maintained under the Proposed Project. Most of the additional traffic associated with the Proposed Project would be directed to the main (northern) entrance to and exit from the Resort, which is currently controlled by a traffic signal. The existing middle access to the Resort would be maintained for valet parking and porte cochere guest drop-off. The southern access to the Resort would continue to allow access to the Resort site for buses and for deliveries.

2.4.12 BUILDING DESIGN AND LANDSCAPING

The exterior design of the Proposed Project would be visually compatible with the existing Resort facilities. Building materials and colors of the Proposed Project would be chosen to match the aesthetics of the existing Resort facilities and would continue to complement the surrounding area.

Existing landscaping along SR-16 would not be removed, and that mature landscaping would soften the view of the Proposed Project facilities from the highway. The Proposed Project would result in an additional 5 acres of landscaping at the Resort within the proposed pool area and parking lots; proposed landscaped areas would increase shade, reduce ambient heat, and minimize visual impacts. Landscaping for the Proposed Project would be designed to be compatible with existing and surrounding vegetation, including the agricultural/viticultural theme of the existing landscaping in front of the Resort.

Additionally, approximately 75 percent of the proposed ballroom roof would be a "green roof." The green roof would be planted with drought-tolerant plants. The pool area would include a significant amount of artificial turf and drought-tolerant plants to reduce irrigation demands.

The proposed water storage tank would be painted a neutral color that would blend in with the surrounding terrain. Trees and/or shrubs would be planted as an additional buffer that would obscure views of the tanks from off-reservation locations.

2.5 PROJECT CONSTRUCTION

Construction of the Proposed Project would last approximately two years (22 months) and would involve earthwork, placement of concrete foundations, steel and wood structural framing, electrical and mechanical work, building finishing, and paving. Most construction activities would occur on areas that are currently paved surfaces. Grading and excavation equipment is anticipated to consist of bulldozers, excavators, scrapers, loaders, and one grader. A complete list of anticipated construction equipment is available in **Appendix J**. It should be noted that no heavy-duty impact equipment would be used during construction of the Proposed Project. Construction of infrastructure additions for the Proposed Project, including the proposed expansion of the WDTF, the WWTP modifications, and power generation expansions, would occur simultaneously with building construction, so that all required infrastructure improvements would be functional before the Proposed Project is opened to the public. All staging areas for construction would be located on trust land adjacent to the existing Resort. Construction of the Proposed Project would require a maximum of 400 construction workers on site at a time, depending on the phase of construction.

After detailed construction plans and specifications are prepared for the Proposed Project and any necessary permits and approvals have been obtained, a contractor hired by the Tribe would begin construction. All contractual obligations associated with mitigation measures described in **Section 3.0**, **Environmental Analysis**, would be incorporated into executed contracts prior to the start of construction. Key construction activities would include the following:

- Site preparation – asphalt removal;
- Earthwork – grading, excavation, backfill, and earth retention;
- Concrete – forming, rebar placement, and concrete delivery and placement;
- Structural steel work – assembly and welding;
- Non-structural framing (wood or steel);
- Masonry construction;
- Installation of mechanical equipment and piping;
- Landscape and hardscape installation; and
- Interior finishing.

2.6 PROJECT OPERATION

The Proposed Project would generate approximately 200 new positions to be filled, for a total of approximately 2,400 Resort employees. The Resort, as expanded by the Proposed Project, would continue to be managed by the Tribe and its team of highly qualified professionals and would continue to operate 24 hours per day, 7 days per week.

SECTION 3.0

ENVIRONMENTAL ANALYSIS

SECTION 3.0
ENVIRONMENTAL ANALYSIS

3.1 INTRODUCTION TO THE ENVIRONMENTAL ANALYSIS

Section 3.0 of this Draft Tribal Environmental Impact Report (TEIR) describes the existing off-reservation environment, potential off-reservation environmental impacts attributable to the Proposed Project, and, where warranted, mitigation to reduce these impacts. This section is divided into 12 resource subsections, each of which provides an integrated presentation of appropriate regulatory setting, off-reservation environmental setting, off-reservation environmental impacts and their significance, and recommended mitigation measures. The topics addressed in this section include:

- Transportation/Traffic;
- Land Use, Agricultural Resources, Population and Housing, and Recreation and Parks;
- Biological Resources;
- Cultural and Paleontological Resources;
- Hazards and Hazardous Materials;
- Hydrology and Water Quality;
- Air Quality;
- Noise;
- Public Services and Utilities and Service Systems;
- Aesthetics;
- Geology, Soils, and Mineral Resources; and
- Population Growth-inducing and Cumulative Off-reservation Environmental Impacts.

These topics were identified for analysis on the basis of the Tribal-State Compact (Compact) Environmental Impact Analysis Checklist (Checklist), which is provided as **Appendix A** of this Draft TEIR, as well as comments received during the scoping process. Pursuant to the Compact, the Checklist was used to determine the potential for impacts to various off-reservation environmental resources.

3.1.1 SIGNIFICANCE CRITERIA

Potentially significant off-reservation impacts of the Proposed Project, which are changes to the off-reservation environmental setting that are attributable to the Proposed Project, are identified for each off-reservation environmental resource area, along with a description of the methodology used in the analysis. According to Section 10.8.7(b) of the Compact, a "significant effect" would occur if any one of the following conditions exists:

- A proposed project has the potential to degrade the quality of the off-reservation environment, curtail the range of the environment, or achieve short-term, to the disadvantage of long-term, environmental goals;
- The possible effects on the off-reservation environment of a project would be individually limited but cumulatively considerable. As used herein, "cumulatively considerable" means that the incremental effects of an individual project would be considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects; or
- The off-reservation environmental effects of a project would cause substantial adverse effects on human beings, either directly or indirectly.

For each off-reservation environmental resource area evaluated in this Draft TEIR, significance criteria have been adopted from the Checklist and incorporated into the off-reservation environmental analysis in the appropriate subsection.

3.1.2 CUMULATIVE IMPACTS

The cumulative impact analysis in **Section 3.13** is based on the implementation of the Proposed Project in the context of the maximum potential development through the year 2030 contemplated by the *County of Yolo 2030 Countywide General Plan* (General Plan; Yolo County, 2009a) as well as the potential cumulative developments described in **Section 3.13.2**, which may or may not occur.

3.1.3 MITIGATION MEASURES

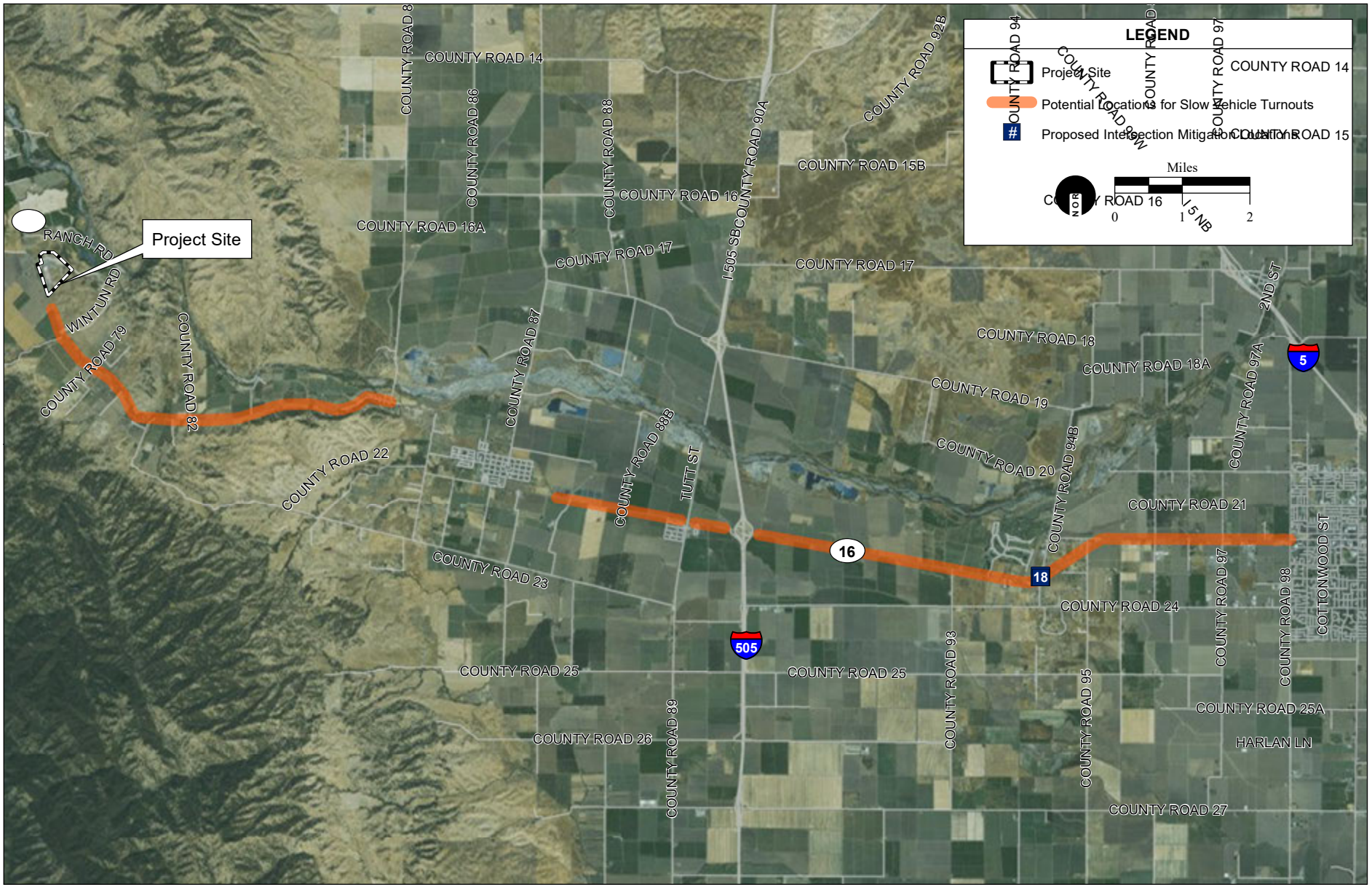
Mitigation measures are recommended to eliminate or reduce the magnitude of potentially significant off-reservation impacts that may be experienced during construction and/or operation of the Proposed Project for the environmental resource areas listed above. In cases where no mitigation is available or required, this conclusion is noted. Unless stated otherwise, where multiple mitigation measures are listed, all are necessary to mitigate a potentially significant off-reservation environmental impact.

3.1.4 OFF-RESERVATION EFFECTS FROM IMPLEMENTATION OF MITIGATION MEASURES

The impact analysis for each resource topic addresses the potential for off-reservation environmental impacts as a result of implementation of recommended mitigation measures, including traffic improvements identified as mitigation measures in **Section 3.2** and **Section 3.13** of this TEIR. Wherever necessary, additional mitigation is recommended for such impacts.

Specifically, the mitigation measures recommended in **Section 3.2** to reduce the potentially significant impacts of near-term project-related traffic may involve grading and excavation within or immediately adjacent to the right-of-way along the corridor of State Route 16 (SR-16) at the following locations: (i) between the Cache Creek Casino Resort (the Resort) and County Road 85; and (ii) between the Esparto town limits and County Road 98. In addition, potential long-term mitigation, as anticipated in the 2035 planning horizon (refer to **Section 3.13**), may in the future be required at the above locations as well as at the intersection of SR-16 and County Road 94B if the residential and commercial growth allowed by the General Plan actually occurs. The locations of potential traffic improvements resulting from recommended mitigation measures within this TEIR are identified in **Figure 3.1-1**. The potential mitigation measures under consideration are discussed more thoroughly in **Sections 3.2** and **3.13**.

Environmental impacts attributable to off-reservation traffic mitigation would ultimately depend on the final design of each traffic improvement. These final designs would be determined by the California Department of Transportation (Caltrans; for SR-16) and Yolo County (County; for County roads), as well as any other local, state, or federal agencies that may be involved, and may be subject to review under the California Environmental Quality Act (CEQA) and/or the National Environmental Policy Act (NEPA), which would involve additional analysis and surveys for environmental resources, including biological and cultural resources. At that time, the relevant agency or agencies would make a final determination about potential environmental impacts and recommend any mitigation needed to minimize those impacts. The analysis within this TEIR uses currently-available information to provide as much information as possible about the off-reservation traffic improvements identified in **Sections 3.2** and **3.13**, understanding that conditions may have changed by the time the improvements are warranted and implemented, and that the final responsibility to adopt and implement the improvements rests with Caltrans and/or the County.



SOURCE: Kimley Horne, 3/2016; DigitalGlobe aerial photograph, 4/1/2015; ESRI Data, 2016; AES, 8/8/2016

Figure 3.1-1
Proposed Traffic Mitigation Locations

3.2 TRANSPORTATION/TRAFFIC

This section addresses the off-reservation environment associated with transportation and traffic, discusses potential impacts of the Proposed Project on off-reservation transportation and traffic, and recommends mitigation measures to reduce identified potentially significant off-reservation impacts. A detailed Traffic Impact Study (TIS) for the Proposed Project is included as **Appendix D** of this Tribal Environmental Impact Report (TEIR). The following discussion includes a summary and analysis of the results of the TIS.

3.2.1 REGULATORY SETTING

Regulation of the off-reservation roadway network in the vicinity of the Proposed Project generally falls under the jurisdiction of the California Department of Transportation (Caltrans), Yolo County, and the City of Woodland. Laws and regulations related to off-reservation transportation are described below.

STATE AND LOCAL

The Proposed Project site is located on trust land and is not subject to state or local controls concerning transportation and traffic. However, such controls apply to off-reservation land in the vicinity of the Proposed Project site.

California Department of Transportation

Caltrans manages interregional transportation, including the management and construction of the California highway system. In addition, Caltrans is responsible for the permitting and regulation of state roadways. The area surrounding the Proposed Project site is located in Caltrans District 3 and includes two roadways that fall under Caltrans' jurisdiction, State Route (SR)-16 and Interstate (I)-505.

Caltrans requires temporary off-reservation traffic control planning "during any time the normal function of a roadway is suspended" as a result of construction activities that affect roadways under Caltrans' jurisdiction (Caltrans, 2014). In addition, Caltrans requires that permits be obtained for off-reservation transportation of oversized loads, transportation of certain materials, and construction-related traffic disturbances on such roadways. Caltrans requirements apply to the transportation of construction equipment on SR-16, the state route serving the Proposed Project (Caltrans, 2004).

State Route 16 Transportation Corridor Concept Report (TCCR)

Each Caltrans district prepares a Transportation Corridor Concept Report (TCCR) for each state route within its jurisdiction. A TCCR is a planning document designed to ensure that the corresponding state route will be developed and managed to meet a concept level of service (LOS) standard and quality of operations over a 20-year period. The TCCR for SR-16 was approved by Caltrans in 2012. The planning horizon for the SR-16 TCCR spans 20 years (Caltrans, 2012). The SR-16 TCCR provides a significance criterion to determine the potential impacts of a proposed project on the traffic operations of SR-16.

County of Yolo 2030 Countywide General Plan

The *County of Yolo 2030 Countywide General Plan* (General Plan), adopted in 2009, is the guiding document for development in unincorporated areas of the County, including the off-reservation properties in the vicinity of the Proposed Project. The General Plan does not apply to trust land or to the Proposed Project itself. Policies in the General Plan that are relevant to off-reservation transportation and traffic include the following:

Circulation Element

Goal CI-2: Mode and User Equity. Design and implement a circulation and transportation system that reflects the needs of all transportation types and users.

Policy CI-2.2: Encourage employers (including the County) to provide transit subsidies, bicycle facilities, alternative work schedules, ridesharing, telecommuting and work-at-home programs, employee education and preferential parking for carpools/vanpools.

Policy CI-3.1: Maintain LOS C or better for roadways and intersections in the unincorporated county. In no case shall land use be approved that would either result in worse than LOS C conditions, or require additional improvements to maintain the required LOS, except as specified below. The intent of this policy is to consider LOS as a limit on the capacity of the County's roadways.

- SR-16 (County Road [CR]-78 to CR-85B) – LOS D is acceptable.
- SR-16 (CR-85B to CR-21A) – LOS E is acceptable.
- SR-16 (CR-21A to I-505) – LOS D is acceptable, assuming that this segment is widened to four lanes with intersection improvements appropriate for an arterial roadway.
- SR-16 (I-505 to CR-98) – LOS D is acceptable, assuming that passing lanes and appropriate intersection improvements are constructed.

Additional exceptions to this policy may be allowed by the Board of Supervisors on a case-by-case basis, where reducing the LOS would result in a clear public benefit. Such circumstances may include, but are not limited to, the following:

- Preserving agriculture or open space land;
- Enhancing the agricultural economy;
- Preserving scenic roadways/highways;
- Preserving the rural character of the County;
- Avoiding adverse impacts to alternative transportation modes;
- Avoiding growth inducement;

- Preserving downtown community environments; or
- Where right-of-way constraints would make the improvements infeasible.

Policy CI-3.2: Identify specific LOS policies within Specific Plans and Community Area Plans based on the following conditions:

- LOS shall not be allowed to worsen beyond LOS E within the proposed *Madison Specific Plan* except where specified in Policy CI-3.1.
- LOS shall not be allowed to worsen beyond LOS E within the *Esparto Community Plan* except where specified in Policy CI-3.1.
- LOS shall not be allowed to worsen beyond LOS D within other Community Plans and Specific Plans except where specified in Policy CI-3.1.
- Where roadways improvements are not needed due to the adoption of a lower LOS as described in Policy CI-3.1, developers shall be required to construct equivalent circulation and safety improvements for other modes of travel.

Policy CI-3.11: Require new development to finance and construct all off-site circulation improvements necessary to mitigate a project's transportation impacts (including public transit, pedestrian and bicycle mobility, safety and LOS-related impacts). For mitigation to be considered feasible, it must be consistent with the policies of the General Plan.

Policy CI-3.12: Collect the fair share cost of all feasible transportation improvements necessary to reduce the severity of cumulative transportation impact (including public transit, pedestrian and bicycle mobility, safety and LOS-related impacts).

Policy CI-6.2: Require new development to situate transit stops and hubs at locations that are convenient and accessible to transit users based on coordination with Yolo County Transportation District (YCTD).

Policy CI-6.3: Require the design of transit stops and hubs to include upgraded amenities such as sheltered stops, benches and lighting based on coordination with YCTD.

Policy CI-6.3: Require new development to include design elements that promote transit use, such as:

- Locating sheltered bus stops near neighborhood focal points.
- Locating transit routes on streets serving medium-high density development whenever feasible.
- Linking neighborhoods to bus stops through continuous bikeways and sidewalks.

- Providing direct bicycle and pedestrian access to transit stops, park-and-ride lots, alternative fuel stations, bicycle racks, train access (e.g., Dunnigan, Yolo and Zamora), public docks for water taxis (Clarksburg, Elkhorn and Knights Landing) and airport shuttles (Elkhorn).

Policy CI-7.3: By attracting truck trips to targeted corridors, other roadways throughout the County are more available for movement of agricultural vehicles (including over-sized and slower moving equipment critical to harvest) and farm workers thus supporting more efficient and safe agricultural operations countywide.

Capay Valley Area Plan

The *Capay Valley Area Plan* was adopted in 2010 as a component of the General Plan. The *Capay Valley Area Plan* does not apply to trust land or to the Proposed Project itself. The plan establishes the following goals relevant to off-reservation transportation and traffic (Yolo County, 2010):

Circulation

Goal 1: Safe roadway and highway network in the Capay Valley Planning Area.

Policy 1: The County shall review projects to ensure that Institute of Transportation Engineers (ITE) Level of Service is maintained in the Capay Valley Planning Area, in accordance with the Yolo County General Plan.

Implementation Measure 1: When considering improvements to County maintained roads, any new paving, either asphalt or concrete, should be encouraged to be done with pervious and sound reducing materials where economically feasible.

Goal 2: Improve availability, safety, and facilities associated with users of alternate modes of transportation, including pedestrians, equestrians, and bicyclists.

Policy 2: Encourage whenever possible or practical the construction of bicycle lanes.

Implementation Measure 1: In accordance with the County of Yolo Bicycle Transportation Plan, as amended, the County shall support the addition of bicycle access and bicycle lanes in reviewing any proposal that would require improvement of roadways.

Implementation Measure 2: Any upgrades or improvements to State Route 16 within the Capay Valley Planning Area will be encouraged to be planned and designed to accommodate bicycle lanes and bike safety enhancements.

Policy 3: Encourage the restoration of a Public Transportation System in the Capay Valley.

Implementation Measure 1: The County shall support the provision of additional funding for Yolo Public Transit Authority to extend their service boundary to serve the communities of Brooks, Guinda, Rumsey, and Capay.

Implementation Measure 3: The County will coordinate with Cache Creek Casino and Resort to provide transportation options for casino patrons and employees as an alternative to automobile use.

Town of Esparto General Plan

The *Town of Esparto General Plan*, adopted in 2007, establishes the following policies relevant to off-reservation transportation and traffic (Yolo County, 2007). The *Town of Esparto General Plan* does not apply to trust land or to the Proposed Project itself:

Circulation Goals, Policies, and Programs

Goal 1: To provide a safe and efficient circulation network for Esparto.

Goal 2: To encourage the use of alternative forms of transportation other than the automobile.

Policy E-C.1: The most often used indicator of the ability of a roadway system to accommodate traffic is LOS, which sets a standard based on a scale from LOS "A", free-flow conditions, to LOS "F," which refers to unstable conditions approaching gridlock. These standards or better are usually considered acceptable for daily traffic. LOS "C" or better shall be maintained on all streets and intersections, with LOS "D" tolerated at peak times.

Policy E-C.3: Facilities that promote the use of alternative modes of transportation, including bicycle lanes, pedestrian and hiking trails, park-and-ride lots, and facilities for public transit shall be incorporated into new development, and shall be encouraged in existing development.

Policy E-C.4: Public transit to surrounding communities, especially Woodland, shall be improved.

Policy E-C.6: A bicycle/walking trail shall be established around the town for errands, to link principal school routes and for recreation. Such a trail system shall also provide a link to other routes that lead to Cache Creek and to the Capay Valley.

City of Woodland General Plan

The *City of Woodland General Plan*, adopted in 1996 and updated December 2002, establishes the following policies relevant to off-reservation transportation and traffic within the City of Woodland (City of Woodland, 2002). The *City of Woodland General Plan* does not apply to trust land or to the Proposed Project itself.

Transportation and Circulation

Goal 3.A: To provide for the long-range planning and development of the city's roadway system to ensure the safe and efficient movement of people and goods.

Policy 3.A.2: The City shall develop and manage its roadway system to maintain LOS "C" or better on all roadways, except within one-half mile of state or federal highways and freeways and within the Downtown Specific Plan area. In these areas, the City shall strive to maintain LOS "D" or better. Exceptions to these LOS standards may be allowed in infill areas where the City finds that the improvements or other measures required to achieve the LOS standards are unacceptable because of the right-of-way needs, the physical impacts on surrounding properties, and/or the visual aesthetics of the required improvement and its impact on community character.

Policy 3.A.4: The City shall require an analysis of the effects of traffic from proposed major development projects. Each such project shall construct or fund improvements necessary to mitigate the effects of traffic from the project. Such improvements may include a fair share of improvements that provide benefits to others.

3.2.2 ENVIRONMENTAL SETTING

EXISTING OFF-RESERVATION ROADWAY NETWORK

Major off-reservation roadways in the vicinity of the Proposed Project include a state route and an interstate route under the jurisdiction of Caltrans, various County roads, and private roads. The following is a description of the off-reservation roadway network that provides access to the Proposed Project site.

State Route 16

SR-16 is an undivided two-lane rural state route running east-west that provides direct, local, and regional access to the Proposed Project site. SR-16 begins in Napa County northwest of the Resort and traverses southeast to its connections with I-505 and I-5 east of the Resort. The speed limit along SR-16 is generally 55 miles per hour (mph), with speed limits as low as 25-35 mph in urbanized areas. Within the community of Esparto, school route crosswalks are marked near the downtown high school at the intersections of SR-16 with Plainfield Street, Madison Street, and (CR)-21A. A more detailed description of the study roadway intersections and segments of SR-16 between the Resort and the City of Woodland is provided in the TIS (**Appendix D**).

Yolo County SR-16 Safety Improvement Project (Y-16 SIP)

Caltrans has prepared a TCCR analyzing potential improvements to SR-16 from Brooks to I-505 to increase roadway safety on SR-16. The recommendations regarding safety improvements to SR-16 in the TCCR were included in Caltrans' Yolo County SR-16 Safety Improvement Project (Y-16 SIP).

Environmental review of the Y-16 SIP project has been completed and a mitigated negative declaration for the project was approved in June 2015 (Caltrans, 2015a).

At various locations, the Y-16 SIP proposes widening the SR-16 right-of-way to provide 8-foot shoulders and an additional 12-foot zone without obstructions such as structures, thereby creating a 20-foot "clear recovery zone" (CRZ), free of obstructions to traffic, along each side of SR-16. The CRZ would provide additional room for errant vehicles traveling along SR-16 to regain control prior to impact with any off-road obstruction. Other features of the Y-16 SIP include stabilizing the embankment of Taylor Creek near the community of Madison, replacing or relining culverts as needed, improving roadway geometries, installing rumble strips on the shoulders, and providing left-turn lanes at several intersections (Caltrans, 2015a). A more detailed description of the Y-16 SIP may be found at www.dot.ca.gov/dist3/Projects/0C470/prjindex.htm.

~~Interstate 505~~ Roadway Facilities

The following ~~County roads~~roadway facilities provide area access to the main off-reservation roadway network leading to the Proposed Project site, as well as undesignated bypass routes that provide alternative routes of access to the Proposed Project. Refer to **Figures 3.2-1** and **3.2-2**, below.

I-505 is a four-lane freeway that runs north- south connecting I-80 in Vacaville to I-5 near the Yolo-Colusa County line. I-505 serves as the major north-south regional roadway in the vicinity of the Proposed Project.

~~County Roads~~

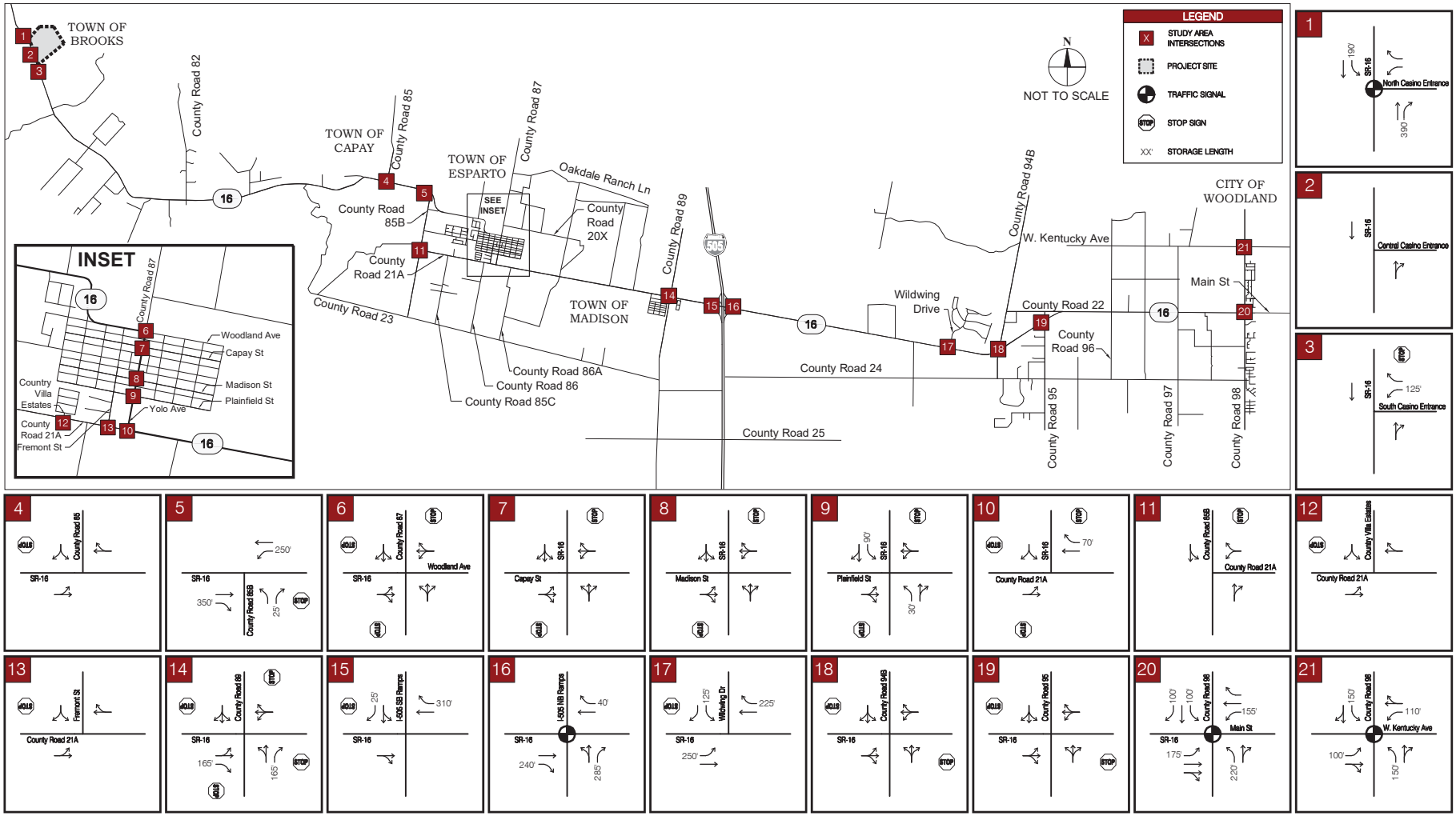
~~The following County roads provide area access to the main off-reservation roadway network leading to the Proposed Project site, as well as undesignated bypass routes that provide alternative routes of access to the Proposed Project. Refer to **Figures 3.2-1** and **3.2-2**, below.~~

Capay Street is a two-lane roadway in the community of Esparto with curbs, gutters, and on-street parking. It runs east-west, connecting Alpha Street and Omega Street.

Country Villa Estates is a two-lane roadway in the community of Esparto. It runs north-south, connecting residential housing to CR-21A.

County Road 21A (CR-21A) is a major two-lane undivided county road. It runs east-west, connecting CR-85B and SR-16.

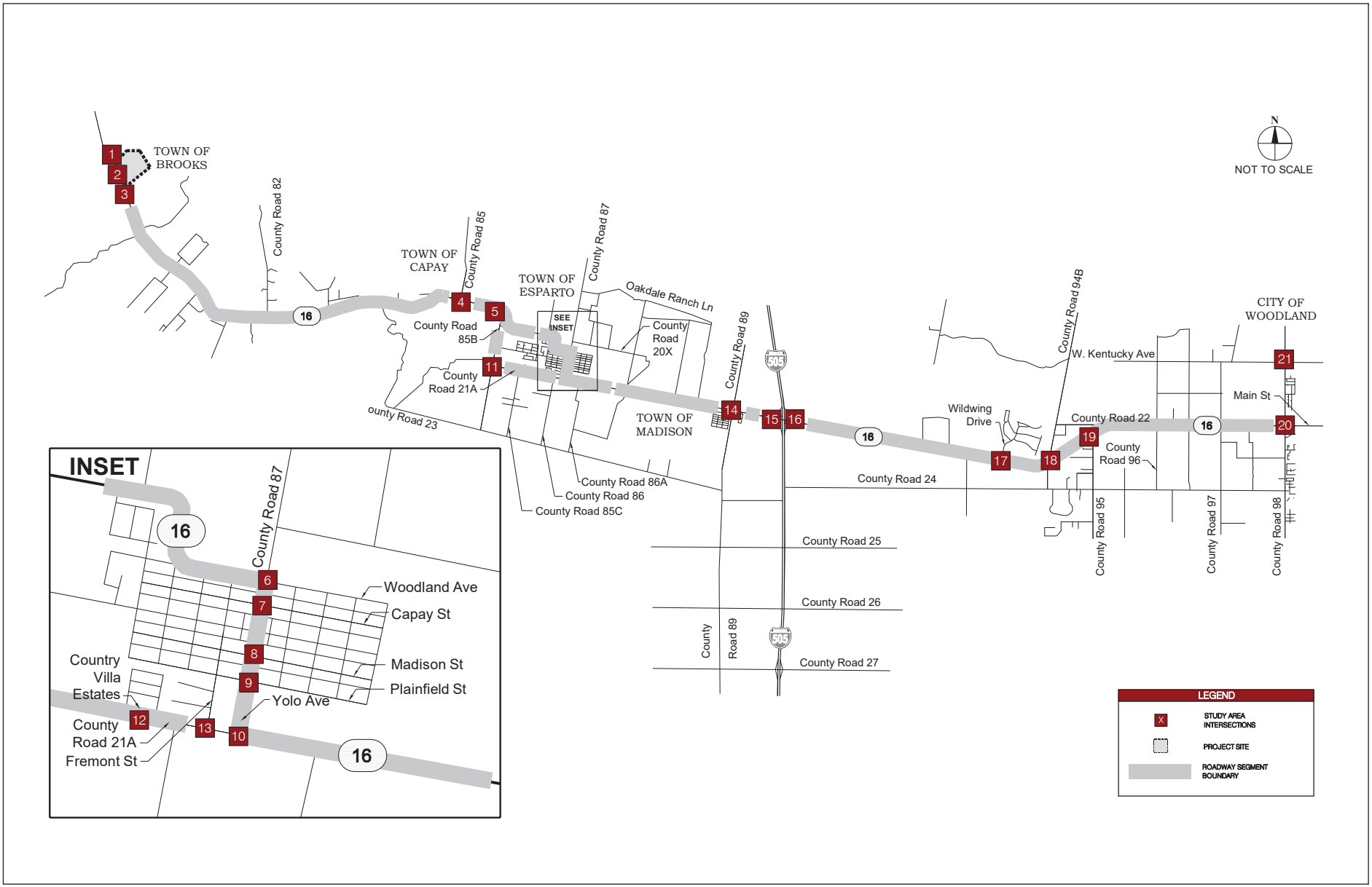
County Road 85 (CR-85) is a minor two-lane undivided county road. It runs north-south, connecting CR-8 and SR-16.



SOURCE: Kimley Horn, 7/2016; AES, 8/8/2016

Figure 3.2-1

Existing Intersection Lane Geometry and Traffic Control



SOURCE: Kimley Horn, 7/2016; AES, 8/8/2016

Figure 3.2-2
Existing Roadway Segments

County Road 85B (CR-85B) is a major two-lane undivided county road between SR-16 and CR-21A, and a minor two-lane undivided county road between CR-21A and CR-23. It runs north-south, connecting CR-23 and SR-16.

County Road 89 (CR-89) is a minor two-lane undivided county road. It runs north-south, connecting SR-16 and the City of Winters.

County Road 94B (CR-94B) is a minor two-lane undivided county road. It runs north-south, connecting CR-19 and CR-24.

County Road 95 (CR-95) is a minor two-lane undivided county road. It runs north-south, connecting SR-16 and CR-31.

County Road 98 (CR-98) is a two-lane undivided county roadway. CR-98 becomes SR-16 at its intersection with Main Street in Woodland, heading north to I-5. South of its intersection with Main Street, CR-98 is classified as a principal arterial and is designated as a truck route in the *City of Woodland General Plan*. South of the City of Woodland, CR-98 is classified as a major two-lane county road.

Fremont Street is a two-lane roadway in the town of Esparto. It runs north-south, connecting SR-16 to CR- 21A.

Madison Street is a two-lane roadway in the town of Esparto with curbs, gutters, and on-street parking. The road runs east-west, connecting Alpha Street and Omega Street, and is directly north of Esparto High School.

Plainfield Street is a two-lane roadway in the town of Esparto with curbs, gutters, and on-street parking. The road runs east-west, connecting Alpha Street and Omega Street, and is directly north of Esparto Middle School.

West Kentucky Avenue is a two-lane undivided roadway in the City of Woodland. The roadway is classified as a minor arterial in the *City of Woodland General Plan*. West Kentucky Avenue, east of CR-98, is classified as a truck route in the *City of Woodland General Plan*. West of CR-98, West Kentucky Avenue becomes CR-20.

Wildwing Drive is a two-lane private roadway in the County with curbs and gutters. It runs north-south, providing access to the Wild Wings neighborhood and golf course from SR-16.

EXISTING ROADWAY OPERATIONS

Existing off-reservation roadway operations in the vicinity of the Proposed Project were analyzed in the TIS in accordance with Caltrans' guidance document, *Guide for the Preparation of Traffic Impact Studies,* and the Federal Highway Administration's *2010 Highway Capacity Manual* (HCM).

Study Roadway Intersections and Segments

The off-reservation roadway intersections and segments included in the TIS were identified based on relevance to the Proposed Project and previous discussions with Caltrans, the County, and the Tribe (**Appendix D**). **Figure 3.2-1** identifies the location, existing turning geometry, and existing traffic controls for the study area intersections. **Figure 3.2-2** identifies the locations of the study area roadway segments. The intersections and roadway segments included in the TIS are listed below:

Study Intersections (**Figure 3.2-1**)

1. SR-16 / North Casino Entrance
2. SR-16 / Central Casino Entrance
3. SR-16 / South Casino Entrance
4. SR-16 / CR-85
5. SR-16 / CR-85B
6. SR-16 / Woodland Avenue
7. SR-16 / Capay Street
8. SR-16 / Madison Street
9. SR-16 / Plainfield Street
10. SR-16 / CR-21A
11. CR-85B / CR-21A
12. Country Villa Estates / CR-21A
13. Fremont Street / CR-21A
14. SR-16 / CR-89
15. SR-16 / southbound (SB) I-505
16. SR-16 / northbound (NB) 1-505
17. SR-16 / Wildwing Drive
18. SR-16 / CR-94B
19. SR-16 / CR-95
20. SR-16 / CR-98
21. SR-16 / West Kentucky Avenue

Study Roadway Segments (**Figure 3.2-2**)

1. SR-16 between the Resort and CR-85
2. SR-16 between CR-85 and the Town of Esparto
3. SR-16 through the Town of Esparto
4. SR-16 between the Esparto town limits and CR-89
5. SR-16 between CR-89 and I-505
6. SR-16 between I-505 and CR-98
7. CR-21A between CR-85B and SR-16
8. CR-85B between SR-16 and CR-21A

Analysis Methodologies

The baseline for existing roadway traffic was established by collecting current (January 2016) vehicle counts at the study area roadway intersections on a Friday and a Saturday during the afternoon hour-long time frame when traffic volumes are at their highest (PM peak hour). The January 2016 peak-hour traffic

counts at the study area roadway segments were collected when schools were in session. The traffic analysis in the TIS was completed using Traffix™ software at all intersections and Highway Capacity Software at roadway segments. Both software platforms are based on the methodology of the HCM (Transportation Research Board, 2010).

For the purpose of the TIS and this Draft TEIR, operating conditions experienced by drivers are described in terms of LOS. LOS is a qualitative measure that includes factors such as speed, travel time, delay, freedom to maneuver, driving comfort, and convenience. LOS ratings are represented as letters ranging from A to F, whereby LOS A represents the best traffic flow driving conditions and LOS F represents the worst traffic flow driving conditions. The determinations of roadway intersection LOS and roadway segment LOS were utilized in the TIS to analyze peak-hour operating conditions on the study area roadway network. The LOS of each study area intersection and roadway segment was compared to the corresponding jurisdictional agency's threshold for acceptable operating conditions at intersections or on roadways of a similar type. These thresholds are presented in **Table 3.2-1**.

TABLE 3.2-1
JURISDICTIONAL LEVEL-OF-SERVICE CRITERIA

Jurisdiction	Acceptable Operating Conditions (LOS) Thresholds
Yolo County	LOS D – SR-16 between Resort and I-505 LOS E – SR-16 between CR-85B and CR-21A LOS C – all other County Roads
Woodland	LOS C – all intersections and roadway segments
Caltrans	LOS D – all signalized intersections and highways

Source: Kimley-Horn, 2016 (**Appendix D**).

Study Area Intersection LOS

The LOS of an intersection is based on the acceptable average total delay (seconds per vehicle) experienced by drivers at that intersection, as summarized in **Table 3.2-2**. Signalized and unsignalized intersections have the same acceptable delay range for the LOS A operating condition. For LOS B through LOS F operating conditions, unsignalized intersections have less tolerance for vehicle delays. Typically, the Caltrans standard is LOS C or better for off-reservation intersections and roadway segments; however, in the SR-16 TCCR, Caltrans indicated that a LOS (LOS D) was acceptable before mitigation would be required.

TABLE 3.2-2
INTERSECTION LEVEL-OF-SERVICE DEFINITIONS

Level of Service	Conditions	Average Delay (Sec/Vehicle)		Volume to Capacity Ratio
		Signalized	Unsignalized	
A	Free flow with no delays. Users are virtually unaffected by others in the traffic stream.	<=10	<=10	And <=1.0
B	Stable traffic. Traffic flows smoothly with few delays.	>10 – 20	>10 – 15	And <=1.0
C	Stable flow but the operation of individual users becomes affected by other vehicles. Modest delays.	>20 – 35	>15 – 25	And <=1.0
D	Approaching unstable flow. Operation of individual users becomes significantly affected by other vehicles. Delays may be more than one cycle during peak hours.	>35 – 55	>25 – 35	And <=1.0
E	Unstable flow with operations at or near the capacity level. Long delays and vehicle queuing.	>55 – 80	>35 – 50	And <=1.0
F	Forced or breakdown flow that causes reduced capacity. Stop and go traffic conditions. Excessive long delays and vehicle queuing.	>80	>50	Or >1.0
Source: Kimley-Horn, 2016 (**Appendix D**).				

Study Area Intersection Operating Conditions

Table 3.2-3 identifies the existing LOS operating conditions of the study area intersections for the Friday and Saturday PM peak hours, along with applicable jurisdictional standards for acceptable LOS. The overall LOS is reported for signalized intersections and all-way stop-controlled (AWSC) intersections. For two-way stop-controlled (TWSC) intersections, only the worst approach is reported, although the intersection may operate acceptably overall (considering all approaches), in accordance with the methodology of the 2010 HCM. Figure 3 in **Appendix D** (the TIS) shows existing (June 2016) PM peak-hour turning movements at each study area intersection. The results of the TIS indicate that all of the existing study area intersections currently operate at acceptable levels of service based on established significance criteria.

Traffic Signal Warrants

Existing (June 2016) traffic volumes at unsignalized study area intersections were compared against the PM peak-hour traffic signal warrant in the *California Manual of Uniform Traffic Control Devices for Streets and Highways* (November 2014) (UTCD Manual). That warrant, along with other factors, is used in evaluating whether a traffic signal may be warranted at a given intersection. Traffic Signal Warrant #3 – Peak Hour Volume Warrant is satisfied for a given intersection when traffic volumes on the major and minor approaches to that intersection exceed applicable thresholds for one hour of the day. This warrant is generally the first warrant stated in the UTCD Manual to be satisfied. The warrant analysis evaluates

whether off-reservation traffic conditions during the one-hour peak period are high enough that minor street traffic experiences excessive delay in entering and crossing the main street due to the high traffic volumes on the main street.

TABLE 3.2-3
STUDY AREA INTERSECTIONS – EXISTING (2016) LEVELS OF SERVICE

No	Intersection	Traffic Control	Criteria	Friday		Saturday	
				LOS	Delay	LOS	Delay
1	SR-16/North Casino Entrance	Signalized	D	A	6.9	A	5.3
2	SR-16/Central Casino Entrance	Uncontrolled	D	A	0.0	A	0.0
3	SR-16/South Casino Entrance	TWSC	D	B	13.9	C	18.5
4	SR-16/CR-85	TWSC	D	B	10.7	B	14.9
5	SR-16//CR-85B	TWSC	D	A	8.5	B	12.8
6	SR-16/Woodland Avenue	AWSC	E	A	4.1	A	4.9
7	SR-16/Capay Street	TWSC	E	B	12.9	C	16.4
8	SR-16/Madison Street	TWSC	E	B	13.7	B	11.6
9	SR-16/Plainfield Street	TWSC	E	B	14.7	C	18.6
10	SR-16/CR-21A	AWSC	D	A	9.7	B	10.5
11	CR-85B/CR-21A	TWSC	C	A	9.2	A	8.9
12	County Villa Estates/CR-21A	TWSC	C	A	9.8	A	9.9
13	Fremont Street/CR- 21A	TWSC	C	A	9.7	A	9.9
14	SR-16/CR-89	AWSC	D	C	19.4	D	31.12
15	SR-16/I-505 SB Ramp	TWSC	D	B	13.9	C	16.8
16	SR-16/ I-505 NB Ramp	Signalized	D	A	9.2	B	11.8
17	SR-16/Wildwing Drive	TWSC	D	C	15.4	B	14.2
18	SR-16/CR-94B	TWSC	D	C	18.2	B	13.7
19	SR-16/CR-95	TWSC	D	C	17.0	C	15.6
20	SR-16/CR-98	Signalized	D	C	25.3	C	24.4
21	SR-16/W Kentucky Avenue	Signalized	D	B	19.9	B	19.4

Source: Kimley-Horn, 2016 (**Appendix D**).

The results of a signal warrant analysis are not indicative of traffic impacts, but are provided as information to be used in evaluating a given intersection. When the analysis finds that an intersection satisfies the peak-hour volume warrant, it does not necessarily mean that a signal will or should be installed; other factors must be considered before a determination can be made about installing a signal at a given location. Results of the analysis in the TIS show that the following two study area intersections currently satisfy Traffic Signal Warrant #3:

- #6 – SR-16/Woodland Avenue
- #10 – SR-16/CR-21A

Other traffic signal warrants stated in the UCTD Manual, such as minimum vehicle volumes, interruption of continuous traffic, and traffic progression, were not evaluated in the TIS because they generally require higher traffic volumes to be satisfied (Kimley-Horn, 2016).

Study Area Roadway Segment LOS

Table 3.2-4 summarizes the definitions of LOS operating conditions for roadway segments, which are based on average travel speed and the percent time spent following another vehicle on two-lane highways, depending on the classification of the roadway segment. LOS on Class I roadways (on which motorists expect to travel at relatively high speeds), where mobility is critical, is defined in terms of average travel speed and percent time-spent-following. The LOS on Class II roadways (highways on which motorists do not necessarily expect to travel at high speeds) is defined only by the percent time spent following because mobility is less critical on these roadway segments. Percent time spent following is the average percent of total travel time that vehicles must travel in platoons behind slower vehicles due to inability to pass on a two-lane highway.

TABLE 3.2-4
ROADWAY SEGMENT LEVEL-OF-SERVICE DEFINITIONS

Level of Service	Class I Percent Time Spent Following	Class I Average Travel Speed (mph)	Class II Percent Time Spent Following
A	<35	>55	< 40
B	> 35 – 50	> 50 – 55	> 40 – 55
C	> 50 – 65	> 45 – 50	> 55 – 70
D	> 65 – 80	> 40 – 45	> 70 – 85
E	> 80	<40	> 85

Notes: LOS F applies whenever the flow rate exceeds the segment capacity
Source: Kimley-Horn, 2016 (**Appendix D**).

Study Area Roadway Segment Operating Conditions

The TIS evaluated the existing (January 2016) operating conditions of the study area roadway segments for the Friday and Saturday PM peak hours. The highway classifications used were provided by Caltrans in a previous study prepared by Kimley-Horn in June 2010. **Table 3.2-5** identifies the highway classification, the appropriate jurisdictional criteria, existing LOS, and percent time spent following (and average travel speed for Class I roadway segments) operating conditions for each study area roadway segment in both directions. The results of the TIS analyses indicate that all study area roadway segments currently operate under acceptable conditions except for the following two segments:

- SR-16 between the Esparto town limits and CR-89
- SR-16 between I-505 and CR-98

TABLE 3.2-5
STUDY AREA ROADWAY SEGMENTS – EXISTING (2016) LEVELS OF SERVICE

Roadway Segment	Highway Class	Criteria	Friday				Saturday			
			NB/WB		SB/EB		NB/WB		SB/EB	
			LOS	% TSF	LOS	% TSF	LOS	% TSF	LOS	% TSF
SR-16 from Resort to CR-85	I	D	D	63.7	D	67.3	D	77.2	D	64.2
SR-16 from CR-85 to Esparto	II	D	C	57.2	C	64.9	D	77.3	C	56.5
SR-16 through Esparto	II	E	C	68.2	B	54.1	D	77.1	B	50.5
SR-16 from Esparto to CR-89	I	D	D	70.9	D	65.1	**E**	**81.7**	D	61.3
SR-16 from CR-89 to I-505	I	D	D	72.8	D	65.3	D	79.9	D	60.7
SR-16 from I-505 to CR-98	I	D	**E**	**58.0**	**E**	**71.6**	**E**	**64.9**	**E**	**59.9**
CR- 21A from CR-85B to SR-16	II	C	A	24.8	A	35.7	A	32.7	A	36.0
CR-85B from SR-16 to CR-21A	II	C	A	25.5	B	49.7	A	38.8	B	44.8

Notes: %TSF = Percent time spent following.
NB/WB = Northbound/westbound.
SB/EB = Southbound/eastbound.
Bold text indicates unacceptable traffic operations under existing conditions.
Average travel speed calculations for Class I roadways are shown in **Appendix D**.
Source: Kimley-Horn, 2016 (**Appendix D**).

The TIS results also indicate that under existing conditions, several study roadway segments are currently operating close to the lower boundary of the percent time spent following range (80 percent) for acceptable LOS operating conditions. This means that a small increase in additional traffic would cause the LOS for those study area roadway segments to become unacceptable (when applying the applicable threshold).

EXISTING BICYCLE AND PEDESTRIAN FACILITIES

Bicycle facilities include bike paths, bike lanes, and bike routes. Bike paths are dedicated paved trails separated from roadways, while bike lanes are lanes on roadways designated by striping, pavement legends, and signs. Bike routes are roadways that are designated for bicycle use but do not provide dedicated or demarcated lanes for use; bicycles share the roadway with vehicles along bike routes.

No bike paths or bike lanes are present in the Proposed Project study area. SR-16 is designated as bike accessible and is intended to act as a bike route (Yolo County, 2009a). According to the General Plan, future Class II bicycle lanes are planned for SR-16 between I-505 and Esparto, as well as on CR-89 from south of SR-16 to Winters, on CR-90 from south of SR-16 to CR-24, and on CR-24 from CR-90 to CR-98. A future Class III bikeway (i.e., bike route) is also planned along SR-16 from Esparto to north of the Resort. According to the *City of Woodland General Plan*, West Kentucky Avenue west of CR-98 (SR-16) is designated as a Class III bike route.

Pedestrian facilities include sidewalks, crosswalks, and pedestrian signals. No pedestrian facilities are present in the Proposed Project study area along SR-16 outside of the communities of Esparto and Capay.

Discontinuous sidewalks are present throughout downtown Esparto and in the adjoining older neighborhoods. School route crosswalks are demarcated across SR-16 and Plainfield Street, Madison Street, and CR-21A, as these roadways traverse through downtown Esparto near the high school and middle school. Along SR-16 through the community of Capay, a pedestrian/ bicycle path runs parallel to and along both sides of the roadway.

EXISTING FARM VEHICLES

SR-16 is a principal transportation route for farm-related vehicles and provides farm-to-market connectivity through a County network of agricultural truck transportation corridors.

The General Plan identifies three purposes of the County road network in relation to farming:

- Movement of produce and other crops from farm to market,
- Movement of harvesting and other farm equipment, and
- Movement of farm workers.

Within the Proposed Project study area, the following County roads are intended to facilitate farm-to-market truck transport (Kimley-Horn, 2016):

- CR-21A
- CR-85
- CR-85B
- CR-89
- CR-94B
- CR-95

The main agricultural trucking corridors in the vicinity of the Proposed Project include most of the study area roadway segments. As described in **Section 3.2.1** above, Policy CI-7.3 of the General Plan encourages attracting truck trips to targeted corridors so that other roadways are more available for movement of agricultural vehicles and farm workers (Yolo County, 2009a).

EXISTING ROADWAY CONDITIONS

The existing County roads in the vicinity of the Proposed Project are in various conditions. Based on field observations, SR-16 throughout the study area is in good condition. According to the General Plan, the farm-to-market trucking corridors listed above are on the priority list for improvements by the County.

EXISTING ROADWAY SAFETY

Traffic accident data received from the California Highway Patrol (CHP) for 2013-2015 indicate that most of the reported accidents that occurred during that period in the vicinity of the Proposed Project site and on off-reservation roadways involved collisions caused by improper turning and vehicles traveling at unsafe speeds. The CHP traffic accident data are discussed in more detail in the TIS (**Appendix D**).

METHODOLOGY

To analyze the impacts of the Proposed Project on off-reservation traffic, increases to existing (January 2016) vehicle traffic for the study roadway network that would likely occur without the Proposed Project were forecasted to 2019, the proposed initial year of operation of the Proposed Project, in order to establish an accurate set of "baseline conditions." Off-reservation traffic impacts attributable to the Proposed Project were then compared to the baseline condition.

The 2019 off-reservation baseline traffic volumes without the Proposed Project (2019 Baseline Conditions) were forecasted by adding the number of vehicle trips expected to be generated by approved and pending development projects (other than the Proposed Project) to existing (January 2016) traffic volumes, and adjusting vehicle turning and lane geometry based on planned intersection and roadway improvements. A detailed discussion of approved and pending development projects and roadway improvements assumed in this analysis is included within the TIS (**Appendix D**).

2019 Baseline Conditions – Intersection Operating Conditions

LOS operating conditions of the study area intersections under the 2019 Baseline Conditions were analyzed using the same methods used for the analysis of existing conditions, and those operating conditions are identified in **Table 3.2-6**. According to the results of the analysis, all of the study area intersections continue to operate at acceptable LOS under 2019 Baseline Conditions. Turning movements and traffic volumes for the 2019 Baseline Conditions are provided in the TIS (**Appendix D**).

2019 Baseline Conditions – Roadway Segment Operating Conditions

LOS operating conditions of the study area roadway segments under the 2019 Baseline Conditions are identified in **Table 3.2-7**. The analysis shows that the following roadway segments are predicted to operate at an unacceptable LOS under 2019 Baseline Conditions:

- SR-16 (westbound [WB]) between the Resort and CR-85 (Saturday PM peak)
- SR-16 (WB) between Esparto and CR-89 (Saturday PM peak)
- SR-16 (WB) between CR-89 and I-505 (Saturday PM peak)
- SR-16 (WB and eastbound [EB]) between I-505 and CR-98 (Friday and Saturday PM peaks)

TABLE 3.2-6
STUDY AREA INTERSECTIONS – 2019 BASELINE CONDITIONS LEVEL OF SERVICE

No	Intersection	Traffic Control	Criteria	Friday		Saturday	
				LOS	Delay	LOS	Delay
1	SR-16/North Casino Entrance	Signalized	D	B	11.3	A	6.9
2	SR-16/Central Casino Entrance	Uncontrolled	D	A	0.0	A	0.0
3	SR-16/South Casino Entrance	TWSC	D	C	16.8	C	20.1
4	SR-16/CR-85	TWSC	D	B	11.5	C	15.5
5	SR-16//CR-85B	TWSC	D	A	9.3	B	13.6
6	SR-16/Woodland Avenue	AWSC	E	A	4.4	A	3.9
7	SR-16/Capay Street	TWSC	E	C	15.1	C	17.9
8	SR-16/Madison Street	TWSC	E	C	16.0	B	12.1
9	SR-16/Plainfield Street	TWSC	E	C	17.1	C	19.9
10	SR-16/CR-21A	AWSC	D	B	11.6	B	11.1
11	CR-85B/CR-21A	TWSC	C	A	9.3	A	8.9
12	County Villa Estates/CR-21A	TWSC	C	A	9.8	A	9.9
13	Fremont Street/CR- 21A	TWSC	C	A	9.7	A	9.9
14	SR-16/CR-89	AWSC*	D	A	6.7	A	6.9
15	SR-16/I-505 SB Ramp	TWSC	D	B	15.0	C	17.3
16	SR-16/ I-505 NB Ramp	Signalized	D	A	9.3	B	12.2
17	SR-16/Wildwing Drive	TWSC	D	C	17.5	C	15.1
18	SR-16/CR-94B	TWSC	D	C	20.9	B	14.4
19	SR-16/CR-95	TWSC	D	C	18.8	C	16.4
20	SR-16/CR-98	Signalized	D	C	25.5	C	24.7
21	SR-16/W Kentucky Avenue	Signalized	D	B	19.4	B	19.2

Notes: * The SR-16/CR-89 intersection is planned to become a roundabout in the near term (2019).
Source: Kimley-Horn, 2016 (**Appendix D**).

TABLE 3.2-7
STUDY AREA ROADWAY SEGMENTS – 2019 BASELINE CONDITIONS LEVEL OF SERVICE

Roadway Segment	Highway Class	Criteria	Friday				Saturday			
			NB/WB		SB/EB		NB/WB		SB/EB	
			LOS	% TSF	LOS	%TSF	LOS	% TSF	LOS	%TSF
SR-16 from Resort to CR-85	I	D	D	63.6	D	73.1	E	79.2	D	65.3
SR-16 from CR-85 to Esparto	II	D	C	56.4	C	69.4	D	78.3	C	59.3
SR-16 through Esparto	II	E	C	68.8	C	64.9	D	79.6	B	54.0
SR-16 from Esparto to CR-89	I	D	D	73.4	D	71.9	**E**	**83.0**	D	64.1
SR-16 from CR-89 to I-505	I	D	D	75.1	D	73.8	**E**	**82.4**	D	63.4
SR-16 from I-505 to CR-98	I	D	**E**	**61.6**	**E**	**77.9**	**E**	**68.6**	**E**	**64.5**
CR-21A from CR-85B to SR-16	II	C	A	25.1	A	36.1	A	36.0	A	32.9
CR-85B from SR-16 to CR-21A	II	C	A	25.5	A	50.4	A	39.2	B	44.8

Notes: %TSF = percentage of time spent following; NB/WB = northbound/westbound; SB/EB = southbound/eastbound
Bold text indicates unacceptable traffic operations under 2019 baseline conditions.
Average travel speed calculation for Class I roadways are shown in **Appendix D**.
Source: Kimley-Horn, 2016 (**Appendix D**).

3.2.3 IMPACT ANALYSIS

SIGNIFICANCE CRITERIA

The following criteria are established by Section XV of the *Environmental Impact Analysis Checklist in the Tribal-State Compact* (Checklist; **Appendix A**) and have therefore been used in this section to evaluate the potential environmental impacts of the Proposed Project on off-reservation transportation and traffic. Such an impact is considered significant if it would:

- Cause an increase in off-reservation traffic, which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on the roads, or congestion at intersections);
- Exceed, either individually or cumulatively, an applicable LOS standard for off-reservation roads or highways;
- Substantially increase hazards to an off-reservation design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); or
- Result in inadequate emergency access for off-reservation responders.

Table 3.2-8 provides the LOS significance criteria for study area intersections and roadway segments by jurisdiction. A significant impact would occur at a study area intersection (for off-reservation approaches only) or on a study area roadway segment if the addition of project-related traffic would result in an exceedance of the applicable LOS acceptability threshold stated in **Table 3.2-8**.

TABLE 3.2-8
LEVEL-OF-SERVICE SIGNIFICANCE CRITERIA

Jurisdiction	Intersection/ Roadway Segments	Significance Criteria
Yolo County	SR-16 between the Resort and I-505	New traffic attributable to the Proposed Project causes increases in delay at off-reservation approach to study area intersection that results in the LOS at the intersection falling below D. If LOS conditions are already below acceptable criteria under 2019 Baseline Conditions, new traffic attributable to the Proposed Project causes an increase in the delay at off-reservation approach to intersection.
Yolo County	SR-16 between CR-85B and CR-21A	New traffic attributable to the Proposed Project causes the LOS to fall below D, or increases the delay at intersections already operating unacceptably.
Yolo County	All other county roads	New traffic attributable to the Proposed Project causes the LOS to fall below D, or increases the delay at intersections already operating unacceptably.
Woodland	All city roads and intersections	New traffic attributable to the Proposed Project causes the LOS to fall below C.
Caltrans	Signalized intersections and highways	New traffic attributable to the Proposed Project causes the LOS to fall below D at off-reservation approach to intersections or along roadway segments. If the LOS is already below the significance criteria under 2019 Baseline Conditions, new traffic attributable to the Proposed Project causes a decrease in the unacceptable LOS and the related measure of effectiveness is not maintained at off-reservation approach to intersection.
Source: Kimley-Horn, 2016 (**Appendix D**).		

OFF-RESERVATION IMPACTS OF THE PROPOSED PROJECT – CONSTRUCTION IMPACTS

Methodology

The construction phase of the Proposed Project would include potential off-reservation traffic impacts related to construction worker trips to and from the Proposed Project site, and importation and exportation of construction material and equipment. No off-reservation traffic impacts related to excavation activities are evaluated because there would be no off-site disposal of excavated material or import of required fill. The principal activities expected to generate traffic during the construction phase of the Proposed Project are the following:

- The number of trucks required to deliver construction materials to the site, including building materials such as wood, steel, and masonry (no dirt);
- The number of construction workers estimated to be on site during different construction activities throughout construction of the Proposed Project. Each construction worker is conservatively assumed to drive alone to and from the site each day, and it is assumed that 20 percent of the construction workers leave and return to the site for various purposes throughout the day; and
- The number of large construction vehicles expected to be delivered to and removed from the Proposed Project site during different construction activities throughout construction of the Proposed Project. The amount of heavy equipment expected to be delivered to and removed from the site as part of the construction of the Proposed Project was provided by the Tribe.

Using the expected traffic-inducing construction activities listed above, construction-related traffic generation for the Proposed Project was estimated in the TIS (**Appendix D**). Each activity listed above would generate different volumes of construction traffic during different stages of construction throughout the construction of the Proposed Project. For example, the delivery and removal of heavy equipment to the Proposed Project site would occur periodically throughout the construction period. It is estimated that it would take 22 months to complete construction of the Proposed Project.

Impact 3.2.1

Construction worker trips and delivery of construction materials and equipment during construction of the Proposed Project would increase off-reservation traffic, which could be substantial in relation to the existing traffic load and capacity of the street system and/or could exceed the applicable LOS standard.

Approximately 16 pieces of heavy equipment would be used at various times during the construction of the Proposed Project (refer to **Section 2.5**). Delivery and removal of this heavy equipment would occur outside of the peak commute hours for the study area roadway network, and equipment would be moved on and off the site on different days. The periodic delivery and

removal of such equipment during off-peak hours would constitute a minimal disruption of off-reservation traffic on the study area roadway network. The relatively small number of trips required to make such deliveries and removals would not impact the existing traffic load or capacity of the off-reservation study area roadway network.

It is estimated that 30,000 cubic yards of soils would be excavated to develop the site for the Proposed Project (**Appendix G**). The excess excavated earth from construction would be used on the Tribe's trust land, where it would be placed, compacted, and contoured to blend into the adjoining land; the sloped areas would be constructed with protective erosion control features. Because the excavation and related earthwork would occur entirely on trust land, these activities would not generate any off-reservation traffic on the surrounding study area roadway network, and excavation and grading activities associated with the Proposed Project would therefore have no impact on the operation of the off-reservation study area roadway network.

Once the Proposed Project site is graded, construction materials, including raw materials, concrete, the parking lot base, and asphalt paving, would be imported to the site. This would require approximately 50 truckloads per week along SR-16 from the east via I-5 and I-505. A full haul truck, because of its larger size and slower operating characteristics, is equivalent to approximately four passenger vehicles; an empty haul truck is equivalent to approximately two passenger vehicles. The material importation by truck equates to 40 passenger car–equivalent trips per day onto the site and 20 passenger car–equivalent trips per day off of the site. For comparison, the number of construction importation trips is approximately equivalent to four percent of the Friday and Saturday daily project trips. Because importation of construction materials would generate substantially less off-reservation traffic than the Proposed Project's equivalent passenger car traffic (even when added to the employee trips described below), and because the vehicles would travel through generally uncongested intersections, it should not significantly impact the capacity of any off-reservation study area intersection (**Appendix D**).

The weekday construction work for the Proposed Project would generally begin around 7:00 a.m. and end around 3:30 p.m. The construction worker arrival peak would occur between 6:00 a.m. and 7:00 a.m., and the departure peak would occur between 3:30 p.m. and 4:30 p.m. These peaks would generally be before the commute peaks for the study area roadway network, which are between 7:30 a.m. and 8:30 a.m. and between 5:00 p.m. and 6:00 p.m. During the grading for construction of the Proposed Project, approximately 100 construction workers would be on site, and during construction 400 construction workers at most would be on site at any time. The impacts of construction worker traffic on the study area roadway network would be less than significant because the construction worker commute peak and the typical commute peak would not overlap.

Construction workers would generate a maximum parking demand of approximately 400 vehicles during the peak construction period. Additionally, construction deliveries, visits, and other construction-related activities might generate parking demand for up to an additional 50 vehicles. Therefore, a maximum of approximately 450 parking spaces would be required during the peak construction period. This parking demand would be met through the use of existing on-site parking, the construction of new Lot F, and restriping of 50 percent of the existing surface parking lot to provide an additional 271 parking spaces (refer to **Section 2.4.5**). Because all of this parking would be provided on trust land, no off-reservation impact to the study area roadway network would occur as a result of construction worker and other construction-related parking.

Although construction-related activities would have no significant impact on the operations of the off-reservation study area roadway network, the importation of construction materials and transportation of heavy machinery for the construction of the Proposed Project could result in a potentially significant off-reservation traffic safety issue due to the nature of the large vehicles using the study area roadway network that would be involved in such importation and transportation. This safety issue cannot be quantified. It is considered a potentially significant off-reservation environmental impact on traffic, and mitigation is therefore recommended.

With the implementation of **Mitigation Measure 3.2.1**, the impact of construction worker trips and delivery of construction materials and equipment during construction of the Proposed Project on the off-reservation roadway network would be reduced to a less-than-significant level.

Mitigation

3.2.1 The Tribe shall prepare and implement, prior to commencing each phase of Proposed Project development, a Construction Traffic Control Plan.

The Construction Traffic Control Plan shall be prepared in accordance with applicable Caltrans requirements and shall include information about times of construction, haul routes, delivery times for heavy equipment, and any other specific information required by Caltrans, to coordinate and reduce impacts on affected jurisdictions, businesses, and residences in the study area.

OFF-RESERVATION IMPACTS OF THE PROPOSED PROJECT – OPERATION IMPACTS

General Methodology

To determine the potential off-reservation impacts of operation of the Proposed Project on the off-reservation roadway network once the Proposed Project is opened, the number of additional vehicle trips generated by the Proposed Project was estimated based on the proposed number of restaurant seats, hotel rooms, and ballroom capacity. These "new" trips attributable to the Proposed Project were then added to the 2019 Baseline Conditions traffic levels for each study area roadway intersection and roadway segment. The number of new vehicle trips generated by the Proposed Project, and the distribution of

those trips on the off-reservation study area roadway network, were estimated using the ITE *Trip Generation Manual* (9th Edition), professional judgment, and trip generation methodology from other tribal casino facilities. Refer to **Appendix D** for further discussion regarding this methodology. The LOS of the study area roadway intersections and roadway segments after the addition of new trips generated by the Proposed Project were determined and then compared to the jurisdictional agencies' applicable LOS acceptability criteria.

Proposed Project Trip Generation

Trip generation for tribal gaming facilities generally peaks on Saturday evenings; however, background traffic on adjacent streets is typically lower on Saturdays than during weekday peak periods. Additionally, tribal gaming facilities (including associated hotels, restaurants, and entertainment venues) are typically open 24 hours, 7 days a week, and do not generate pronounced traffic peaks attributable to other commercial facilities. The traffic generated by tribal gaming facilities builds steadily from early morning, reaching a peak around 7:00 p.m., after which traffic generation slowly declines (**Appendix D**). Based on current (January 2016) traffic counts taken along the off-reservation study area roadway network and expected trip generation from the Proposed Project, it was determined that the Friday and Saturday PM peak periods described in the TIS represent the worst-case periods to be used to analyze the impacts of the Proposed Project on the off-reservation study roadway network. It is during these peak periods that the combination of background traffic on the study area roadway network and Resort-generated traffic are at the highest levels.

Restaurant Trips

Casino trip generation rates commonly include patrons of the slot machines and table games, hotel guests, and event center attendees, as well as ancillary uses such as restaurants, bars, meeting spaces, back-of-house areas, employees arriving and departing on a shift change, and all of the general activities occurring at the facility during the peak hours. As such, separate calculations for the non-casino functions are typically not necessary. Nevertheless, in an effort to conservatively quantify trips associated with one of the proposed ancillary uses, specific trip generation for the new restaurants was developed.

The Proposed Project would include a total of 274 new restaurant seats (excluding bar seats), partially offset by 96 seats in the existing restaurant (also excluding bar seats) that would be removed as part of the Proposed Project. As a result, 178 net new restaurant seats would be included with the Proposed Project.

Trip generation for the Proposed Project's new restaurants was calculated based on data from the ITE *Trip Generation Manual*, 9th Edition, but was also adjusted with the reasonable assumption that most restaurant patrons would also be casino patrons. Because casinos with on-site restaurant facilities primarily cater to casino patrons, these restaurants are not considered to generate a significant number of additional vehicle trips. Therefore, the ITE "quality restaurant" trip generation rate was conservatively reduced by 75 percent to account for internal capture to and from the Resort. The reduced rate is

primarily based on Kimley-Horn's professional judgment and experience with other tribal casino facilities (**Appendix D**).

Ballroom Trips

The Tribe provided ticket counts for events that occurred at Club 88 (the existing event center) between January 2015 and December 2015, as well as daily in and out person counts for the total facility during the same period. The person counts were collected by automatic counters at the multiple entrances to the facility. Only count stations at the entrances to the facility were considered; data collected at internal cordon entrances were omitted to avoid double counting.

The 16 top-drawing events that occurred on Fridays or Saturdays were selected to represent a sample of event days. For each day included in the sample, daily patron counts from the automatic counters were used to calculate an average total daily patron count on event days. Of the 16 events sampled, the average number of attendees (i.e., total number of tickets sold) at Club 88 events was 732 (equating to a sellout with more tickets sold than the number of seats). This count was compared to the average facility patron count from a sampling of the most recent Saturdays when there was not an event at Club 88. If people attending Club 88 events did not participate in gaming activities during the same visit, the increase in the daily patron count on event days would be equal to the average attendance at the Club 88 events considered. However, the actual difference in person counts visiting the facility as a whole on event days versus non-event days was 216 people. Thus 516 people (732 – 216), or 70 percent of the Club 88 capacity, would have visited the facility even without an event. The remaining 30 percent of the Club 88 patrons represents new trips that would not be expected to occur without the event venue (**Appendix D**).

A previous study prepared by Abrams Associates in 2008 found a vehicle occupancy rate of 2.6 passengers per vehicle based on surveys of event patrons at the Resort. Based on feedback from Resort staff, it was determined that this vehicle occupancy rate remains appropriate and reliable for the Resort. It was conservatively assumed that, of the "new" trips generated by the proposed ballroom, 85 percent of the patrons would arrive in the PM peak hour before the event would start, leaving 15 percent of the patrons to arrive after the PM peak hour just before the start of the event. Applying this logic to the trip generation of the proposed ballroom, the additional 596 seats would be anticipated to equate to 58 new peak-hour trips entering the site (see **Appendix D** for detailed calculations). Additionally, it was conservatively assumed that 10 percent of the peak-hour inbound trips would also be outbound trips to reflect potential drop-off/pick-up activities and short-duration site visits, resulting in a total of 6 outbound peak-hour trips (**Appendix D**).

Hotel Trips

Similar to the restaurant use, the effects of the interaction between the casino gaming floor, event center/ballroom, and hotel are commonly captured in the casino trip generation rates. This is particularly true for hotel-casino-event facilities in rural locations, where patrons engage in relatively few "in-and-out" trips after arriving at the hotel facility (as compared to standard hotels, for which stand-alone trip

generation rates are used). The Proposed Project's hotel component was treated separately, however, to present a conservative analysis. This approach layers the new hotel trips on the site's trip generation characteristics. Accordingly, trip generation for the proposed hotel component (the new 459-room hotel expansion) was calculated based on data from the ITE *Trip Generation Manual*, 9th Edition, but was also adjusted with the reasonable assumption that most guests at the hotel would also be guests of the casino. Typically, casinos with on-site hotel facilities implement a pricing structure for the rooms that favors casino guests. Therefore, because casino hotels primarily accommodate casino patrons, they are not considered to generate a significant number of new vehicle trips; furthermore, considering the occupancy rate of the existing Resort, it could be argued that the proposed hotel may actually reduce casino-related trips by allowing patrons to stay on site rather than requiring them to make multiple trips from a nearby hotel to visit the casino on consecutive days. Therefore, the ITE hotel trip generation rate was conservatively reduced by 75 percent to account for internal capture to and from the casino. This rate reduction is based on Kimley-Horn's professional judgment and is generally consistent with the hotel trip generation adjustments demonstrated in traffic studies for other tribal gaming facilities (**Appendix D**).

Using the trip generation methodology described above, **Table 3.2-9** identifies the new vehicle trips attributable to the Proposed Project. The detailed trip generation calculations for the Proposed Project are provided in the TIS (**Appendix D**).

TABLE 3.2-9
NEW TRIPS GENERATED BY THE PROPOSED PROJECT

Land Use	ITE Code	Quantity	Unit	New Trips					
				Friday PM Peak Hour			Saturday PM Peak Hour		
				In	Out	Total	In	Out	Total
Restaurants	931	178	Seats	8	4	12	9	6	15
Ballroom	n/a	596	New Seats	58	6	64	58	6	64
Proposed Hotel	310	459	Rooms	35	34	69	46	37	83
Net New Vehicle Trips*				**101**	**43**	**144**	**113**	**48**	**161**

Note: *Trip generation rate for restaurants and hotel reduced by 75 percent to account for internal capture to/from casino.
Source: Kimley-Horn, 2016 (**Appendix D**).

To determine the potential impacts of the Proposed Project on the LOS operating conditions of the study area roadway network, the estimated number of additional vehicle trips generated by the Proposed Project (**Table 3.2-9**) were added to the 2019 Baseline Conditions study area roadway intersection and roadway segment traffic levels. The results of that addition determines the 2019 Plus Proposed Project Condition traffic levels. Refer to **Appendix D** for further discussion regarding the methodology for this determination.

Trip Distribution and Assignment

Because of the nature of the Resort and the Proposed Project, many patrons and employees are expected to travel to the Proposed Project site using I-505, as is currently the case for the Resort. The proximity of

the Proposed Project to the San Francisco Bay Area and Sacramento metropolitan area, the peak-hour turning movement volumes at study area intersections, the likely customer and employee base for the Proposed Project, the major routes from the Proposed Project to highways, and potential access limitations were all evaluated to estimate the likely distribution of Proposed Project traffic.

Trip generation and distribution for the Proposed Project include a mixture of passenger cars, trucks, and recreational vehicles (RVs) and were evaluated based on the assumption that five percent of the vehicles on roads accessing the site would be trucks or RVs (**Appendix D**).

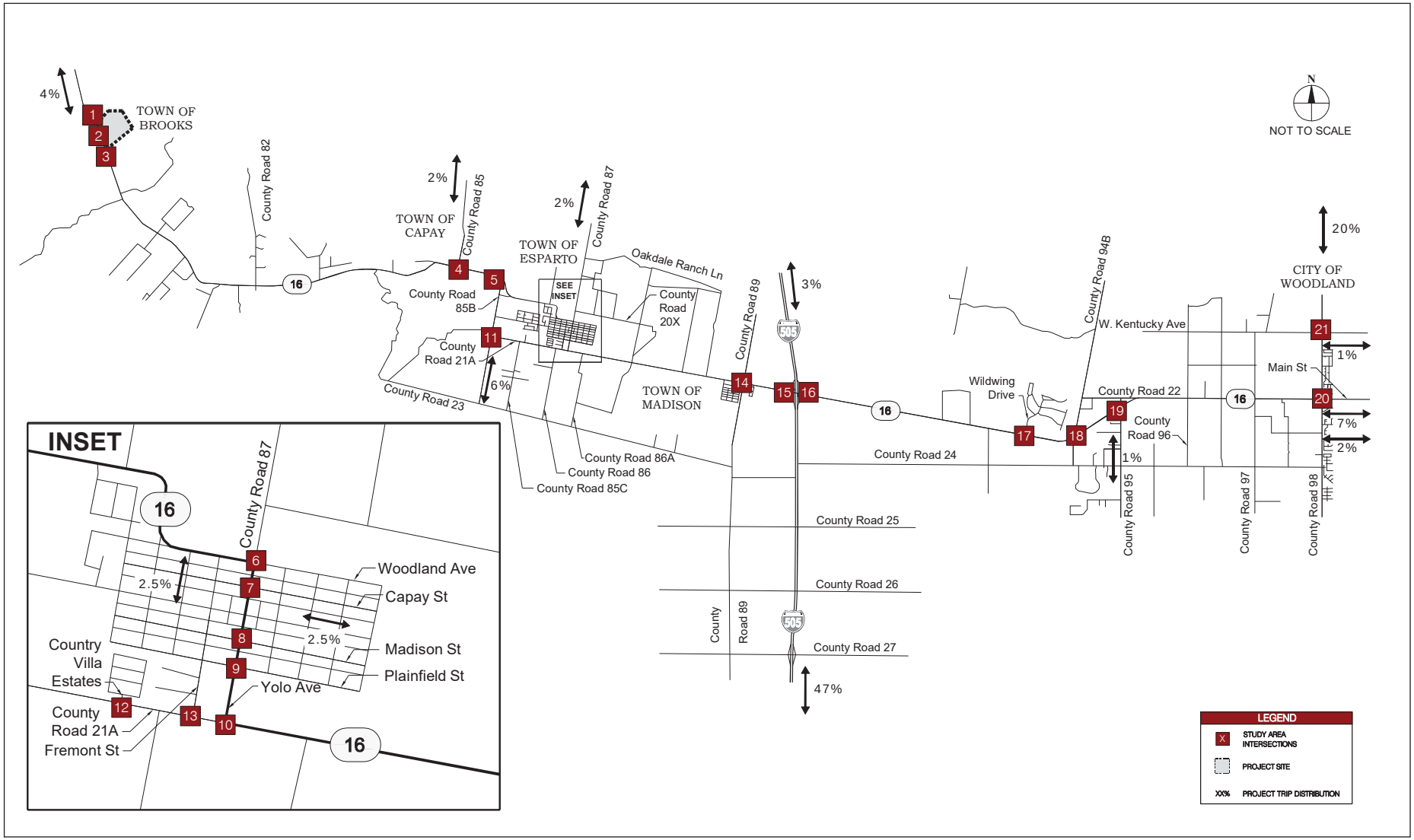
Based on the factors discussed above, approximately 31 percent of the Proposed Project traffic was assumed to be distributed to destinations north of the Proposed Project site, with the remaining 69 percent distributed south of the Proposed Project site. To be conservative, only a nominal percentage of Proposed Project traffic was assumed to be generated or attracted in the immediate vicinity of the Proposed Project site. The actual percentage of trips generated in the immediate vicinity of the Proposed Project is likely to be higher. The Proposed Project trip distribution is presented in **Figure 3.2-3**. The corresponding trip assignments to the study area roadway intersections are provided in the TIS (**Appendix D**).

General Nature of Recommended Mitigation Measures

Mitigation measures are recommended when an impact on the off-reservation study area roadway network attributable to the Proposed Project is found to be potentially significant with respect to a given study area intersection or roadway segment and based on the associated jurisdiction's significance criteria. That finding is made by comparing the appropriate LOS forecast for that intersection or roadway segment (considering factors such as signalization of an intersection or the class of a roadway segment) with the corresponding jurisdictional agency's acceptable LOS criteria (**Table 3.2-8**).

~~It should be noted that some of the potentially significant impacts of the Proposed Project on the off-reservation study roadway network described in this section are based on forecasts of potential future traffic growth not attributable to the Proposed Project, and that this additional growth may or may not actually occur. If that additional growth does not occur, the corresponding impact might not occur, and there would be no actual impact to be mitigated. With respect to any impact that is projected to result from additional traffic growth not attributable to the Proposed Project, the Tribe would not be responsible for payment of any portion of the cost of implementing the related mitigation measure unless and until such additional traffic growth, as well as the related impact requiring mitigation, actually occurs.~~

~~The Tribe would pay the full cost of implementing a given mitigation measure if (i) the LOS at the corresponding study area intersection or roadway segment is acceptable without the addition of Proposed Project-related trips, and (ii) the LOS for that intersection or roadway segment is reduced to an unacceptable level because of additional trips attributable to the Proposed Project. In such a case, the Tribe would be responsible for full payment of the costs of implementing the mitigation measure at the time the corresponding impact actually occurs.~~



SOURCE: Kimley Horn, 7/2016; AES, 8/8/2016

Figure 3.2-3
Proposed Project Trip Distribution

~~If, however, the degradation of LOS for an intersection or roadway segment that triggers the need for the corresponding mitigation measure is not due solely to the addition of Proposed Project-related trips, but is also attributable, at least in part, to other development not related to the Proposed Project, then the Tribe would pay a proportionate share of the cost of implementing the corresponding mitigation measure. For each such recommended mitigation measure, the Tribe's proportionate share of the cost of the implementation of that mitigation measure is identified.~~

~~The proportionate share that would be paid by the Tribe is to be paid at the time both (i) the impact attributable, in part, to the Proposed Project, and (ii) the need for the mitigation measure has occurred. The need for any such mitigation would occur only if the traffic growth (not related to the Proposed Project) identified in the TIS actually occurs in the area of the impact and associated mitigation measure. When the Tribe is responsible for paying a proportionate share of the cost of implementing a given mitigation measure, any improvements that are part of that mitigation measure would be constructed when the applicable jurisdiction has made arrangement for payment of the portion of the mitigation cost that is attributable to traffic growth not attributable to the Proposed Project (and without which there would have been no need for the mitigation measure).~~

Impact 3.2.2

Operation of the Proposed Project would generate new vehicle trips that would cause an increase in off-reservation traffic; however, this increase would not cause any study area intersection to exceed the applicable LOS standard.

As shown in **Table 3.2-10**, all of the study area intersections would continue to operate at an acceptable LOS under the 2019 Plus Proposed Project Condition. Therefore, the Proposed Project would not generate a number of new trips substantial enough to cause any study area intersection to operate below the applicable LOS standard. This impact would be less than significant.

TABLE 3.2-10
STUDY AREA INTERSECTIONS LEVELS OF SERVICE – 2019 PLUS PROPOSED PROJECT CONDITION

No	Intersection	Traffic Control	Criteria	Friday		Saturday	
				LOS	Delay	LOS	Delay
1	SR-16/North Casino Entrance	Signalized	D	B	10.2	A	6.5
2	SR-16/Central Casino Entrance	Uncontrolled	D	A	0.0	A	0.0
3	SR-16/South Casino Entrance	TWSC	D	C	20.7	D	25.7
4	SR-16/CR-85	TWSC	D	B	12.6	C	17.5
5	SR-16/CR-85B	TWSC	D	B	10.3	C	16.7
6	SR-16/Woodland Avenue	AWSC	E	A	4.6	A	4.5
7	SR-16/Capay Street	TWSC	E	C	16.3	C	19.4
8	SR-16/Madison Street	TWSC	E	C	15.4	B	13.8
9	SR-16/Plainfield Street	TWSC	E	C	19.1	C	22.6
10	SR-16/CR-21A	AWSC	D	B	12.4	B	12.0
11	CR-85B/CR-21A	TWSC	C	A	9.3	A	9.1
12	Country Villa Estates/CR-21A	TWSC	C	B	10.1	B	10.1
13	Fremont Street/CR- 21A	TWSC	C	A	9.9	B	10.2
14	SR-16/CR-89	Roundabout	D	A	7.5	A	7.8
15	SR-16/I-505 SB Ramp	TWSC	D	C	16.3	C	19.0
16	SR-16/ I-505 NB Ramp	Signalized	D	B	10.2	B	13.9
17	SR-16/Wildwing Drive	TWSC	D	C	18.6	C	16.1
18	SR-16/CR-94B	TWSC	D	C	22.3	C	15.2
19	SR-16/CR-95	TWSC	D	C	19.8	C	17.3
20	SR-16/CR-98	Signalized	D	C	25.6	C	24.9
21	SR-16/W Kentucky Avenue	Signalized	D	B	19.2	B	18.7
Source: Kimley-Horn, 2016 (**Appendix D**).							

Impact 3.2.3

Operation of the Proposed Project would generate new vehicle trips that would cause an increase in off-reservation traffic that could exceed the applicable LOS standard along certain study area roadway segments.

The LOS for the 2019 Plus Proposed Project Condition for study area roadway segments are summarized in **Table 3.2-11**. The following roadway segments would operate under unacceptable conditions with the addition of vehicle trips attributable to the Proposed Project:

- SR-16 (WB and EB) between the Resort and CR-85 (Saturday PM peak);
- SR-16 (WB) between the Esparto town limits and CR-89 (Saturday PM peak);
- SR-16 (WB) between CR-89 and I-505 (Saturday PM peak); and
- SR-16 (WB and EB) between I-505 and CR-98 (Friday and Saturday PM peaks).

TABLE 3.2-11
STUDY AREA ROADWAY LEVELS OF SERVICE –
2019 PLUS PROPOSED PROJECT CONDITION

Roadway Segment	Highway Class	Criteria	Friday				Saturday			
			NB/WB		SB/EB		NB/WB		SB/EB	
			LOS	% TSF	LOS	% TSF	LOS	% TSF	LOS	% TSF
SR-16 from the Resort to CR-85	I	D	D	70.2	D	74.3	**E**	**81.2**	**E**	**67.2**
SR-16 from CR-85 to Esparto	II	D	C	65.4	D	71.7	D	83.1	C	62.5
SR-16 through Esparto	II	E	D	72.2	C	64.5	D	81.9	C	56.4
SR-16 from Esparto to CR-89	I	D	D	76.7	D	73.0	**E**	**85.3**	D	65.7
SR-16 from CR-89 to I-505	I	D	D	79.5	D	74.6	**E**	**85.0**	D	65.8
SR-16 from I-505 to CR-98	I	D	E	64.7	E	78.7	**E**	**69.9**	**E**	**64.6**
CR- 21A from CR-85B to SR-16	II	C	A	28.4	A	37.2	A	36.6	A	38.2
CR-85B from SR-16 to CR-21A	II	C	A	31.7	B	50.9	B	45.0	B	46.9

Notes: %TSF = percent time spent following; NB/WB = northbound/westbound; SB/EB = southbound/eastbound
Bold = unacceptable operating conditions
Average travel speed calculations for Class I roadways are shown in **Appendix D**.
Source: Kimley-Horn, 2016 (**Appendix D**).

SR-16 (WB and EB) between the Resort and CR-85

The study area roadway segment of eastbound SR-16 between the Resort and CR-85 would operate at acceptable LOS D during the Saturday PM peak hour under 2019 Baseline Conditions. The addition of traffic attributable to the Proposed Project would increase the percent time spent following experienced by drivers on this roadway segment, and therefore would degrade the LOS along this roadway segment to LOS E, which is considered unacceptable according to applicable LOS criteria. Because Proposed Project-related traffic would result in unacceptable LOS as a result of increased percent time spent following on this roadway segment, this is a potentially significant impact.

The westbound direction of SR-16 between the Resort and CR-85 would operate at unacceptable LOS E during the Saturday PM peak hour under 2019 Baseline Conditions. The addition of traffic attributable to the Proposed Project would increase the percent time spent following and decrease the average travel speed on this roadway segment, which would already operate unacceptably without the Proposed Project. Since Proposed Project-related traffic results in an increase in percent time spent following and a decrease in average travel speed on this roadway segment that operates at unacceptable service levels without the Proposed Project, this is a potentially significant impact.

SR-16 (WB) between the Esparto town limits and CR-89

The study area roadway segment of westbound SR-16 between the Esparto town limits and CR-89 would operate at unacceptable LOS E during the Saturday PM peak hour under 2019

Baseline Conditions. The addition of traffic attributable to the Proposed Project would increase the percent time spent following and decrease average travel speed along this roadway segment, which would already operate unacceptably without the Proposed Project. Since Proposed Project-related traffic results in an increase in percent time spent following and a decrease in average travel speed on this roadway segment that operates at unacceptable service levels without the Proposed Project, this is a potentially significant impact.

SR-16 (WB) between CR-89 and I-505

The study area roadway segment of westbound SR-16 between CR-89 and I-505 would operate at unacceptable LOS E during the Saturday PM peak hour under 2019 Baseline Conditions. The addition of traffic attributable to the Proposed Project would increase the percent time spent following and decrease average travel speed along this roadway segment, which would already operate unacceptably without the Proposed Project. Since Proposed Project-related traffic results in an increase in percent time spent following and a decrease in average travel speed on this roadway segment that operates at unacceptable service levels without the Proposed Project, this is a potentially significant impact.

SR-16 (WB and EB) between I-505 and CR-98

The study roadway segment of SR-16 between I-505 and CR-98 would operate at unacceptable LOS E in both directions during the Friday and Saturday PM peak hours under 2019 Baseline Conditions. The addition of traffic attributable to the Proposed Project would increase the percent time spent following and decrease average travel speed along this roadway segment, which would already operate unacceptably without the Proposed Project. Since Proposed Project-related traffic results in an increase in percent time spent following and a decrease in average travel speed on this roadway segment that operates at unacceptable service levels without the Proposed Project, this is a potentially significant impact.

Implementation of **Mitigation Measure 3.2.3** would require the installation of slow vehicle turnouts along the above-noted roadway segments, allowing slow vehicles to pull off the roadway, thereby decreasing the percent time spent following and increasing the average travel speed, resulting in acceptable service levels at these segments. Impacts on roadway segments would be less than significant with implementation of this mitigation measure.

Mitigation

3.2.3 Install Slow Vehicle Turnouts

a. **SR-16 between the Resort and CR-85**: The Tribe, in consultation with Caltrans, shall install one slow vehicle turnout in compliance with applicable Caltrans standards in each direction on SR-16 between the Resort and CR-85. The Proposed Project's proportionate share of the impact is 91 percent, but the Proposed Project's

percentage of mitigation cost shall be determined in consultation with Caltrans. The exact locations of the slow vehicle turnouts shall be determined ~~at the time the significant impact is experienced and shall be acceptable to~~in consultation with Caltrans. Separate environmental review and analysis under the California Environmental Quality Act (CEQA) shall be required with respect to the slow vehicle turnouts once the ~~impacts are experienced and the~~ precise locations of the turnouts have been determined. That review and analysis would have to be completed before commencement of construction of the turnout pockets.

b. **SR-16 (WB) between Esparto and CR-89:** The Tribe, in consultation with Caltrans, shall install one slow vehicle turnout in compliance with applicable Caltrans standards in the westbound direction on SR-16 between the Esparto town limits and CR-89. The Proposed Project's proportionate share of the impact is 29 percent, but the Proposed Project's percentage of mitigation cost shall be determined in consultation with Caltrans. The exact locations of the slow vehicle turnouts shall be determined ~~at the time the significant impact is experienced and shall be acceptable~~in consultation with ~~to~~ Caltrans. Separate environmental review and analysis under CEQA shall be required with respect to the slow vehicle turnouts once the ~~impacts are experienced and the~~ precise locations of the turnouts have been determined. That review and analysis would have to be completed before commencement of construction of the slow vehicle turnouts.

c. **SR-16 (WB) between CR-89 and I-505:** The Tribe, in consultation with Caltrans, shall install one slow vehicle turnout in compliance with applicable Caltrans standards in the westbound direction on SR-16 between CR-89 and I-505. The Proposed Project's proportionate share of the impact is 60 percent, but the Proposed Project's percentage of mitigation cost shall be determined in consultation with Caltrans. The exact locations of the slow vehicle turnouts shall be determined ~~at the time the significant impact is experienced and shall be acceptable to~~in consultation with Caltrans. Separate environmental review and analysis under CEQA shall be required with respect to the slow vehicle turnouts once the ~~impacts are experienced and the~~ precise locations of the turnouts have been determined. That review and analysis would have to be completed before commencement of construction of the slow vehicle turnouts.

d. **SR-16 between I-505 and CR-98:** The Tribe, in consultation with Caltrans, shall install one slow vehicle turnout in compliance with applicable Caltrans standards in each direction on SR-16 between I-505 and CR-98. The Proposed Project's proportionate share of the impact is 29 percent, but the Proposed Project's percentage of mitigation cost shall be determined in consultation with Caltrans. The exact locations of the slow vehicle turnouts shall be determined ~~at the time the significant impact is experienced and shall be acceptable to~~in consultation with Caltrans. Separate environmental review and analysis under CEQA shall be required with

respect to the slow vehicle turnouts once the ~~impacts are experienced and the~~ precise locations of the turnouts have been determined. That review and analysis would have to be completed before commencement of construction of the slow vehicle turnouts.

Impact 3.2.4

Operation of the Proposed Project would result in the addition of new vehicle trips along the study area roadway network; however, this increase would not substantially increase hazards associated with an incompatible design feature or hazards to bicycles and pedestrians or farm equipment.

Bicycles and Pedestrians

The traffic volumes forecasted to be generated by the Proposed Project were reviewed in light of the existing Caltrans collision data for the vicinity of the Proposed Project to determine the potential for increased accidents relating to those traffic volumes (**Appendix D**). According to the Caltrans collision data, accidents in the vicinity of the Proposed Project involving bicyclists and pedestrians are rare. No collisions of this type were noted during the reporting period for many of the study area intersections. This suggests that bicycle and pedestrian volumes for the study area intersections and roadway segments are relatively low and that minimal safety hazards exist for individuals using these intersections for biking or walking. Although the Proposed Project would increase off-reservation traffic volumes at some study area intersections and roadway segments, bicyclists and pedestrians would be able to travel through those intersections and roadway segments after the implementation of the Proposed Project with similar levels of safety as before the implementation of the Proposed Project. This impact would be less than significant.

Vehicle Collisions

The potential for increased collisions between motorized vehicles was also considered. Collision frequency and severity are a function of many complex factors that vary depending on the location and type of intersection or roadway segment. Factors include traffic control (such as signals or stop signs), lane and shoulder widths, grades, driveway densities, roadside hazards or obstacles, presence of left- and right-turn lanes, sight distance, and congestion, among others.

Because of the number of and interrelationships between variables, accurate crash prediction is difficult. The Proposed Project would increase roadway congestion, a factor that could result in an increase in traffic collisions if left unmitigated. Other factors are expected to remain unaffected.

Potential increases in accidents due to project-related traffic would be offset by the implementation of off-reservation roadway improvements included as mitigation above.

Therefore, with implementation of **Mitigation Measure 3.2.3** above, no significant impact related to the increase in daytime or nighttime collisions is expected.

Farm Equipment

The Proposed Project would increase off-reservation traffic on SR-16 and adjacent county roads where farm vehicles operate. However, the increase in traffic on those roads would not significantly impact or significantly increase the potential conflicts with nearby farm operations for the following reasons:

- There were no reported collisions (in the last three years) that included farm machinery or vehicles colliding with other highway traffic along any of the study area segments or intersections.
- The area has a history of coexistence between Resort and farm operations.
- Farm vehicles typically operate before the PM peak commute period and prior to when the Resort traffic levels are highest. Observations indicate that farm workers and equipment are in the field shortly after sunrise and are winding down most activities before 5:00 p.m. Large harvesting equipment is often moved during these same times to reduce conflicts with highway traffic.
- Traffic volumes on the roads serving the Resort and farm uses would remain within the acceptable volumes for the road classifications, or would be reduced to a level at or less than the baseline condition through implementation of **Mitigation Measure 3.2.-3**.

As long as the traffic volumes continue to be consistent with the volumes of the roadway's classification, it is reasonable to assume that the roads can continue to sufficiently serve the uses that they were designed to accommodate. Therefore, an increase in off-reservation traffic volume attributable to the Proposed Project alone does not render the Proposed Project incompatible with the other agricultural and residential uses SR-16 serves. It is reasonable to conclude that a delay in exiting or entering a farm property does not rise to the level of a significant safety or design impact. Furthermore, roadway segment operations would be improved through implementation of **Mitigation Measure 3.2.3**, thereby allowing for traffic, including farm equipment, to move safely and efficiently through the study area. It is also noted that implementation of the Y-16 SIP is anticipated to result in improved sight distances, wider shoulders, and other improvements to increase safety on several segments of SR-16. A less-than-significant impact related to hazards to farm equipment would occur.

Esparto Schools

Esparto Middle School is located on CR-21A approximately 0.4 mile west of SR-16. Nearly all middle school students live north of CR-21A. Some can reach the school by using interior neighborhood streets and a pedestrian connection to the school; however, other students travel along the shoulder on the north side of CR-21A as their most direct route to school. Because the

predominant route to the Resort does not utilize CR-21A, the Proposed Project is not expected to impact the Esparto Middle School foot traffic.

Esparto High School is located along SR-16, just north of Plainfield Street. In this area, streets have sidewalks upon which to walk and marked crosswalks at major intersections. The Proposed Project is not expected to have a notable effect on current mobility or safety for high school students in this area. Thus, the Proposed Project impact on high school students is determined to be less than significant.

Road Conditions

Pavement primarily fails due to fatigue, and failure rates exponentially increase with the axle load of the vehicles traveling upon it. Therefore, large trucks and buses generate the greatest effect on pavement fatigue. The effect of passenger cars, pickup trucks, and two-axle trucks are considered to be negligible. The Proposed Project is not expected to notably increase off-reservation truck or bus traffic, and could actually decrease truck traffic because the expanded back-of-house area would permit more on-site storage. This, in turn, would reduce the frequency of trucks that bring supplies to the facility. Therefore, the increase in off-reservation traffic associated with the Proposed Project would have a less-than-significant impact on road conditions and County road maintenance.

Impact 3.2.5

Operation of the Proposed Project would not result in inadequate emergency access for off-reservation responders.

As noted above, implementation of the Proposed Project would result in unacceptable operations along four roadway segments. The reduced LOS conditions at those locations could result in additional delays experienced by off-reservation emergency responders using the study area roadway system for emergency responses. This potential impact would be mitigated with the implementation of the mitigation measures described above, which would improve operating conditions. Implementation of **Mitigation Measure 3.2.3**, requiring the installation of slow vehicle turnouts along impacted roadway segments, would provide areas for vehicles to pull over to allow off-reservation emergency responders using that roadway segment access to their destination. Additionally, implementation of the Y-16 SIP would provide additional shoulder areas for vehicles to pull over to allow off-reservation emergency responders to pass. With the implementation of intersection and roadway segment mitigation described herein and the Y-16 SIP, impacts to off-reservation responders would be less than significant.

3.3 LAND USE, AGRICULTURAL RESOURCES, POPULATION AND HOUSING, AND RECREATION AND PARKS

This section describes the existing off-reservation land use, agricultural, population and housing, and recreation resource areas; and discusses potential off-reservation impacts of the Proposed Project on those resource areas.

3.3.1 REGULATORY SETTING

FEDERAL

Natural Resource Conservation Service (NRCS)

The Natural Resource Conservation Service (NRCS) is an agency of the United States Department of Agriculture (USDA) that aims to improve, protect, and conserve the nation's natural resources. NRCS categorizes farmland in a number of ways, including prime farmland, farmland of statewide importance, and unique farmland. Prime farmland is considered to have the best possible features to sustain long-term productivity. Farmland of statewide importance includes farmland similar to prime farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Unique farmland is characterized by inferior soils and generally needs irrigation, depending on climate.

Farmland Protection Policy Act

The Agriculture and Food Act of 1981 (Public Law 97-98) contained the Farmland Protection Policy Act (Subtitle I of Title XV, Section 1539-1549). The Farmland Mapping and Monitoring Program (FMMP), within the California Department of Conservation (DOC), maps activity from the USDA on a continuing basis. The FMMP produces maps and statistical data used for analyzing impacts on California's agricultural resources (DOC, 2015a).

STATE AND LOCAL

The Proposed Project site is located on trust land and is not subject to state or local land use controls. However, such controls apply to off-reservation land in the vicinity of the Proposed Project site.

Williamson Act

The California Land Conservation Act of 1965, commonly referred to as the Williamson Act, enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space uses. In return, landowners receive property tax assessments that are much lower than normal because they are based upon farming and open space uses, as opposed to full market value (DOC, 2015b).

County of Yolo 2030 Countywide General Plan

The *County of Yolo 2030 Countywide General Plan* (General Plan), adopted in December 2009, is the guiding document for development of the unincorporated areas of the County, which include the off-reservation vicinity of the Proposed Project (Yolo County, 2009a). The General Plan does not apply to the trust land on which the Proposed Project would be located or to the Proposed Project itself. Relevant goals, policies, and implementation measures in the General Plan related to off-reservation land use, agriculture, housing, and recreation in the vicinity of the Proposed Project include the following (Yolo County, 2009a).

Land Use and Community Character Element

Goal LU-7: Regional Coordination. Ensure inclusion, fair treatment and equitable outcomes for the County and its residents in regional land use planning efforts.

Policy LU-7.3: Coordinate with other stakeholder agencies and entities to continue local and regional planning efforts to preserve agriculture, open space and natural resources while meeting housing needs, basic infrastructure and service levels, County economic development goals and County fiscal objectives.

Agriculture and Economic Development Element

Goal AG-1: Preservation of Agriculture. Preserve and defend agriculture as fundamental to the identity of Yolo County.

Policy AG-1.5: Strongly discourage the conversion of agricultural land for other uses. No lands shall be considered for redesignation from Agricultural or Open Space to another land use designation unless all of the following findings can be made:

A. There is a public need or net community benefit derived from the conversion of the land that outweighs the need to protect the land for long-term agricultural use.

B. There are no feasible alternative locations for the proposed project that are either designated for non-agricultural land uses or are less productive agricultural lands.

C. The use would not have a significant adverse effect on existing or potential agricultural production activities on surrounding lands designated Agriculture.

Policy AG-1.14: Preserve agricultural lands using a variety of programs, including the Williamson Act, Farmland Preservation Zones (implemented through the Williamson Act), conservation easements, an Agricultural Lands Conversion Ordinance and the Right-to-Farm Ordinance.

Goal AG-2: Natural Resources for Agriculture. Protect the natural resources needed to ensure that agriculture remains an essential part of Yolo County's future.

Policy AG-2.5: Support high value and intensive farming practices on appropriate agricultural soils. Prime soils and other productive agricultural land outside of growth boundaries shall be preserved wherever feasible.

Conservation and Open Space Element

Goal CO-1: Natural Open Space. Provide a diverse, connected, and accessible network of open space, to enhance natural resources and their appropriate use.

Policy CO-1.1: Expand and enhance an integrated network of open space to support recreation, natural resources, historic and tribal resources, habitat, water management, aesthetics, and other beneficial uses.

Policy CO-1.9: Promote the conservation of environmental resources in new and existing park and open space facilities.

Policy CO-1.23: Increase public access and recreational uses along waterways wherever feasible, particularly Cache Creek, Lower Putah Creek, the Yolo Bypass, and the Sacramento River.

Housing Element

Goal HO-1: Provide housing to meet the social and economic needs of each community, including both existing and future residents, as well as employers.

Policy HO-1.5: Ensure effective and informed public participation from all economic segments and special needs populations in the formulation and review of housing issues.

Policy HO-1.6: Coordinate with the Tribe to expand workforce housing opportunities in Esparto and Madison.

The General Plan also includes certain policies that appear to refer to the Tribe and/or the Casino Trust Parcel, including Policies LU-6.1, LU-6.8, LU-6.9, LU-6.12, and CC-A5. The purpose of this Draft Tribal Environmental Impact Report (TEIR), under the Compact, is to analyze environmental impacts of the Proposed Project on the off-reservation environment, which does not include the Tribe's federally owned trust land. Accordingly, this Draft TEIR does not evaluate the Proposed Project's consistency with those policies.

Yolo County Habitat Conservation Plan (HCP)/Natural Community Conservation Plan (NCCP)

The second administrative draft of the Yolo County Habitat Conservation Plan (HCP)/Natural Community Conservation Plan (NCCP) was published in March 2015. It is unknown if or when the Yolo

County HCP/NCCP will be adopted. Because it is still in the draft stage, the HCP/NCCP is not yet legally operative.

Sacramento Area Council of Governments (SACOG) Regional Housing Needs Assessment (RHNA)

The Regional Housing Needs Plan (RHNP), approved by the Sacramento Area Council of Governments (SACOG) on September 20, 2012, is a part of a statewide mandate to address housing issues related to future growth in the SACOG region (SACOG, 2012). For each jurisdiction, the RHNP outlines the distribution of housing needs by the four household income groups (very low income, low income, moderate income, and above moderate income) and the projected new housing unit targets by income group through 2021. The housing objective is to identify the minimum number of new houses to be allocated to each income group to meet their housing needs. The Regional Housing Needs Assessment (RHNA) establishes the goals for each community to encourage affordable housing through planning policies and land use regulations. Moreover, "the housing element must demonstrate that adequate sites and zoning are made available to address anticipated housing demand… and that market forces will not inhibit addressing the housing needs of all economic segments of a community" (SACOG, 2012). The RHNP does not, however, provide a mechanism for ensuring that the goals it establishes are actually met.

Capay Valley Area Plan

The *Capay Valley Area Plan* was adopted in 2010 as a component of the General Plan. The *Capay Valley Area Plan* does not apply to trust land or to the Proposed Project itself. The Plan establishes the following policies and implementation measures relevant to off-reservation land use and development, recreation, open space and conservation, and housing and community development in the vicinity of the Proposed Project (Yolo County, 2010).

Agriculture

Goal 1: Viable agriculture in the Capay Valley General Plan planning area.

Policy 2: The County shall protect agricultural land as a resource rather than a commodity.

Policy 4: The County shall promote and encourage establishment and preservation of agricultural easements in the Capay Valley.

Implementation Measure 1: Yolo County shall encourage the appropriate acquisition of agricultural conservation easements by local, State, and federal agencies and private nonprofit organizations to protect agriculture.

Implementation Measure 2: Yolo County shall encourage the placement of agricultural conservation easements on land most threatened by development (i.e., those located in close proximity to the unincorporated communities of Brooks, Guinda, Capay, and Rumsey).

Implementation Measure 3: Yolo County shall maintain and modify necessary ordinances to implement the Agricultural Conservation Easement Program.

Policy 7: The County shall require that land uses in areas designated for agricultural use shall be limited to those directly related to agricultural production or support of agriculture.

Implementation Measure 1: Yolo County shall support the expansion of agricultural-related activities to include onsite production of renewable fuels, e.g., methane, bio-diesel, and ethanol, consistent with the Yolo County Code, for fueling agricultural-related equipment or providing alternative sustainable energy sources for the Capay Valley.

Goal 2: Adequate soil and water resources to support agricultural lands in the Capay Valley.

Policy 2: The County shall discourage conversion of land zoned agricultural to any other zoning, except within the designated urban growth boundaries of Brooks, Capay, Guinda, and Rumsey, subject to the policies of this General Plan. No lands shall be considered for resignation from Agricultural or Open Space to another land use designation unless all of the findings in Countywide General Plan Policy AG-1.5 can be made (public need, no feasible alternative, and no significant impact to agricultural activities).

Policy 8: The County shall preserve land with characteristics potentially useful for agricultural uses, such as soils, vegetation, water supply, and promote land uses that preserve soils, vegetation, wildlife, and water resources compatible with agricultural use.

Policy 9: The County shall discourage the conversion of rangeland to nonagricultural uses.

Goal 3: Land uses compatible with agriculture.

Policy 1: The County shall require the land uses in Capay Valley to be compatible with each other, particularly land uses that are adjacent to agricultural operations, so that agricultural operations and productivity are not adversely affected.

Land Use

Goal 1: Preservation of the rural quality of life and community unique to the Capay Valley region.

Policy 1: The County shall ensure land uses are compatible with the rural agricultural quality of life.

Implementation Measure 1: Yolo County shall update its Zoning Code to ensure land use compatibility is addressed.

Town of Esparto General Plan

This Draft TEIR examines the off-reservation land use impacts of the Proposed Project in the County. Because Esparto is the nearest sizable community to the Resort and because many Resort employees

currently live in Esparto, relevant housing policies from the *Town of Esparto General Plan* are provided below (Yolo County, 2007).

Housing Goals, Policies, and Programs

Goal 1: To provide a continuing supply of housing to meet the needs of existing and future residents of Esparto in all income categories.

Policy E-H.2: New residential neighborhoods shall include a variety of residential units such as townhouses, attached housing, split lot duplexes, or small apartments and condominiums that are integrated into new single family areas and not concentrated in separate zoning districts. In all subdivisions or housing projects with at least 50 lots/units, the developer shall be encouraged to set aside a minimum 10 percent of the lots for purchase by owner-builders.

Policy E-H.4: Affordable housing shall be encouraged and maintained. New residential development that is affordable to low income households shall be dispersed throughout the town and not concentrated in one place. In all subdivisions or housing projects, at a minimum 20 percent of the units shall be affordable to households with low or very low incomes. Such housing shall meet the applicable requirements of the Yolo County Housing Element. Projects will be eligible for applicable density bonuses allowed pursuant to the Yolo County Housing Element.

Policy E-H.6: Multi-family projects in the R-3-PD and R-4-PD zones shall provide at a minimum 25 percent of the units for low or very low-income households, in accordance with the Yolo County Housing Element. Such projects will be eligible for applicable density bonuses allowed pursuant to the Yolo County Housing Element and State law.

3.3.2 ENVIRONMENTAL SETTING

LAND USE

Proposed Project Site

The Proposed Project site currently contains commercial land uses, including the Resort's existing gaming, dining, hotel and spa facilities, associated parking structures and areas, and landscaped and open spaces. Additional existing facilities are also located on the Proposed Project site, including an on-site water treatment facility, a wastewater treatment plant, and photovoltaic power facilities, all of which are owned and operated by the Tribe.

Surrounding Off-reservation Area

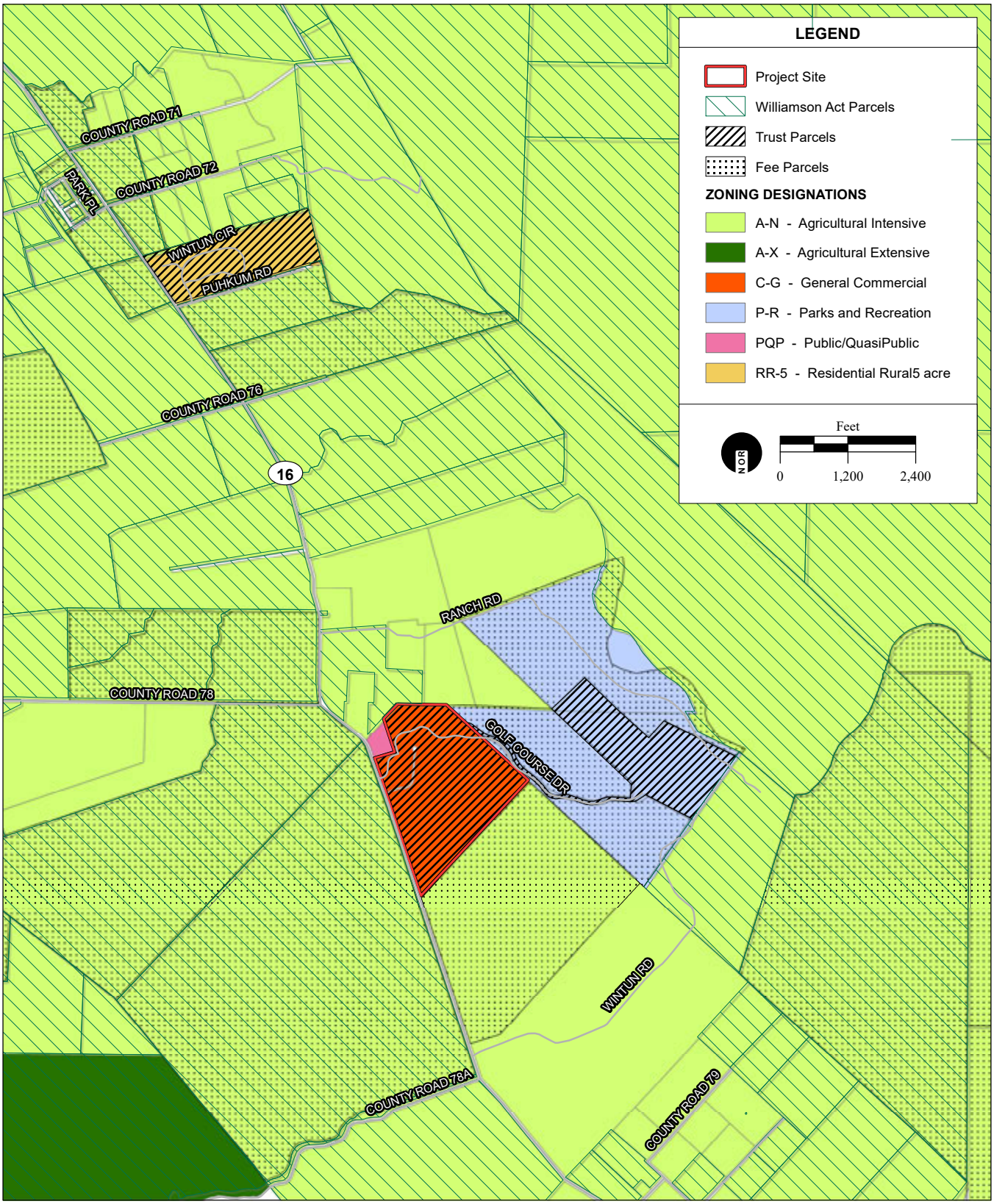
County zoning designations for off-reservation parcels located near the Proposed Project site are Agricultural Intensive (A-N), Parks and Recreation (P-R), and Public/Quasi-Public (PQP). Much of the County's unincorporated area is zoned A-N and Agricultural Extensive (A-X) (**Figure 3.3-1**). According

to Chapter 2, Article 3, Section 8-2.301 of the Yolo County Zoning Ordinance, "The purpose of the Agricultural Zones shall be to provide for land uses that support and enhance agriculture as the predominant land use in the unincorporated area of the County." The A-N and A-X zoning establishes agricultural preserves for which the owners of the corresponding lands may, but are not required to, execute contracts under the Williamson Act. County zoning designations are not applicable to tribal trust land or to the Proposed Project. A list of Yolo County off-reservation land use designations and their corresponding acreages is provided in **Table 3.3-1**. **Figure 3.3-1** provides the County zoning designations, trust status, and Williamson Act status of off-reservation parcels surrounding the Proposed Project site.

TABLE 3.3-1
GENERAL PLAN LAND USE DESIGNATIONS AND ACREAGES

Land Use Designation	Acreage
Open Space	6,064
Agriculture	603,544
Recreation	2,142
Residential	16,432
Commercial	2,381
Industrial	6,640
Public	3,671
Mixed Use	1 095
Other	11,580
Subtotal	**653,549**
Source: Yolo County, 2009a.	

Agriculture, vineyards, low-density rural residential housing, grasslands, and oak woodlands characterize the off-reservation lands in the vicinity of the Proposed Project site and most of the Capay Valley. Lands located immediately east of the Proposed Project site (west of Cache Creek) include a golf course owned and operated by the Tribe (which is comprised of both land held in trust for the Tribe and land owned in fee by the Tribe), as well as land owned in fee by the Tribe that is used for dry-land grazing (**Figure 3.3-1**). Other agricultural lands owned in fee by the Tribe are located across SR-16 to the west and southwest of the Proposed Project site, including Séka Hills Olive Mill (**Figure 3.3-1**). North of the Proposed Project site are a post office, a California Department of Forestry and Fire Protection fire station, open grazing land, and privately owned vineyards that are zoned A-N (**Figure 3.3-1**). Immediately south of the Proposed Project site is the Thlo property, which is owned in fee by the Tribe and is zoned A-N (**Figure 3.3-1**).



SOURCE: Yolo County, 7/2015; AES, 4/22/2016

Figure 3.3-1
Surrounding Zoning Designations

Agriculture

Prime Farmland

Prime farmland as defined in the *Capay Valley Area Plan* is "Farmland with the best combination of physical and chemical features able to sustain long-term production of crops" (Yolo County, 2010). Agricultural land is rated as prime or non-prime using the NRCS categories discussed in **Section 3.3.1**. The NRCS provides data regarding the types of soils that may be considered prime farmland. Based on the NRCS Land Capability Classification System, approximately 40 percent (257,893 acres) of Yolo County is considered to be prime farmland (Yolo County, 2009a). There are no prime agricultural soils on the Proposed Project site, and the nearest prime agricultural soils to the Proposed Project site are located on land immediately west of SR-16 (**Figure 3.3-2**).

Agricultural Tourism

Agricultural tourism (agritourism) is a commercial enterprise at a working farm or ranch that is conducted for the enjoyment and education of visitors, and that generates supplemental income for the owner or operator (UC Davis, 2016). Agritourism can include farm stands or shops, U-pick, farm stays, tours, on-farm classes, fairs, festivals, pumpkin patches, corn mazes, Christmas tree farms, winery weddings, orchard dinners, youth camps, barn dances, hunting or fishing, guest ranches, and more (UC Davis, 2016). The Capay Valley offers agritourism, including wine tasting, harvest festivals and events, farm tours, U-pick, and seasonal farm dinners (Visit California, 2016). Agricultural Commercial and Rural Recreational uses allow for agritourism. Some agritourism practices are allowed as of right on lands zoned A-N and A-X (such as those surrounding the Proposed Project site), and others require permits (Yolo County, 2015).

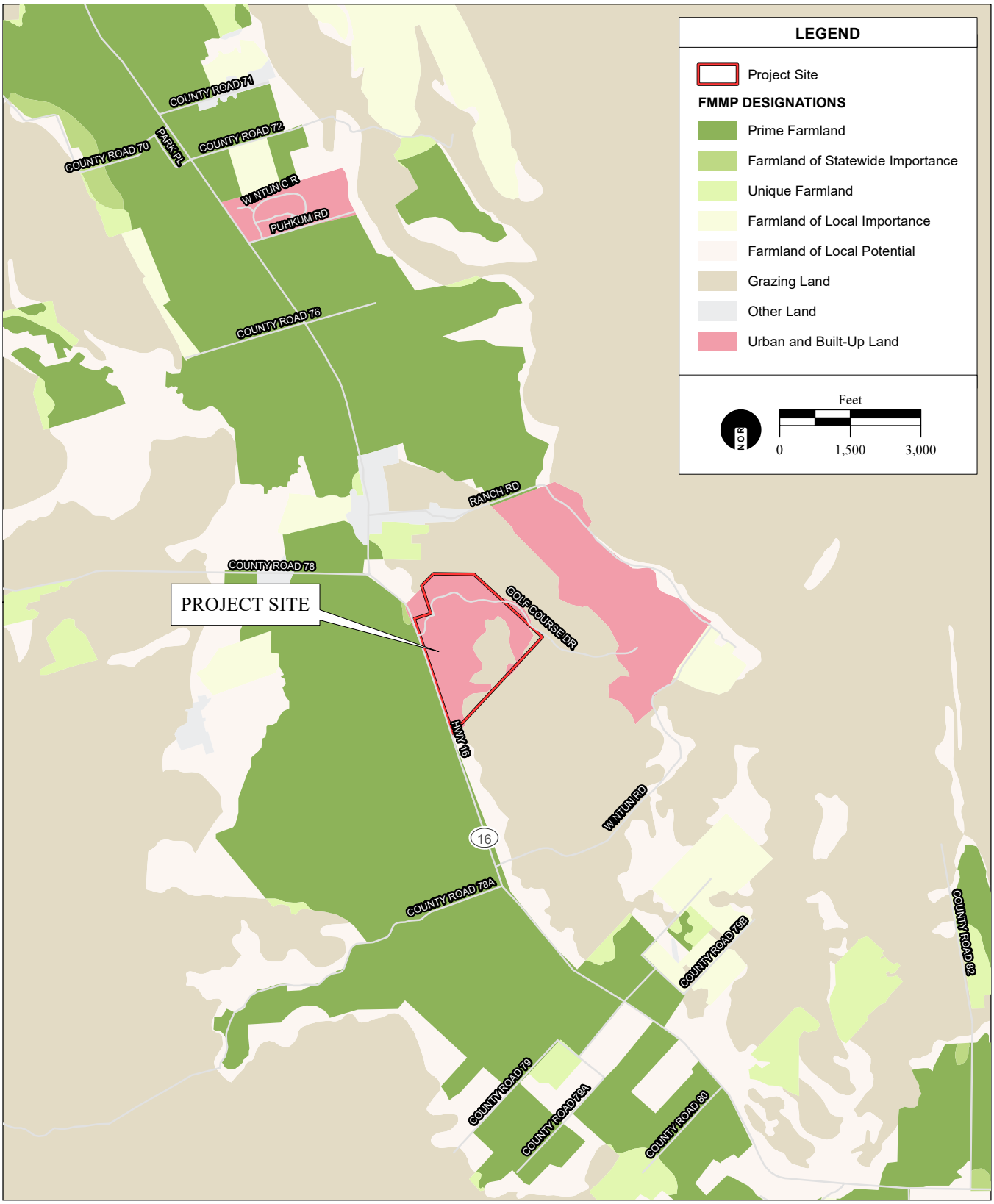
Open Space

Cache Creek Natural Area (CCNA)

The Cache Creek Natural Area (CCNA) is located 20 miles northwest of the Proposed Project site and is managed to improve habitat for wildlife and rare plants. The CCNA is jointly managed by the Bureau of Land Management (BLM) and the California Department of Fish and Wildlife as a "primitive area" that prohibits any developed campgrounds, facilities, or motorized vehicles. Most of the area is limited to hiking, equestrian uses, wildlife viewing, fishing, river running, and mountain biking.

Ponotla Piht Property

The Ponotla Piht property, formerly known as the Three Feathers Ranch, is owned by the Tribe and located across SR-16 from the Resort. In August 2006, the Tribe committed 1,224 acres of the 1,321-acre Ponotla Piht property to an agricultural and habitat conservation easement as mitigation for impacts of the golf course developed by the Tribe east of the Resort. Under the easement, 521 acres are designated as agricultural conservation land and 189 acres are designated as Swainson's hawk foraging habitat. An additional 514 acres (beyond what was required as mitigation for the golf course) were included in the



SOURCE: CA Dept. of Conservation, FMMP, 2014; AES, 4/22/2016

Figure 3.3-2
Farmland Designations

conservation easement. The easement was established to protect agricultural uses, native wildlife and vegetation, geographic features, and to specifically preserve Swainson's hawk foraging habitat.

POPULATION

Table 3.3-2 shows population estimates for the County overall, unincorporated portions of the County, and the state in 2010 and 2015. The unincorporated portions of the County had a 2010 population of 24,391, approximately 12.1 percent of the total population of the County. Over the 5-year period from 2010 to 2015, the population of the County grew at a rate of 0.85 percent per year, which was slightly greater than the state average over the same period, while the unincorporated portions of the County grew at a rate of 2.0 percent per year, a rate greater than both the County average and the state average.

TABLE 3.3-2
REGIONAL POPULATION

Location	2010	2015	Trend (% change per year)
Unincorporated Yolo County	24,391	26,885	+2.0
Yolo County Total	200,849	209,393	+0.85
California	37,253,956	38,714,725	+0.78
Source: DOF, 2016.			

HOUSING

Existing Yolo County Housing

A variety of residential units are currently located throughout the County. **Table 3.3-3** shows a comparison of housing units and vacancy estimates for Yolo County, the unincorporated portions of the County, and the state in 2010 and 2016. As of January 1, 2016, the County housing market consisted of 75,869 units, of which 5.0 percent (3,781 units) were vacant (DOF, 2016). The housing units in the unincorporated portions of the County represent 9.7 percent of the total units within the County. The unincorporated portions of the County had a vacancy rate greater than the County and state. Over the 6-year period from 2010 to 2016, the number of housing units in the County grew at a rate of 0.44 percent per year, which was greater than the average growth in the number of housing units in the state over the same period (0.38 percent per year), while the number of units in the unincorporated portions of the County grew at a rate of 0.31 percent per year, a greater rate than the average 0.15 percent per year decrease for unincorporated portions of the state. Over the same 6-year period, the percentage of housing units in the County that were vacant decreased at a rate of 1.39 percent per year, the percentage of units in the state that were vacant decreased by 1.09 percent per year, and the vacancy rate for units in the unincorporated portions of the County increased at a rate of 1.56 percent per year (DOF, 2016). As of January 1, 2016, the Woodland housing market consisted of 20,277 units, of which 6.3 percent (1,269 units) were vacant (DOF, 2016). Over the 6-year period from 2010 to 2016, the number of housing units

in Woodland grew at a rate of 0.40 percent per year, and Woodland experienced an increase in vacant units of 2.83 percent per year over the same period.

TABLE 3.3-3
REGIONAL HOUSING STOCK

Location	2010		2016		Trend (% Change per year)	
	Total Units	Vacant (%)	Total Units	Vacant (%)	Total Units	Vacant
Unincorporated Yolo County	7,253	9.6	7,389	9.8	+0.31	+0.77
Yolo County	73,908	5.6	75,869	5.0	+0.44	-1.47
Woodland	19,805	4.9	20,277	6.3	+0.40	+2.83
California	13,670,304	8.1	13,981,826	7.4	+0.38	-0.94
Source: DOF, 2016; AES, 2016.						

Determination of Regional Housing Needs and Affordability

The state-mandated RHNA process requires SACOG to develop a methodology that determines the number of housing units that each county must consider for zoning when updating the housing element of its general plan. The California Department of Housing and Community Development (HCD) determined that the total increase in regional housing needed in the SACOG area for January 1, 2013, through June 30, 2021, would be 104,970 housing units. This overall number was developed by the HCD based on population forecasts produced by the California Department of Finance (DOF). The RHNA methodology, which SACOG developed, allocated these housing units to each city and county within El Dorado, Placer, Sacramento, Sutter, Yolo, and Yuba Counties, including the Tahoe Basin portion of El Dorado and Placer Counties. Each jurisdiction received one "overall" unit allocation, and that overall allocation was then distributed into four income categories of housing affordability. According to the RHNA, Yolo County's overall allocation was 11,129 housing units, as detailed in **Table 3.3-4** below. By distributing the County's overall allocation into four income categories, which are defined by state law, the SACOG methodology reduces the over-concentration of lower income households in one community versus another (SACOG, 2012). The four income categories are defined based on a percentage of the County's Median Family Income (MFI) and include the following designations: "Very Low" (less than 50 percent of MFI), "Low" (50 to 80 percent of MFI), "Moderate" (80 to 120 percent of MFI), and "Above Moderate" (greater than 120 percent of MFI).

The County's MFI in 2014 was $75,225which was used to estimate the income brackets for each of the four income categories in Yolo County (US Census, 2014a). Accordingly, **Table 3.3-5** below presents the estimated average household income for each income category.

TABLE 3.3-4
2013-2021 RHNA HOUSING UNIT ALLOCATION FOR YOLO COUNTY

Region	Total Housing Units Allocated	Housing Units Allocated by Income Category			
		Very Low (Less than 50% of MFI)	Low (50% to 80% of MFI)	Moderate (80% to 120% of MFI)	Above Moderate (Greater than 120% of MFI)
Davis	**1,066**	248	174	198	446
West Sacramento	**5,977**	1,316	923	1,111	2,627
Winters	**319**	76	54	59	130
Woodland	**1,877**	390	274	349	864
Yolo (Unincorporated)	**1,890**	427	299	351	813
Yolo County Total	**11,129**	2,457	1,724	2,068	4,880
Source: SACOG, 2012.					

TABLE 3.3-5
INCOME CATEGORIES

Income Category	Percent of 2014 MFI	Annual Household Income
Very Low	Less than 50%	Less than $37,612
Low	50% to 80%	$37,612 to $60,180
Moderate	80% to 120%	$60,180 to $90,270
Above Moderate	Greater than 120%	Greater than $90,270
Source: US Census, 2014a; AES, 2016.		

EMPLOYMENT

Yolo County Employment

From 2010 through 2014, Yolo County maintained an average labor force of approximately 101,697 people. Of these, approximately 9,763 (9.6 percent) were unemployed, which was slightly lower than the unemployment rate for the state (11.0 percent) during the same period (US Census, 2014b). By June 2016, Yolo County had a labor force of 105,200 people. Of these, approximately 6,200 (5.9 percent) were unemployed, which was higher than the unemployment rate for the state (5.4 percent) during the same period (EDD, 2016; BLS, 2016).

Existing Resort Employment

Currently, approximately 2,180 employees are employed by the Resort (CCCR, 2016a). A partial list of the Resort's typical employment positions is presented in **Table 3.3-6**.

TABLE 3.3-6
RESORT EMPLOYMENT POSITIONS

Entertainment Technician	Hotel Sales	Food and Beverage Administration	Sales & Marketing Operations
Casino Services	Catering Services		
Casino Slot Operations	Hotel Management	Information Technology	Accounting Services
Blackjack Dealer	Fast Food Attendant	Sous Chef	Valet Attendant
Banquet Captain	Casino Cashier	General Maintenance	Surveillance
Table Games	Wardrobe Services	Restaurant Services	Engineering
Entertainment Operations	Hotel Marketing	Transportation	Security Services
Shipping and Receiving	Housekeeping Services	Human Resources	Casino Administration
Source: CCCR, 2016a.			

Current Resort Employee Residences

Most of the Resort's current employees reside in Yolo County. Most of the remaining employees reside in either Sacramento or Solano County (CCCR, 2016a). Of those Resort employees who reside in Yolo County, 197 reside in Esparto and represent an estimated 7.6 percent of Esparto's workforce according to 2014 US Census data, which represent the most current information regarding Esparto's workforce (CCCR, 2016a; US Census, 2014c). The largest group of Resort employees (824 people) resides in Woodland. **Table 3.3-7** provides a breakdown of current Resort employee residences by location within Yolo County.

TABLE 3.3-7
SUMMARY OF CURRENT CASINO EMPLOYEE RESIDENCES WITHIN YOLO COUNTY

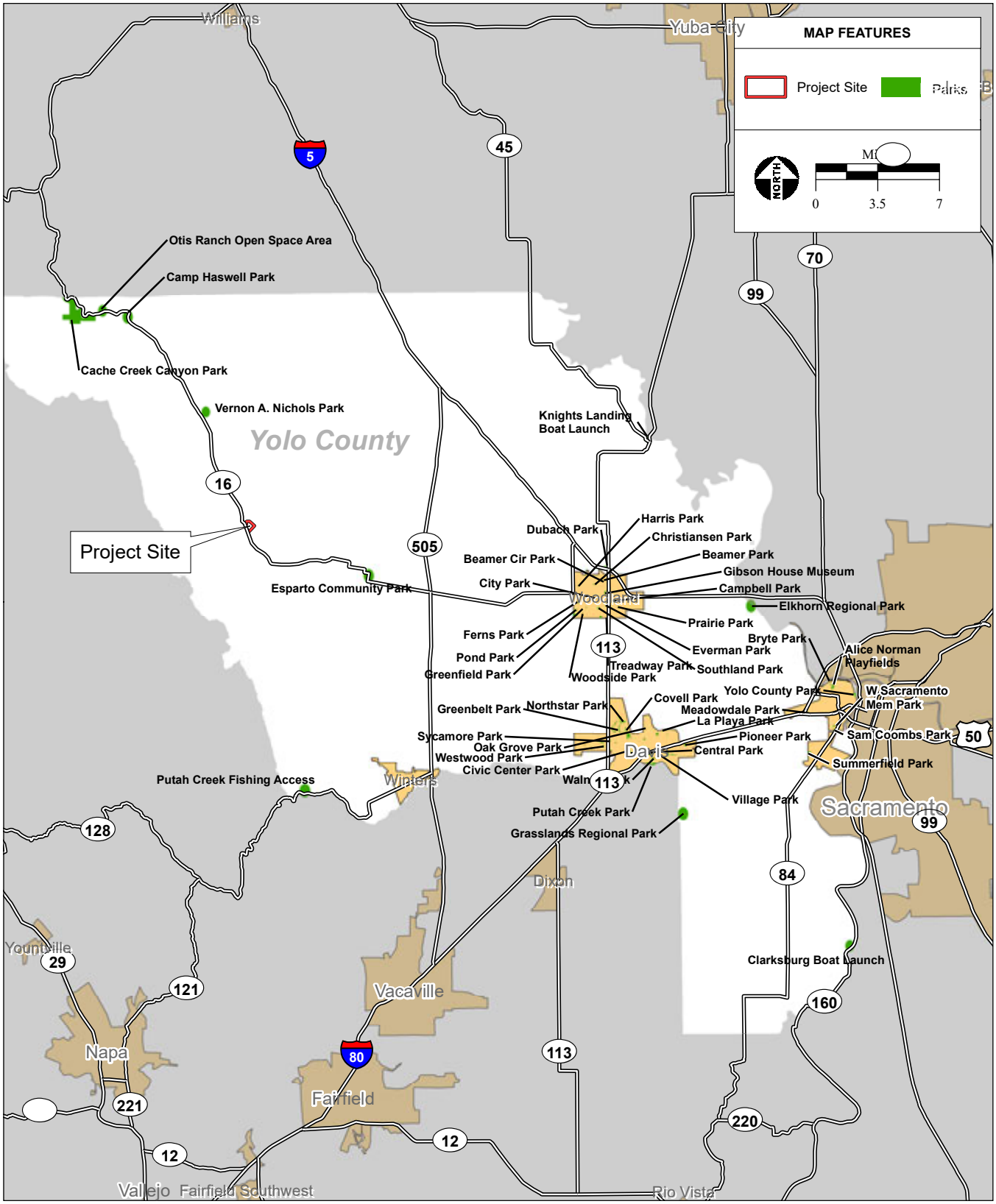
City	Number of Employees	Percent of Yolo County Resident Employees (%)
Brooks	9	0.76
Capay	4	0.34
Davis	32	2.75
Dunnigan	11	0.95
Esparto	189	16.2
Guinda	2	0.17
Knights Landing	4	0.34
Madison	22	1.89
Rumsey	4	0.34
West Sacramento	40	3.44
Winters	33	2.84
Woodland	808	69.48
Yolo	5	0.43
Total	**1,163**	**100%**
Source: CCCR, 2016a; AES, 2016.		

RECREATION

A number of parks and recreational facilities are located in unincorporated Yolo County. These facilities are listed and described in **Table 3.3-8**. A graphical depiction of the regional locations of Yolo County parks is included as **Figure 3.3-3**.

TABLE 3.3-8
RECREATIONAL SITES LOCATED IN YOLO COUNTY

Recreational Site	Description
Cache Creek Canyon Regional Park	Over 600-acre park located approximately 6 miles north of Rumsey along SR-16. Includes Blue Ridge Trail access, four large group camping sites, and 45 individual camping sites.
Camp Haswell Park	Day-use-only park located 2 miles north of Rumsey along SR-16. Popular picnic site and take-out site for rafters and a group camping site for the Boy Scouts of America.
Vernon A. Nichols Regional Park	Located in Guinda along SR-16 at County Road 57. This 22-acre facility includes picnic areas, fishing, and beach access to Cache Creek.
Knights Landing Boat Launch	Located at the junction of the Sacramento River and Sycamore Slough near Knights Landing, approximately 25 miles northwest of Sacramento, the Knights Landing Boat Launch is a state owned recreational area that includes facilities for boat docking/landing and boat trailer parking.
Esparto Community Park	Located in Esparto, this County-operated, 4-acre site has picnic tables, a grill, turf area, playground, and restrooms. This site hosts the Capay Valley regional farmers' markets from April through December.
Elkhorn Regional Park and Boat Launch	55-acre site located approximately 1.75 miles south of where I-5 crosses the Sacramento River. Activities include fishing, picnicking, bird watching, nature study, and boating.
Putah Creek Fishing Access	Located on 150 acres along Putah Creek, the park offers picnic tables, fishing, and parking. Overnight camping and additional boat ramps are located at Lake Solano Regional Park downstream from the fishing access.
Grasslands Regional Park	Located south of Davis, approximately 4 miles south of I-80, this park consists of 320 acres of significant natural resources and habitat for wildlife species that serve multiple recreational activities, including model airplane flights and archery.
Clarksburg Boat Launch	Located on the Sacramento River Levee approximately 1.5 miles south of Clarksburg on County Road E-9, the Clarksburg Boat Launch provides access for boating, water skiing, and fishing.
Bureau of Land Management (BLM) Property	Adjacent to the Cache Creek Canyon Regional Park is 54,000 acres of BLM property. This recreation area is a diverse landscape that supports many recreational activities. Birdwatchers are drawn to the Capay Valley because of the large number of resident and seasonal species.
Yocha Dehe Golf Club	18-hole golf course owned and operated by the Tribe and located east of the Resort. The par-72 course also includes a driving range and clubhouse, as well as a restaurant and observation deck. Although a portion of the golf course is located on trust land, the entire facility is open to the public.
Source: Yolo County, 2016a.	



SOURCE: ESRI Data, 2016; AES 4/22/2016

Figure 3.3-3
Parks in Yolo County

3.3.3 IMPACT ANALYSIS

SIGNIFICANCE CRITERIA

The following criteria are established by Section IX (land use), Section II (agricultural resources), Section XII (population and housing), and Sections XIII and XIV (public services and recreation) of the Environmental Impact Analysis Checklist in the Tribal-State Compact (Checklist) (**Appendix A**) and have been used in this section to evaluate the potential off-reservation impacts of the Proposed Project on off-reservation land use, agricultural resources, population and housing, and recreation and parks. Such an impact is considered significant if it would:

- Conflict with any off-reservation land use plan, policy, or regulation of an agency adopted for the purpose of avoiding or mitigating an environmental effect;
- Conflict with any applicable HCP or NCCP covering off-reservation lands;
- Involve changes in the existing environment that, due to their location or nature, could result in conversion of off-reservation farmland to non-agricultural use;
- Induce substantial off-reservation population growth;
- Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere off-reservation;
- Increase the use of existing off-reservation neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; or
- Result in substantial adverse physical impacts associated with the provision of new or physically altered off-reservation parks, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for off-reservation parks.

METHODOLOGY

The following analysis identifies potential off-reservation environmental impacts of the Proposed Project related to land use, agricultural resources, population and housing, and recreation and parks. The impact analysis compares existing conditions described above to foreseeable changes to existing conditions that would be likely to result from implementation of the Proposed Project.

The evaluation of off-reservation environmental impacts in this section consisted of the following:

- Field observations;
- Review of planning documents; and
- Review of site plans for and infrastructure improvements associated with the Proposed Project.

OFF-RESERVATION IMPACTS OF THE PROPOSED PROJECT

Impact 3.3.1

The Proposed Project would not conflict with any off-reservation land use plan (including any HCP or NCCP), policy, or regulation of an agency adopted for the purpose of avoiding or mitigating an environmental effect.

Currently, there are no HCPs or NCCPs in effect in Yolo County. Any such plan adopted by a state or local governmental agency would not apply to the trust land on which the Proposed Project would be built. While the General Plan does not apply to the Proposed Project site, it does apply to off-reservation land uses. The Proposed Project would not result in changes to off-reservation land use and, as such, would remain consistent with the General Plan. The Proposed Project would be built and operated entirely on the trust land, and would not change the current use the Proposed Project site or any off-reservation land use. The existing agricultural and Swainson's hawk habitat conservation easement to which the Ponotla Piht property is subject would remain in effect, in accordance with its terms, and would not be impacted by the Proposed Project. No impacts on off-reservation land use plans, policies, or regulations would occur as a result of the Proposed Project.

Impact 3.3.2

The Proposed Project would not involve changes in the existing environment that, due to their location or nature, could result in conversion of off-reservation farmland to non-agricultural use.

As stated under **Impact 3.3.1** above, development of the Proposed Project would occur entirely on trust land. No portion of the Proposed Project site is currently used for agricultural purposes. Therefore, no on- or off-reservation farmland would be directly converted to a non-agricultural use as a result of the Proposed Project. Additionally, as discussed in **Impact 3.3.3** below, the Proposed Project would not induce off-reservation population growth that would require new housing or other construction. Therefore, the Proposed Project would not indirectly result in a conversion of farmland to a non-agricultural use. No impact would occur.

Impact 3.3.3

The Proposed Project would not induce substantial off-reservation population growth, nor would it displace any existing housing; therefore, the Proposed Project would not necessitate the construction of off-reservation housing.

The Proposed Project is anticipated to generate approximately 200 new positions at the Resort. Current residents of the region are available to fill the new positions generated by the Proposed Project and, in the Tribe's experience, are by far the most likely candidates to apply.

Furthermore, new positions created during construction of the Proposed Project would be expected to employ residents of the region as well.

In June 2016, the County had an average labor force of approximately 105,200 people (EDD, 2016). Of these, approximately 9,763 people (9.6 percent) were unemployed. Therefore, the existing labor pool is sufficient to fill all 200 new positions generated by the Proposed Project. Substantial numbers of people are not required or anticipated to move to Yolo County to fill the jobs. The Proposed Project would not be anticipated to result in substantial off-reservation population growth.

The anticipated employee regional distribution of the Proposed Project employees is presented in **Table 3.3-9**. The distribution of residence areas of Proposed Project employees is projected based on the distribution of residences of existing Resort employees. The projections show that 109 of the 200 Proposed Project employees (54.4 percent) are estimated to reside in Yolo County. They are projected to be distributed throughout the County as described in **Table 3.3-10**. As shown in **Table 3.3-10**, the majority of the total projected Yolo County resident employees are anticipated to reside within Woodland (76 employees; 69.5 percent).

TABLE 3.3-9
ESTIMATED PROPOSED PROJECT EMPLOYEE COUNTY OF RESIDENCE

County of Residence	Total Employees
Yolo County (54.4%)	109
Sacramento County (26.9%)	54
Other (18.7%)	37
Total Employees	**200 (100%)**

~~Notes: Income distribution percentages are based on Yolo County projected distributions.~~
Source: ~~US Census, 2014d;~~ CCCR, 2016a; ~~SACOG, 2012;~~ AES, 2016.

Because substantial off-reservation population growth is not anticipated as a result of the Proposed Project, the Proposed Project would not necessitate the construction of new off-reservation housing. Furthermore, according to DOF, there were approximately 3,781 vacant housing units throughout the County in 2016, including approximately 1,269 vacant housing units in Woodland. Therefore, even if the Proposed Project were to hire new employees that do not already reside in Yolo County and elected to move to Yolo County, there would be a sufficient amount of existing vacant housing units to accommodate all of the Proposed Project's new employees, and new housing would not be required as a result of the Proposed Project.

Finally, there is no existing housing on the Proposed Project site, and housing would not be constructed under the Proposed Project. Therefore, the Proposed Project would not displace any

existing housing, nor would it necessitate the construction of new off-reservation housing. This impact is less than significant.

TABLE 3.3-10
SUMMARY OF ANTICIPATED PROPOSED PROJECT EMPLOYEE RESIDENCES WITHIN YOLO COUNTY

City/Region	Number of Employees[1]	Percent of Yolo County Resident Employees
Brooks	1	0.77%
Capay	0	0.34%
Davis	3	2.75%
Dunnigan	1	0.95%
Esparto	18	16.2%
Guinda	0	0.17%
Knights Landing	0	0.34%
Madison	2	1.89%
Rumsey	0	0.34%
West Sacramento	4	3.44%
Winters	3	2.84%
Woodland	76	69.5%
Yolo	0	0.43%
Total	**109 employees**	**100%**

Notes: 1 – Rounded to the nearest integer. Due to rounding, totals may not sum.
Source: CCCR, 2016a; AES, 2016.

Impact 3.3.4

The Proposed Project would not increase the use of existing off-reservation neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility could occur or be accelerated.

As described in **Section 2.0**, **Project Description**, the Proposed Project would involve a hotel expansion, the addition of a ballroom, a restaurant expansion, and additional supporting facilities and would draw patrons to the Proposed Project site. The hotel expansion would result in an increase of long-duration stays of patrons over existing conditions. Longer stays generated by the Proposed Project could lead to increased use of nearby public parks and recreational facilities, which could cause an increase in the demand for facility maintenance. However, an increased number of visitors would also generate increased revenue, as most parks in the area charge entrance fees. This impact is less than significant.

Impact 3.3.5

The Proposed Project is not likely to result in substantial adverse physical impacts associated with the provision of new or physically altered off-reservation parks, the construction of which could cause significant environmental impacts, to maintain acceptable service ratios, response times, or other performance objectives for off-reservation parks.

The Proposed Project would increase long-term stays at the Proposed Project site, which could increase the use of off-reservation parks as discussed in **Impact 3.3.4**. However, the construction of new parks or alteration of existing parks would not be required to mitigate for this impact because increased funding toward facility maintenance from park entrance fees would serve the minor increase in park use resulting from the Proposed Project. Therefore, there would be no potentially significant impacts due to construction of off-reservation park facilities.

3.4 BIOLOGICAL RESOURCES

This section addresses the off-reservation environment associated with biological resources, discusses potential impacts of the Proposed Project on off-reservation biological resources, and presents mitigation measures recommended to reduce any potentially significant off-reservation impacts to less-than-significant levels. For off-reservation mitigation measures that have been recommended for traffic impacts (refer to **Section 3.2**, **Transportation/Traffic**), the potential impacts on biological resources resulting from implementation of those mitigation measures have also been evaluated.

3.4.1 REGULATORY SETTING

FEDERAL

Federal Endangered Species Act (FESA)

Provisions of the Federal Endangered Species Act of 1973 (FESA), as amended (16 United States Code [USC] 1531), protect federally listed threatened and endangered wildlife and their habitat from take (50 Code of Federal Regulations [CFR] §17.11, 17.12). Under FESA, "take" includes activities that "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" as well as any "attempt to engage in any such conduct" (16 USC 1531[3]). The United States Fish and Wildlife Service (USFWS) defines the term "harm" to include "significant habitat modification or degradation" (50 CFR §17.3). On June 29, 1995, the US Supreme Court ruled that harm may include habitat modification "where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering."

The USFWS and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS) implement Section 10(a)(1)(b) of FESA, which allows non-federal entities under consultation with the USFWS and NMFS to obtain incidental take permits for federally listed wildlife. Compliance with Section 10(a)(1)(b) is not required for federally listed plants.

Wetlands and Other Waters of the United States

Any project that involves discharge of dredged or fill material in off-reservation navigable waters and other off-reservation waters of the US must first obtain authorization from the United States Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (CWA). Projects requiring a 404 permit under the CWA also require a Section 401 water quality certification from either the United States Environmental Protection Agency (USEPA) (for trust land such as the Proposed Project site) or the appropriate Regional Water Quality Control Board (RWQCB) (for non-trust land). These two agencies also administer the National Pollutant Discharge Elimination System (NPDES), which requires general permits for construction activities disturbing one acre or more (refer to **Section 3.7**, **Hydrology and Water Quality**, for further discussion).

Migratory Bird Treaty Act

Most bird species, especially those that are breeding, migratory, or of limited distribution, are protected under federal and state regulations. Under the Migratory Bird Treaty Act of 1918 (16 USC §703-711), federally listed migratory bird species (50 CFR §10.13) and their nests and eggs are protected from injury or death, and project-related disturbances during the nesting cycle must be reduced or eliminated. Only off-reservation impacts on migratory bird species are evaluated in this section in accordance with the Tribal-State Compact (the Compact).

Bald and Golden Eagle Protection Act

The Bald Eagle Protection Act (BEPA) was originally enacted in 1940 to protect bald eagles and was later amended to include golden eagles (16 USC Section 668). This act prohibits the taking or possession of, and commerce in, bald and golden eagles and associated parts, feathers, nests, or eggs, with limited exceptions. The definition of "take" is the same as under FESA. In the mid-1970s, the USFWS established five recovery programs based on geographical distribution of the species, with California located in the Pacific Recovery Region. In the Pacific Recovery Region, habitat conservation efforts, including laws and management practices at the federal, state, and community levels, have helped facilitate bald eagle population increases. Critical habitat for bald and golden eagles was not designated as part of the Pacific Recovery Plan created under FESA. Likewise, critical habitat was not designated by regulation under FESA. In 1995, the USFWS reclassified the bald eagle from endangered to threatened under FESA in the contiguous 48 states, excluding Michigan, Minnesota, Wisconsin, Oregon, and Washington, where it had already been listed as threatened (USFWS, 2012). In 2007, the bald eagle was federally delisted under FESA. However, the provisions of the BEPA remain in place for protection of bald eagles and golden eagles.

STATE AND LOCAL

The Proposed Project site is located on trust land and is not subject to state or local controls concerning biological resources. However, such controls, including those described below, apply to off-reservation land in the vicinity of the Proposed Project site.

California Endangered Species Act (CESA)

The California Endangered Species Act (CESA) is similar to FESA, but is limited to species under state jurisdiction that are listed by the state as threatened or endangered. Under Section 2080 of the California Fish and Game Code, off-reservation take is prohibited. "Take" is defined under CESA as activities that "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Under Section 2081, the California Department of Fish and Wildlife (CDFW) can authorize take if an incidental take permit is issued by the US Secretary of the Interior or the US Secretary of Commerce in compliance with FESA for jointly listed species, or if the director of CDFW issues a permit and impacts are minimized and mitigated for state-listed species. In general, CESA does not cover habitat impacts.

California Fish and Game Code

California Fish and Game Code § 3503, 3503.5, and 3800 prohibit the off-reservation possession, incidental take, or needless destruction of birds, their nests, and eggs. California Fish and Game Code §3511 lists birds or other species that are "fully protected" off reservation and may not be taken or possessed except under specific permit. Consultation with CDFW may be required if construction on trust land would potentially impact state-listed species or nesting raptors.

Streambed Alteration Agreement (Section 1602)

California Fish and Game Code Section 1602 requires notification of CDFW before beginning any off-reservation activities that obstruct or divert the natural flow of an off-reservation river, stream, or lake; change or use of any material from the bed, channel, or bank of an off-reservation river, stream, or lake; or deposit or disposal of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into an off-reservation river, stream, or lake. California Fish and Game Code Section 1602 applies to all off-reservation perennial, intermittent, and ephemeral rivers, streams, and lakes in the state.

Oak Woodlands Conservation Act

The Oak Woodlands Conservation Act provides that counties shall determine whether an off-reservation project within its jurisdiction may result in a conversion of oak woodlands that would have a potentially significant impact on the environment. If Yolo County (the County) determines that there may be a significant impact on off-reservation oak woodlands from the Proposed Project, the County shall require oak woodlands mitigation measures to mitigate the significant impact of the off-reservation conversion of oak woodlands. The County has not yet adopted any oak woodland protection policy or ordinance or a Habitat Conservation Plan (HCP).

County of Yolo 2030 Countywide General Plan

The *County of Yolo 2030 Countywide General Plan* (General Plan), adopted in 2009, is the guiding document for development in the unincorporated areas of the County, including the off-reservation properties in the vicinity of the Proposed Project (Yolo County, 2009a). The General Plan does not apply to trust land or to the Proposed Project itself. Policies in the General Plan that are relevant to the off-reservation biological resources in the vicinity of the Proposed Project include the following.

Conservation and Open Space Element

Goal CO-1: Natural Open Space. Provide a diverse, connected, and accessible network of open space, to enhance natural resources and their appropriate use.

Policy CO-1.1: Expand and enhance an integrated network of open space to support recreation, natural resources, historic and tribal resources, habitat, water management, aesthetics, and other beneficial uses.

Goal CO-2: Biological Resources. Protect and enhance biological resources through the conservation, maintenance, and restoration of key habitat areas and corresponding connections that represent the diverse geography, topography, biological communities, and ecological integrity of the landscape.

Policy CO-2.1: Consider and maintain the ecological function of landscapes, connecting features, watersheds, and wildlife movement corridors.

Policy CO-2.3: Preserve and enhance those biological communities that contribute to the county's rich biodiversity including blue oak and mixed oak woodlands, native grassland prairies, wetlands, riparian areas, aquatic habitat, agricultural lands, heritage valley oak trees, remnant valley oak groves, and roadside tree rows.

Policy CO-2.9: Protect riparian corridors to maintain and balance wildlife values.

Policy CO-2.10: Encourage the restoration of native habitat.

Policy CO-2.11: Ensure that open space buffers are provided between sensitive habitat and planned development.

Policy CO-2.16: Existing native vegetation shall be conserved where possible and integrated into new development if appropriate.

Policy CO-2.31: Protect wetland ecosystems by minimizing erosion and pollution from grading, especially during grading and construction projects.

Policy CO-2.38: Avoid adverse impacts to wildlife movement corridors and nursery sites (e.g., nest sites, dens, spawning areas, breeding ponds). Preserve the functional value of movement corridors to ensure that essential habitat areas do not become isolated from one another due to the placement of either temporary or permanent barriers within the corridors. Encourage avoidance of nursery sites (e.g., nest sites, dens, spawning areas, breeding ponds) during periods when the sites are actively used and that nursery sites which are used repeatedly over time are preserved to the greatest feasible extent or fully mitigated if they cannot be avoided.

Policy CO-2.39: Require new or retrofitted bridges, and new or expanded roads to incorporate design and construction measures to maintain the functional value of wildlife movement corridors.

Policy CO-2.40: Preserve grassland habitat within 2,100 feet of documented California tiger salamander [CTS] breeding ponds or implement required mitigation (equivalent or more stringent) as imposed by appropriate agencies or through the County HCP/Natural Community Conservation Plan (NCCP), to fully mitigate impacts consistent with local, State, and federal requirements. Implementation and funding of mitigation measures for projects that will be developed in phases over time may also be phased, with the

applicable mitigation being implemented and funded prior to the final approval of each phase or sub-phase.

Policy CO-2.41: Require that impacts to species listed under the State or federal Endangered Species Acts, or species identified as special-status by the resource agencies, be avoided to the greatest feasible extent. If avoidance is not possible, fully mitigate impacts consistent with applicable local, State, and Federal requirements.

Policy CO-2.42: Projects that would impact Swainson's hawk foraging habitat shall participate in the Agreement Regarding Mitigation for Impacts to Swainson's Hawk Foraging Habitat in Yolo County entered into by the CDFW and the Yolo County HCP/NCCP Joint Powers Authority [JPA], or satisfy other subsequently adopted mitigation requirements consistent with applicable local, State, and federal requirements.

Capay Valley Area Plan

The *Capay Valley Area Plan*, adopted in December 2010 as a component of the General Plan, establishes the following policies relevant to off-reservation biological resources (Yolo County, 2010). *The Capay Valley Area Plan* does not apply to trust land or to the Proposed Project itself.

Conservation and Natural Resource Policies

Goal 4: Enhance the quality and conserve the quantity of groundwater, creek water, and run-off waters in the Cache Creek watershed.

Policy 2: A "green belt" consisting of vegetative buffer strips along Cache Creek shall be encouraged when possible to provide shade, wildlife habitat, or maintain stability of stream banks.

Implementation Measure 2: Tree and brush planting, as well as invasive plant species removal, shall be developed as a tool for accomplishing the creek stabilization task.

Implementation Measure 3: The County shall encourage active revegetation and bank stabilization programs along roadways.

Policy 3: The County shall continue efforts to manage Cache Creek and water resources and to encourage the long-range stewardship of Cache Creek as a renewable resource.

Implementation Measure 1: The County shall ensure that projects involving drainage modifications shall be constructed so as to minimize soil erosion and silt transport.

Goal 6: Preserve special-status species habitat including oak woodland, seasonal wetlands, vernal pools, riparian corridors, and watersheds.

Policy 1: Practices that disturb natural habitat in wetlands, riparian corridors, and watersheds shall be prohibited so as to minimize erosion and maximize beneficial vegetative growth, unless it can be shown that public health and safety depend upon such diversion. All intermittent streams and Cache Creek shall have policies equal in effectiveness.

Implementation Measure 1: The County shall support the concept of reestablishing wildlife habitat areas that have, over the years, been destroyed.

Implementation Measure 2: The County shall support awareness of public agencies that have been established for the protection of biological resources.

Policy 2: The protection of wildlife areas is an important element of the plan, inasmuch as it contributes to three other open space objectives: (1) conservation of open space; (2) support for the Valley's scenic beauty; (3) preservation of the natural watershed.

Goal 7: Maintain the natural diversity of the wildlife and vegetation within the Capay Valley Planning Area.

Policy 1: Diversion of natural water sources, which creates a negative impact on wildlife habitat, shall be prohibited.

Implementation Measure 1: Encourage studies to clearly define and delineate areas presently affecting wildlife habitat.

Draft Yolo County Habitat Conservation Plan/Natural Community Conservation Plan

The Yolo Habitat Conservancy (YHC), formerly known as the Yolo County HCP/NCCP JPA, oversees the planning and preparation of the Yolo NCCP. The JPA was originally formed in 2002 for the purpose of acquiring off-reservation conservation easements, as well as to serve as the lead agency for preparation of a joint state NCCP and federal Heritage Conservation Plan for off-reservation lands in Yolo County. The cities of Davis, West Sacramento, Winters, and Woodland all jointly participate in the YHC with the County.

The second administrative draft of the Yolo County HCP/NCCP was released in March 2015. The administrative draft HCP/NCCP covers 15 natural communities, in addition to 12 endangered and threatened species. It is intended to provide a framework for the conservation of these species and communities while allowing for continued growth and development of the County's urban and rural regions by streamlining the permitting process for planned development, infrastructure, and maintenance activities. In place of the current system of separately permitting and mitigating individual projects, the HCP/NCCP, if adopted, proposes to create a countywide mitigation and conservation program that comprehensively coordinates the implementation of permit requirements.

Yolo Local Conservation Plan

The Yolo Local Conservation Plan was developed to conserve species and natural communities of local concern which are not covered in the HCP/NCCP (YHC, 2016). The Yolo Local Conservation Plan provides a voluntary, non-regulatory framework in conjunction with the HCP/NCCP for the overall protection of natural resources within Yolo County, while allowing for continued rural and urban development in the region (CDFW, 2015).

Town of Esparto General Plan

The *Town of Esparto General Plan*, adopted in 2007, establishes the following policies relevant to off-reservation biological resources (Yolo County, 2007). The *Town of Esparto General Plan* does not apply to trust land or to the Proposed Project itself.

Conservation Goals, Policies, and Programs

Goal 1: To protect the town's natural, cultural, visual, and historical resources.

Policy E-R.3: Development projects involving drainage modifications should be constructed so as to minimize soil erosion and silt transport.

3.4.2 ENVIRONMENTAL SETTING

REGIONAL SETTING

The Proposed Project site is located within the Inner North Coast Ranges geographic subdivision of California (Hickman, 1993). The climate is Mediterranean, characterized by hot, dry summers and cool, moist winters. Rainfall averages 19.02 inches per year, with an average annual high temperature of 75.7 degrees Fahrenheit (°F) and an average annual low temperature of 44.7 °F (WRCC, 2007). Rural residences are scattered throughout the Capay Valley. Oak woodland habitat and a small area of chaparral are adjacent to the eastern border of the Proposed Project site; the Yocha Dehe Golf Club and Cache Creek are located farther east. A riparian corridor extends along both sides of Cache Creek. Oak woodland and agriculture are located north of the Proposed Project site. Located west of the Proposed Project site are State Route (SR)-16, the Tribe's Séka Hills Olive Mill, and additional agriculture uses on the Tribe's Ponotla Piht property. The approximately 213-acre Thlo property owned by the Tribe is adjacent to the Proposed Project site to the south. The Thlo property consists of oak savannah, with large areas of annual grassland that have been heavily grazed. Detailed descriptions of habitat types existing in the off-reservation vicinity of the Proposed Project site are presented below.

Soils in the off-reservation vicinity of the Proposed Project site are primarily formed from mixed alluvium (NRCS, 2016). Most soils are well-drained loam, clay, and silty clay loam. No volcanic or serpentine soils are present (NRCS, 2016). Soil series present on the Proposed Project site and the off-reservation vicinity include Balcom, Tehama, and Sehorn. A more detailed discussion of soils is included in **Section 3.12**, **Geology, Soils, and Mineral Resources**.

HABITATS

A habitat type is defined as a system supporting a similar and somewhat predictable set of plants and animals, and is described based on dominant vegetation, wildlife, and structure. Seven major habitat types are present in the off-reservation vicinity of the Proposed Project site: ruderal/developed, annual grassland, oak savannah, oak woodland, agriculture, riparian woodland, and chaparral. To better understand the ecological relationships of common plant and animal species occurring in the off-reservation vicinity of the Proposed Project site, these habitats have been classified, where applicable, according to the natural communities in the Holland system (Holland, 1986), and vegetation series in Sawyer and Keeler-Wolf's *A Manual of California Vegetation* (1995). Habitat descriptions include common plant and wildlife species observed or expected to be associated with each habitat type. Photographs of the various habitat types are presented in **Figure 3.4-1a** and **Figure 3.4-1b**. The following is a summary and description of each habitat type within the surrounding off-reservation areas and along the areas proposed for traffic mitigation related to the Proposed Project.

Ruderal/Developed

Ruderal/developed habitat includes anthropogenic features such as buildings, roads, parking lots, and other structures, and the typically highly disturbed vegetation communities associated with these features. Ruderal/developed habitat does not correspond with any natural community in the Holland system (Holland, 1986), or any vegetation series in Sawyer and Keeler-Wolf's *A Manual of California Vegetation* (1995). Vegetation associated with ruderal/developed habitat in the off-reservation vicinity of the Proposed Project site includes horticultural plants used in landscaping and communities of exotic and invasive roadside weeds such as medusahead grass (*Taeniatherum caput-medusae*), yellow star-thistle (*Centaurea solstitialis*), and broad-leaf pepper grass (*Lepidium latifolium*) along SR-16.

Ruderal/developed habitat is found around buildings and structures, along roads and paved surfaces, and in other landscaped areas. A photograph of ruderal/developed habitat in the off-reservation vicinity of the Proposed Project is presented as **Photo 1** in **Figure 3.4-1a**.

Annual Grassland

Annual grassland is characterized by a lack of shrubs and trees and an abundance of grasses and forbs. This habitat corresponds to "non-native grassland" (42200) in the Holland system (Holland, 1986), and "California annual grassland series" in Sawyer and Keeler-Wolf's *A Manual of California Vegetation* (1995). The grasses and forbs found in annual grassland typically live for less than one year before producing seeds and dying. Several occurrences of annual grassland are present in the off-reservation vicinity of the Proposed Project site, and most of it is heavily grazed by cattle. A photograph of annual grassland in the vicinity of the off-reservation traffic mitigation areas is presented as **Photo 2** in **Figure 3.4-1a**. Dominant grass species observed in annual grassland in the off-reservation vicinity of the Proposed Project site include barley (*Hordeum murinum*), ryegrass (*Lolium multiflorum*), medusahead grass, wild oat (*Avena fatua*), ripgut brome (*Bromus diandrus*), and soft brome (*Bromus hordeaceus*).

PHOTO 1: Ruderal/Developed.

PHOTO 2: Annual Grassland.

PHOTO 3: Oak Savannah.

PHOTO 4: Oak Woodland.

SOURCE: AES, 2016

Figure 3.4-1a
Habitat Types Within the Project Vicinity

PHOTO 5: Agriculture.

PHOTO 6: Riparian Woodland.

PHOTO 7: Chaparral.

SOURCE: AES, 2016

Figure 3.4-1b
Habitat Types Within the Project Vicinity

Forb species observed in annual grassland include bur clover (*Medicago polymorpha*), rose clover (*Trifolium hirtum*), morning glory (*Convolvulus arvensis*), Italian thistle (*Carduus pycnocephalus*), and yellow star-thistle.

Oak Savannah

Oak savannah consists of oak trees that are scattered over a large area, typically within swales or drainages. Large areas of annual grassland are present between oak trees. This community corresponds to "blue oak woodland" (71140) in the Holland system (Holland, 1986), and the "blue oak series" in Sawyer and Keeler-Wolf's *A Manual of California Vegetation* (1995). Oak savannah in the off-reservation vicinity of the Proposed Project site is located primarily to the south, although some is located to the north and east, adjacent to oak woodland habitat. A photograph of oak savannah in the off-reservation vicinity of the Proposed Project site is presented as **Photo 3** in **Figure 3.4-1a**. The only tree species occurring within oak savannah in the off-reservation vicinity of the Proposed Project site is blue oak (*Quercus douglasii*). Oak savannah typically provides excellent foraging habitat for many raptor species, especially when the topography is flat. Plant species found within oak savannah are very similar to those found in annual grassland. Animal species typically found in oak savannah in the off-reservation vicinity of the Proposed Project site include great horned owl (*Bulbo virginianus*), Swainson's hawk (*Buteo swainsoni*), turkey vulture (*Carthartes aura*), mourning dove (*Zenaida macroura*), red fox (*Vulpes vulpes*), black-tailed jackrabbit (*Lepus californicus*), tree squirrel (*Sciurus* sp.), western rattlesnake (*Crotalus oreganus*), and western fence lizard (*Sceloporus occidentalis*).

Oak Woodland

Oak woodland contains oak trees that are spaced closer together than those in oak savannah, and may also feature a shrub understory. This community corresponds to "cismontane woodlands" (71000) in the Holland system (Holland, 1986), and the "mixed oak series" in Sawyer and Keeler-Wolf's *A Manual of California Vegetation* (1995). Oak woodland is present off-reservation to the east and north of the Proposed Project site. Overstory species in the off-reservation vicinity of the Proposed Project site include blue oak and grey pine (*Pinus sabiniana*). Understory shrub species include chamise (*Adenostoma fasciculatum*), toyon (*Heteromeles arbutifolia*), manzanita (*Arctostaphylo*s sp.), and mountain mahogany (*Cercocarpus betuloides*). Oak woodland is present to the east and northeast of the Proposed Project site. A photograph of oak woodland northeast of the Proposed Project site is presented as **Photo 4** in **Figure 3.4-1a**.

Agriculture

Agriculture habitat typically consists of a single species of plant, cultivated in parallel rows. Agriculture does not correspond with any natural community in the Holland system (Holland, 1986), or any vegetation series in Sawyer and Keeler-Wolf's *A Manual of California Vegetation* (1995). Agriculture may or may not be irrigated, depending upon the crop. Agriculture in the off-reservation vicinity of the Proposed Project site consists of vineyards, orchards, and row crops. A photograph of agriculture west of the Proposed Project site, on the Ponotla Piht property, is presented as **Photo 5** in **Figure 3.4-1b**.

Agriculture provides habitat for various mammal species, especially rodents, and also birds, snakes, and other reptiles. Agriculture with low-growing plant species provides foraging habitat for raptors. Agriculture is the dominant habitat type in the off-reservation vicinity of the Proposed Project site (see **Figure 3.3-1**). The floor of Capay Valley to the west of the Proposed Project site is comprised almost entirely of agriculture, with additional agriculture to the north, east, and south of the Proposed Project site.

Riparian Woodland

Riparian woodland is located adjacent to drainages. This community corresponds to "riparian forests" (61000) in the Holland system (Holland, 1986), and "riparian forest and woodland" in Sawyer and Keeler-Wolf's *A Manual of California Vegetation* (1995). Cache Creek and several seasonal drainages are located in the off-reservation vicinity of the Proposed Project site. Cache Creek is a perennial drainage with the largest area of riparian woodland in the off-reservation vicinity. Cache Creek flows along the eastern boundary of the Yocha Dehe Golf Club located 0.75 miles east of the Proposed Project site. A photograph of riparian woodland along Cache Creek is shown in **Photo 6** in **Figure 3.4-1b**. Smaller drainages and areas of riparian woodland exist throughout agricultural fields to the west and south of the Proposed Project site. Tree species found in riparian woodland in the off-reservation vicinity of the Proposed Project site include valley oak (*Quercus lobata*), blue elderberry (*Sambucus mexicana*), tamarisk (*Tamarisk parviflora*), Fremont's cottonwood (*Populus fremontii* ssp. *fremontii*), California black walnut (*Juglans californica*), and buckeye (*Aesculus californica*). Shrub and vine species found in riparian woodland include toyon, poison oak (*Toxicodendron diversilobum*), wild grape (*Vitis californica*), Dutchman's pipe (*Aristolochia californica*), California blackberry (*Rubus ursinus*), Himalayan blackberry (*Rubus armeniacus*), and wild rose (*Rosa californica*). Grasses, forbs, and perennials found in riparian woodland include ryegrass, ripgut brome, wild oat, barley, English plantain (*Plantago lanceolata*), common horehound (*Marrubium vulgare*), mugwort (*Artemisia douglasiana*), and yellow star-thistle.

Chaparral

Chaparral typically consists of herbaceous grasses and forbs with an overstory of shrubs. This community corresponds to "chaparral" (37000) in the Holland system (Holland, 1986), and "chamise series" in Sawyer and Keeler-Wolf's *A Manual of California Vegetation* (1995). Plant species found in chaparral habitat in the off-reservation vicinity of the Proposed Project site include chamise, toyon, manzanita, mountain mahogany, wild oat, Italian thistle, common yarrow (*Achillea millefolium*), bedstraw (*Galium* sp.), red brome (*Bromus madritensis* ssp. *rubens*), ripgut brome, vetch (*Vicia* sp.), and rose clover. A small area of chaparral habitat is present adjacent to the northeastern border of the Proposed Project site. A photograph of chaparral northwest of the Proposed Project site is presented as **Photo 7** in **Figure 3.4-1b**.

SPECIAL-STATUS SPECIES

For the purposes of this Draft Tribal Environmental Impact Report (TEIR), "off-reservation special-status species" has been defined to include those species that are:

- Listed as endangered or threatened under FESA (or formally proposed for, or candidates for, listing);
- Listed as endangered or threatened under CESA (or proposed for listing);
- Designated as endangered or rare, pursuant to California Fish and Game Code §1901;
- Designated as fully protected, pursuant to California Fish and Game Code §3511, §4700, and §5050;
- Designated as species of concern to the CDFW;
- Defined as rare or endangered under the California Environmental Quality Act (CEQA);
- Rare according to the California Native Plant Protection Act; or
- Considered by the California Native Plant Society (CNPS) to be "rare, threatened, or endangered in California" (Lists 1B and 2).

Off-reservation special-status species with the potential to occur in the off-reservation vicinity of the Proposed Project site were identified based upon a review of pertinent literature, aerial photographs, topographic maps, and special-status species lists from the USFWS, California Native Diversity Database (CNDDB), and CNPS (**Appendix H**). The CNDDB list was developed by querying the database for special-status species records within the "Brooks, California" 7.5-minute quadrangle and the eight surrounding quadrangles. The CNPS list was obtained by querying the online inventory of *Rare and Endangered Plants* (CNPS, 2014) for special-status species records within the "Brooks, California" 7.5-minute quadrangle and the eight surrounding quadrangles. The USFWS Information for Planning and Conservation list was generated for the area surrounding the Proposed Project site and potential areas for off-reservation traffic mitigation (see **Figure 3.1-1**). **Table 3.4-1** lists the name, regulatory status, distribution, habitat requirements, and potential to occur for each of the potential regionally occurring special-status species identified in these USFWS, CNDDB, and CNPS species lists.

For each species, the habitat requirements were assessed and compared with the habitats present in the off-reservation vicinity of the Proposed Project site and traffic mitigation areas. Special-status species with the potential to be found in the off-reservation vicinity of the Proposed Project site or potential traffic mitigation areas are discussed in more detail following the table. Species that are not addressed below were determined to have no potential to occur in the off-reservation vicinity of the Proposed Project site or potential traffic mitigation areas based upon elevational distribution, specific habitat requirements, soil requirements, and other criteria. Based upon this review, the off-reservation vicinity of the Proposed Project site and potential traffic mitigation areas represents potential habitat for seven special-status animal species and nine special-status plant species. For all species discussed, CNDDB records within 10 miles of the Proposed Project site were evaluated to identify patterns of distribution, abundance and habitat use, and to better assess the potential of these species to occur in the off-

TABLE 3.4-1
POTENTIALLY OCCURRING SPECIAL-STATUS SPECIES

Scientific Name **Common Name**	**Federal / State / CNPS List**	**Distribution**	**Habitat Requirements**	**Period of Identification**	**Potential to Occur On Site**
Plants					
Amorpha californica var. *napensis* Napa false indigo	--/--/1B.2	Known to occur in Monterey, Marin, Napa, and Sonoma Counties.	Found in broad-leafed upland forest (openings), chaparral, and cismontane woodland habitats. Elevations range from 120 to 2000 meters.	April-July	**No.** Suitable habitat for this species does not occur near the Proposed Project site or areas of off-reservation impacts.
Astragalus claranus Clara Hunt's milk-vetch	FE/CT/1B.1	Known to occur in Napa and Sonoma Counties.	Found in chaparral (openings), cismontane woodland, and valley and foothill grassland habitats. Found in serpentinite or volcanic, rocky, and clay soils. Elevations range from 75 to 275 meters.	March-May	**No.** Suitable habitat for this species does not occur near the Proposed Project site or areas of off-reservation impacts.
Astragalus rattanii var. jepsonianus Jepson's milk-vetch	--/--/1B.2	Known to occur in Colusa, Glenn, Lake, Napa, Tehama, and Yolo Counties.	Found in chaparral, cismontane woodland, valley and foothill grassland (often serpentinite). Elevations range from 320 to 700 meters.	March-June	**No.** Suitable habitat for this species does not occur near the Proposed Project site or areas of off-reservation impacts.
Astragalus tener var. *tener* Alkali milk-vetch	--/--/1B.2	Known to occur in Alameda, Contra Costa, Merced, Monterey, Napa, San Benito, Santa Clara, San Francisco, San Joaquin, Solano, Sonoma, Stanislaus, and Yolo Counties. However, it is presumed extirpated from Contra Costa, Monterey, San Benito, Santa Clara, San Francisco, San Joaquin, Sonoma, and Stanislaus Counties.	Found in alkaline soils and in playas, valley and foothill grassland (adobe clay), and vernal pools. Elevations range from 1 to 60 meters.	March-June	**Yes.** Appropriate habitat for this species may occur in areas of off-reservation impacts.
Astragalus tener var. ferrisiae Ferris' milk-vetch	--/--/1B.1	Known to occur in Butte, Colusa, Glenn, Solano, Sutter, and Yolo Counties. However, this species is presumed extirpated from Solano County.	Found in meadows and seeps (vernally mesic), and valley and foothill grassland (subalkaline flats). Elevations range from 2 to 75 meters.	April-May	**No.** Suitable habitat for this species does not occur near the Proposed Project site or areas of off-reservation impacts.
Atriplex cordulata var. *cordulata* Heartscale	--/--/1B.2	Known to occur in Alameda, Butte, Contra Costa, Colusa, Fresno, Glenn, Kern, Madera, Merced, San Joaquin, San Luis Obispo, Solano, Stanislaus, Tulare, and Yolo Counties. However, this species is presumed extirpated from	Found in saline or alkaline soils and in chenopod scrub, meadows and seeps, and valley and foothill grassland habitats. Elevations range from 0 to 560 meters.	April-October	**No.** Suitable habitat for this species does not occur near the Proposed Project site or areas of off-reservation impacts.

Scientific Name **Common Name**	**Federal / State / CNPS List**	**Distribution**	**Habitat Requirements**	**Period of Identification**	**Potential to Occur On Site**
		San Joaquin, Stanislaus, and Yolo Counties.			
Atriplex depressa Brittlescale	--/--/1B.2	Known to occur in Alameda, Contra Costa, Colusa, Fresno, Glenn, Kern, Merced, Solano, Stanislaus, Tulare, and Yolo Counties.	Found in alkaline, clay soils, and in chenopod scrub, meadows and seeps, playas, valley and foothill grassland, and vernal pool habitats. Elevations range from 1 to 320 meters.	April-October	**Yes.** Appropriate habitat for this species may occur in areas of off-reservation impacts.
Brodiaea leptandra Narrow-anthered California brodiaea	--/--/1B.2	Known to occur in Lake, Napa, and Sonoma Counties.	Found in broad-leafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, and valley and foothill grassland habitats. Found in volcanic soil. Elevations range from 110 to 915 meters.	May-July	**No.** Suitable habitat for this species does not occur near the Proposed Project site or areas of off-reservation impacts.
California macrophylla Round-leaved filaree	--/--/1B.2	Known to occur in Alameda, Butte (though may be extirpated/ uncertain), Contra Costa, Colusa, Fresno, Glenn, Kings, Kern, Lake, Lassen, Los Angeles, Merced, Monterey, Napa, Riverside, Santa Barbara, San Benito, Santa Clara, Santa Cruz Island (though may be extirpated), San Diego, San Joaquin, San Luis Obispo, San Mateo, Solano, Sonoma, Stanislaus, Tehama, Ventura, and Yolo Counties. Also occurs in Baja California and Oregon.	Cismontane woodland and valley and foothill grassland/clay. Elevations range from 15 to 1,200 meters	March-May	**Yes.** Appropriate habitat for this species may occur in areas of off-reservation impacts.
Castilleja rubicundula ssp. *rubicundula* Pink creamsacs	--/--/1B.2	Butte, Colusa, Glenn, Lake, Napa, Santa Clara, and Shasta Counties. Geographical range is limited to the Inner North Coast Range region.	Suitable habitat includes chaparral, cismontane woodland, meadows, seeps, and valley and foothill grassland in serpentine soils; elevations 20-900 meters.	April-June	**No.** Suitable habitat for this species does not occur near the Proposed Project site or areas of off-reservation impacts.
Chloropyron palmatum Palmate-bracted bird's-beak	FE/CE/1B.1	Known to occur in Alameda, Colusa, Fresno, Glenn, Madera, San Joaquin, and Yolo Counties. However, this species is presumed extirpated from San Joaquin County.	Found in alkaline soils in chenopod scrub, and valley and foothill grassland habitats. Elevations range from 5-155 meters.	May-October	**Yes.** Appropriate habitat for this species may occur in areas of off-reservation impacts.
Cryptantha dissita Serpentine cryptantha	--/--/1B.2	Known to occur in Lake, Mendocino, Napa and Sonoma Counties.	Found in chaparral (serpentinite). Elevations range from 395-580 meters.	April-June	**No.** Suitable habitat for this species does not occur near the

Scientific Name Common Name	Federal / State / CNPS List	Distribution	Habitat Requirements	Period of Identification	Potential to Occur On Site
					Proposed Project site or areas of off-reservation impacts.
Erigeron greenei Greene's narrow-leaved daisy	--/--/1B.2	Known to occur in Lake, Napa, and Sonoma Counties.	Found in chaparral habitats on serpentine or volcanic soils. Elevations range from 80-190 meters.	May-September	**No.** Suitable habitat for this species does not occur near the Proposed Project site or areas of off-reservation impacts.
Eriogonum nervulosum Snow Mountain buckwheat	--/--/1B.2	Known to occur in Colusa, Glenn, Lake, Napa, Sonoma, and Yolo Counties.	Perennial rhizomatous herb found in chaparral (serpentinite). Elevation range: 300-2105 meters.	June-September	**No.** Suitable habitat for this species does not occur near the Proposed Project site or areas of off-reservation impacts.
Extriplex joaquinana San Joaquin spearscale	--/--/1B.2	Known to occur in Alameda, Contra Costa, Colusa, Fresno, Glenn, Merced, Monterey, Napa, San Benito, Santa Clara, San Joaquin, San Luis Obispo, Solano, Tulare, and Yolo Counties. However, this species is presumed extirpated in Santa Clara, San Joaquin, and Tulare Counties, and its presence is unconfirmed in San Luis Obispo and Tulare Counties.	Found in alkaline soils and in chenopod scrub, meadows and seeps, playas, and valley and foothill grassland habitats. Elevations range from 1-835 meters.	April-October	**Yes.** Appropriate habitat for this species may occur in areas of off-reservation impacts.
Fritilaria pluriflora Adobe lily	--/--/1B.2	Know to occur in Butte, Colusa, Glenn, Lake, Napa, Solano, Tehama, and Yolo Counties.	Chaparral, cismontane woodland, and Valley and foothill grassland (often adobe). Elevations; 60 to 705 meters.	February-April	**Yes.** Appropriate habitat for this species may occur in areas of off-reservation impacts.
Harmonia hallii Hall's harmonia	--/--/1B.2	Known to occur in Colusa, Lake, Napa, and Yolo Counties.	Found in chaparral (serpentinite). Elevations range from 500-975 meters.	April-June	**No.** Suitable habitat for this species does not occur near the Proposed Project site or areas of off-reservation impacts.
Hesperolinon bicarpellatum Two-carpellate western flax	--/--/1B.2	Known to occur in Lake, Napa, and Sonoma Counties.	Found in chaparral habitats and serpentinite soils. Elevations range from 60 to 1,005 meters.	May-July	**No.** Suitable habitat for this species does not occur near the Proposed Project site or areas of off-reservation impacts.
Hesperolinon breweri Brewer's western flax	--/--/1B.2	Known to occur in Contra Costa, Napa, and Solano Counties.	Annual herb found in chaparral habitats on serpentinite substrate. Elevations range from 30 to 945 meters.	May-July	**No.** Suitable habitat for this species does not occur near the Proposed Project site or areas of off-reservation impacts.
Hesperolinon drymarioides	--/--/1B.2	Known to occur in Colusa, Glenn, Lake, Napa, and Yolo Counties.	Annual herb found on serpentinite soils in chaparral, valley grassland, foothill	May-August	**No.** Suitable habitat for this species does not occur near the

Scientific Name **Common Name**	**Federal / State / CNPS List**	**Distribution**	**Habitat Requirements**	**Period of Identification**	**Potential to Occur On Site**
Drymaria-like western flax			woodland, and closed-cone pine forest. Elevations range from 30 to 945 meters.		Proposed Project site or areas of off-reservation impacts.
Hesperolinon sharsmithiae Sharsmith's western flax	--/--/1B.2	Known to occur in Lake and Napa Counties.	Annual herb found in chaparral habitats on serpentinite substrate. Elevations range from 270 to 300 meters.	May-July	**No.** Suitable habitat for this species does not occur near the Proposed Project site or areas of off-reservation impacts.
Hibiscus lasiocarpos var. *occidentalis* Wooly rose-mallow	--/--/1B.2	Known to occur in Butte, Contra Costa, Colusa, Glenn, Sacramento, San Joaquin, Solano, Sutter, and Yolo Counties.	Found in marshes and swamps (freshwater) and often in riprap on the sides of levees. Elevations range from 0 to 120 meters.	June-September	**No.** Suitable habitat for this species does not occur near the Proposed Project site or areas of off-reservation impacts.
Layia septentrionalis Colusa layia	--/--/1B.2	Known to occur in Colusa, Glenn, Lake, Mendocino, Napa, Sonoma, Sutter, Tehama, and Yolo Counties.	Found in chaparral, cismontane woodland, valley and foothill grassland habitats. Found in serpentinite soils. Elevations range from 100 to 1,095 meters.	April-May	**No.** Suitable habitat for this species does not occur near the Proposed Project site or areas of off-reservation impacts.
Lepidium latipes var. *heckardii* Heckard's pepper-grass	--/--/1B.2	Known to occur in Glenn, Merced, Sacramento, Solano, and Yolo Counties.	Found in valley and foothill grassland (alkaline flats). Elevations range from 2 to 200 meters.	March-May	**No.** Suitable habitat for this species does not occur near the Proposed Project site or areas of off-reservation impacts.
Leptosiphon jepsonii Jepson's leptosiphon	--/--/1B.2	Known to occur in Lake, Napa, and Sonoma counties.	Found in chaparral and cismontane woodland habitats. Usually found in volcanic soils. Elevations range from 100 to 500 meters.	March-May	**No.** Suitable habitat for this species does not occur near the Proposed Project site or areas of off-reservation impacts.
Navarretia leucocephala ssp. *bakeri* Baker's navarretia	--/--/1B.1	Known to occur in Colusa, Glenn, Lake, Lassen, Mendocino, Marin, Napa, Solano, Sonoma, Sutter, Tehama, and Yolo counties.	Found in cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland, and vernal pools habitats. Elevations range from 5 to 1,740 meters.	April-July	**Yes.** Appropriate habitat for this species may occur in areas of off-reservation impacts.
Navarretia rosulata Marin County navarretia	--/--/1B.2	Known to occur in Napa and Marin Counties.	Annual herb found in serpentinite and rocky closed-cone coniferous forest and chaparral. Elevations range from 200 to 635 meters.	May-July	**No.** Suitable habitat for this species does not occur near the Proposed Project site or areas of off-reservation impacts.
Plagiobothrys hystriculus Bearded popcorn-flower	--/--/1B.1	Known to occur in Napa, Solano, and Yolo Counties.	Often found in vernal swales. Also found in valley and foothill grassland (mesic), and vernal pool margin habitats. Elevations range from 0 to 274 meters.	April-May	**No.** This species' range is extremely limited and only found in the Montezuma Hills near the Sacramento River Delta.

Scientific Name **Common Name**	**Federal / State / CNPS List**	**Distribution**	**Habitat Requirements**	**Period of Identification**	**Potential to Occur On Site**
Puccinellia simplex California alkali grass	--/--/1B.2	Known to occur in Alameda, Butte, Contra Costa, Colusa, Fresno, Glenn, Kings, Kern, Lake, Los Angeles, Madera, Merced, Napa, San Bernardino, Santa Clara, Santa Cruz, San Luis Obispo, Solano, Stanislaus, Tulare, and Yolo Counties.	An annual herb found in alkaline, vernally mesic sinks, flats, and lake margins. Also, chenopod scrub, meadows and seeps, valley and foothill grassland, and vernal pools. Elevations range from 2 to 930 meters.	March-May	**Yes.** Appropriate habitat for this species may occur in areas of off-reservation impacts.
Sidalcea keckii Keck's checkerbloom	--/--/1B.1	Known to occur in Colusa, Fresno, Merced, Napa, Solano, Tulare, and Yolo Counties.	Found in serpentine clays in cismontane woodland and valley and foothill grassland. Elevations range from 75 to 650 meters.	April-June	**No.** Suitable habitat for this species does not occur near the Proposed Project site or areas of off-reservation impacts.
Streptanthus hesperidis Green jewel-flower	--/--/1B.2	Known from Glenn, Lake, Napa, and Sonoma Counties.	Found in chaparral (openings) and cismontane woodland habitats. Found in serpentinite, rocky soils. Elevations range from 130 to 760 meters.	May-July	**No.** Suitable habitat for this species does not occur near the Proposed Project site or areas of off-reservation impacts.
Streptanthus morrisonii ssp. *Elatus* Three Peaks jewelflower	--/--/1B.2	Found in Lake, Napa, and Sonoma Counties.	Found in chaparral/serpentine soils. Elevations range from 90 to 815 meters.	June-September	**No.** Suitable habitat for this species does not occur near the Proposed Project site or areas of off-reservation impacts.
Streptanthus morrisonii ssp. *Kruckebergii* Kruckeberg's jewelflower	--/--/1B.2	Found in Lake, Napa, and Sonoma Counties.	Found in chaparral/serpentine soils. Elevations range from 215 to 1,035 meters.	April-July	**No.** Suitable habitat for this species does not occur near the Proposed Project site or areas of off-reservation impacts.
Trifolium hydrophilum Saline clover	--/--/1B.2	Known to occur in Alameda, Contra Costa, Colusa, Lake, Monterey, Napa, Sacramento, San Benito, Santa Clara, Santa Cruz, San Joaquin, San Luis Obispo, San Mateo, Solano, Sonoma, and Yolo Counties. However, this species is unconfirmed in Colusa County.	Found in marshes and swamps, valley and foothill grassland (mesic, alkaline), and vernal pools. Elevations range from 0 to 300 meters.	April-June	**Yes.** Appropriate habitat for this species may occur in areas of off-reservation impacts.

Scientific Name **Common Name**	**Federal / State / CNPS List**	**Distribution**	**Habitat Requirements**	**Period of Identification**	**Potential to Occur On Site**
Amphibians					
Ambystoma californiense California tiger salamander	FT/CSC/--	Occurs in Alameda, Butte, Contra Costa, Fresno, Glenn, Kern, Madera, Merced, Monterey, Sacramento, San Benito, San Joaquin, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Solano, Sonoma, Stanislaus, Tulare, and Yolo Counties.	Occurs in vernal pools, ephemeral wetlands, and seasonal ponds, including constructed stock ponds, in grassland and oak savannah plant communities. Elevations range from 0 to 460 meters.	November-February (adults) March 15-May15 (larvae)	**Yes.** The stream crossings in the off-reservation impact areas may provide habitat for this species.
Rana boylii Foothill yellow-legged frog	--/CSC/--	Known from California and Oregon.	Requires shallow, flowing water in moderate-sized streams with some cobble substrate.	November-March (breeding) June-August (non-breeding)	**Yes.** The stream crossings in the off-reservation impact areas may provide habitat for this species.
Rana aurora draytonii California red-legged frog	FT/CSC/--	Known to occur along the coast from Mendocino County to Baja California and inland through the northern Sacramento Valley into the foothills of the Sierra Nevada, south to eastern Tulare County, and possibly eastern Kern County. Currently accepted range excludes the Central Valley.	Occurs in permanent and temporary pools of streams, marshes, and ponds with dense grassy and/or shrubby vegetation. Elevations range from 0 to 1,160 meters.	November-March (breeding) June-August (non-breeding)	**Yes.** The ponds and surrounding upland habitat on the Proposed Project site are suitable habitats for this species. However, this species was not observed on site during the biological surveys.
Birds					
Athene cunicularia Western burrowing owl	--/CSC/--	Formerly common within the described habitats throughout the state except the northwest coastal forests and high mountains.	Yearlong resident of open, dry grassland and desert habitats, as well as in grass, forb, and open shrub stages of pinyon-juniper and ponderosa pine habitats.	All year	**Yes.** Appropriate habitat for this species may occur in areas of off-reservation impacts.
Buteo swainsoni Swainson's hawk	--/CT/--	In California, breeds in the Central Valley, Klamath Basin, Northeastern Plateau, Lassen County, and Mojave Desert. Very limited breeding reported from Lanfair Valley, Owens Valley, Fish Lake Valley, Antelope Valley, and in eastern San Luis Obispo County.	Breeds in stands with few trees in juniper-sage flats, riparian areas, and oak savannah. Requires adjacent suitable foraging areas such as grasslands, alfalfa, or grain fields supporting rodent populations.	March – October	**Yes.** Appropriate habitat for this species may occur in areas of off-reservation impacts.
Charadrius montanus Mountain plover	FC/--/--	Known to occur in Colusa, Fresno, Imperial, Kern, Los Angeles, Merced, San Benito, San Luis Obispo, Solano, Stanislaus, Tulare, and Yolo Counties.	Found in heavily grazed native rangelands; burned fields primarily for night roosting. Alkali flats were the most favored habitat, where available.	October-March	**Yes.** Appropriate habitat for this species may occur in areas of off-reservation impacts.

Scientific Name **Common Name**	**Federal / State / CNPS List**	**Distribution**	**Habitat Requirements**	**Period of Identification**	**Potential to Occur On Site**
Coccyzus americanus Yellow-billed cuckoo	FC/CE/ASC/--	West of the Continental Divide, this species occurs in California, Arizona, and New Mexico. This species occurs in all counties of Arizona. In California it occurs along the Colorado River, in the Sacramento and Owens Valleys, along the South Fork of the Kern River, along the Santa Ana River, along the Amargosa River, and along the Luis Rey River.	Breeds and forages in valley foothill and desert riparian communities. Requires dense riparian thickets (especially willow and salt-cedar) of slow-moving watercourses. This species also utilizes orchards (especially walnut).	June-September	**No.** Suitable habitat for this species does not occur near the Proposed Project site or areas of off-reservation impacts.
Falco mexicanus Prairie falcon	BCC/WL/--	Found in the Central Valley and Sierras year round, along the coast and Coast Ranges during winter.	Distributed from annual grasslands to alpine meadows, but associated primarily with perennial grasslands, savannahs, rangeland, some agricultural fields, and desert scrub. Requires cliffs, bluffs, or rock outcrop to nest in.	All year	**Yes.** Appropriate habitat for this species may occur in areas of off-reservation impacts.
Falco peregrinus anatum American peregrine falcon	FD/CD/--	Active nesting sites known along the coast north of Santa Barbara and other mountains in northern California.	Breeds mostly in woodland, forest, and coastal habitats near water on high cliffs or banks. Will nest on human-made structures and in the hollows of old trees or open tops of cypress, sycamore, or cottonwood trees 50-90 feet above the ground.	Year round (some migrate)	**Yes.** Appropriate habitat for this species may occur in areas of off-reservation impacts.
Riparia riparia Bank swallow	--/CT/--	About 50-60 colonies remain along the middle Sacramento River and 15-25 colonies occur along the lower Feather River where the river meanders are still in a mostly natural state. Other colonies persist along the central coast from Monterey to San Mateo Counties, and northeastern California in Shasta, Siskiyou, Lassen, Plumas, and Modoc Counties.	Colonial nester; nests primarily in riparian scrub, riparian woodland, and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, or ocean to dig nesting hole.	All year	**No.** Suitable habitat for this species does not occur near the Proposed Project site or areas of off-reservation impacts.
Strix occidentalis caurina Northern spotted owl	FT/--/--	Geographic range extends from British Columbia to northwestern California south to San Francisco. The breeding range includes the Cascade Range, North Coast Ranges, and Sierra Nevada. Some breeding populations	Resides in mixed conifer, redwood, and Douglas-fir habitats, from sea level up to approximately 2,300 meters. Appear to prefer old-growth forests, but use of managed (previously logged) lands is not uncommon. Owls do not appear to use	Year round	**No.** Suitable habitat for this species does not occur near the Proposed Project site or areas of off-reservation impacts.

Scientific Name **Common Name**	**Federal / State / CNPS List**	**Distribution**	**Habitat Requirements**	**Period of Identification**	**Potential to Occur On Site**
		also occur in the Transverse Ranges and Peninsular Ranges.	logged habitat until approximately 60 years after logging unless some larger trees or snags remain after logging. Nesting habitat is a tree or snag cavity, or the broken top of a large tree. Requires a nearby, permanent source of water. Foraging habitat consists of any forest habitat with sufficient prey (e.g., flying squirrels, mice, and voles).		
Fish					
Hypomesus transpacificus Delta smelt	FT/CT/--	Occurs almost exclusively in the Sacramento-San Joaquin estuary, from the Suisun Bay upstream through the Delta in Contra Costa, Sacramento, San Joaquin, Solano, and Yolo Counties. May also occur in the San Francisco Bay.	Estuarine waters. Majority of life span is spent within the freshwater outskirts of the mixing zone (saltwater-freshwater interface) within the Delta.	Consult agency	**No.** Suitable habitat for this species does not occur near the Proposed Project site or areas of off-reservation impacts.
Oncorhynchus mykiss irideus Steelhead – Central Valley DPS	FT/--/--	Spawn in the Sacramento and San Joaquin Rivers and tributaries before migrating to the Delta and Bay Area.	Found in cool, clear, fast-flowing permanent streams and rivers with riffles and ample cover from riparian vegetation or overhanging banks. Spawns in streams with pool and riffle complexes. For successful breeding, requires cold water and gravelly streambed.	Consult agency	**No.** There are barriers to anadromy on Cache Creek downstream of the Proposed Project site or areas of off-reservation impacts.
Oncorhynchus tshawytscha Chinook salmon – Central Valley Spring Run Evolutionarily Significant Unit (ESU)	FE/CT/--	Central Valley spring-run Chinook salmon ESU includes all naturally spawned populations of spring-run Chinook salmon in the Sacramento River and its tributaries in California, including Churn Creek.	Found in cool, clear, fast-flowing permanent streams and rivers with riffles and ample cover from riparian vegetation or overhanging banks. Spawns in streams with pool and riffle complexes. For successful breeding, requires cold water and gravelly streambed.	Consult agency	**No.** There are barriers to anadromy on Cache Creek downstream of the Proposed Project site or areas of off-reservation impacts.

Scientific Name **Common Name**	**Federal / State / CNPS List**	**Distribution**	**Habitat Requirements**	**Period of Identification**	**Potential to Occur On Site**
Spirinchus thaleichthys Longfin smelt, Bay-Delta DPS	FC/CT/--	Range in California includes slightly upstream from Rio Vista (on the Sacramento River in the Delta), including the Cache Slough region and Medford Island (on the San Joaquin River in the Delta) through Suisun Bay and Suisun Marsh, San Pablo Bay, San Francisco Bay (main), South San Francisco Bay, Gulf of the Farallones, just outside of the Golden Gate, Humboldt Bay, and Eel River estuary and local coastal areas.	Occurs in benthic habitat within medium and large low-grade river systems. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefers salinities of 15-30 parts per thousand, but can be found in completely freshwater to almost pure seawater.	Consult agency	**No.** There are barriers to anadromy on Cache Creek downstream of the Proposed Project site or areas of off-reservation impacts.
Thaleichthys pacificus Eulachon	FT	San Francisco Bay Region north to the Bering Sea in marine waters, coastal estuaries, and inland rivers.	Spawning occurs between years 2 and 5 during late winter to early summer in cool waters that have a variety of sand, cobble, or bedrock substrate. Spawning typically occurs in waters influenced by tides.	Year round	**No.** There are barriers to anadromy on Cache Creek downstream of the Proposed project site or areas of off-reservation impacts.
Invertebrates					
Branchinecta lynchi Vernal pool fairy shrimp	FT/--/--	Known from 32 populations extending from Shasta County through most of the length of the Central Valley to Tulare County, and along the central Coast Range from northern Solano County to Pinnacles in San Benito County. Five additional, disjunctive populations exist near Soda Lake in San Luis Obispo County, in the mountain grasslands of northern Santa Barbara County, on the Santa Rosa Plateau in Riverside County, and near Rancho California in Riverside County.	Vernal pools in the Central Valley, coast ranges, and a limited number of sites in the Transverse Ranges and Riverside County, California.	December-May	**No.** Suitable habitat for this species does not occur near the Proposed Project site or areas of off-reservation impacts.

Scientific Name **Common Name**	**Federal / State / CNPS List**	**Distribution**	**Habitat Requirements**	**Period of Identification**	**Potential to Occur On Site**
Desmocerus californicus dimorpha Valley elderberry longhorn beetle	FT/--/--	Restricted to the Central Valley from Redding to Bakersfield. Known from Amador, Butte, Calaveras, Colusa, El Dorado, Fresno, Glenn, Kern, Madera, Mariposa, Merced, Napa, Placer, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Yolo, and Yuba Counties. Elevations range from 0 to 762 meters.	Riparian forest communities. Exclusive host plant is elderberry (*Sambucus* species), which must have stems ≥ 1-inch diameter for the beetle.	Year round	**Yes.** Suitable habitat for this species is found on the off-reservation impacts areas associated with the Proposed Project.
Lepidurus packardi Vernal pool tadpole shrimp	FE/--/--	Known from 18 populations in the Central Valley, ranging from east of Redding in Shasta County south to the San Luis National Wildlife Refuge in Merced County; also known from a single vernal pool complex on the San Francisco Bay National Wildlife Refuge in Fremont.	Life cycle within vernal pools and valley foothill grassland swales.	December-May	**No.** Suitable habitat for this species does not occur near the Proposed Project site or areas of off-reservation impacts.
Mammals					
Antrozous pallidus Pallid bat	--/CSC/--	Locally common species at low elevations. It occurs throughout California except for the high Sierra Nevada from Shasta to Kern Counties, and the northwestern corner of the state from Del Norte and western Siskiyou Counties to northern Mendocino County.	Habitats occupied include grasslands, shrublands, woodlands, and forests from sea level up through mixed conifer forests, generally below 2,000 meters. The species is most common in open, dry habitats with rocky areas for roosting. Roosts also include cliffs, abandoned buildings, bird boxes, under exfoliating bark, and under bridges.	Year round	**Yes.** Suitable habitat for this species is found on the off-reservation impacts areas associated with the Proposed Project.
Corynorhinus townsendii Townsend's big-eared bat	--/CCT; CSC/--	Known to occur throughout California, excluding subalpine and alpine habitats. Its range extends through Mexico to British Columbia and the Rocky Mountain states. Also occurs in several regions of the central Appalachians.	Requires caves, mines, tunnels, buildings, or other cave analog structures such as hollowed out redwoods for roosting. Hibernation sites must be cold, but above freezing.	Year round	**Yes.** Suitable habitat for this species is found on the off-reservation impacts areas associated with the Proposed Project.

Scientific Name **Common Name**	**Federal / State / CNPS List**	**Distribution**	**Habitat Requirements**	**Period of Identification**	**Potential to Occur On Site**
Reptiles					
Thamnophis gigas Giant garter snake	FT/CT/--	Endemic to the San Joaquin and Sacramento Valley floors. Known from Butte, Colusa, Contra Costa, Fresno, Glenn, Kern, Madera, Merced, Sacramento, San Joaquin, Solano, Sutter, Yolo, and Yuba Counties.	Inhabits agricultural wetlands and other waterways such as irrigation and drainage canals, sloughs, ponds, small lakes, low-gradient streams, and adjacent uplands. Requires adequate water during its active season (early spring through mid-fall) to provide food and cover; emergent, herbaceous wetland vegetation for foraging and cover; grassy banks and openings in waterside vegetation for basking; and higher elevation uplands for cover and refuge from flood waters during its dormant season (winter). Inhabits small mammal burrows and other soil crevices with sunny exposure along south- and west-facing slopes, above prevailing flood elevations when dormant.	March-October	**Yes.** Suitable habitat for this species is found on the off-reservation impacts areas associated with the Proposed Project.

Notes:
STATUS CODES

FEDERAL: USFWS and NMFS
- FE Listed as Endangered by the Federal Government
- FT Listed as Threatened by the Federal Government
- FPD Proposed for Delisting
- FC Candidate for Federal Listing
- FD Delisted

STATE: CDFW
- CE Listed as Endangered by the State of California
- CT Listed as Threatened by the State of California
- CR Listed as Rare
- CSC California Species of Special Concern

CNPS
- List 1B Plants rare or endangered in California and elsewhere

Source: CDFW, 2003a; CDFW, 2003b; USFWS, 2007; CNPS, 2014; Natureserve, 2015.

reservation vicinity of the Proposed Project site. With respect to the potential traffic mitigation areas, it is important to note that additional analysis of biological will be conducted by County and/or Caltrans prior to the approval and implementation of any transportation improvements.

Special-status Plants

The following plant species have been listed as threatened or endangered under FESA or CESA or have a CNPS list status of 1 or 2.

Alkali milk-vetch (*Astragalus tener* var. *tener)*

- Federal Status – None
- State Status – None
- Other – CNPS 1B.2

Alkali milk-vetch is a delicate annual herb from the legume family (Fabaceae) that occurs in playas, valley and foothill grasslands on adobe clay, and alkaline vernal pool habitats at elevations that range from 1 to 60 meters above mean sea level (amsl). This species blooms from March through June. The known range of alkali milk-vetch includes Alameda, Contra Costa*, Merced, Monterey*, Napa, San Benito*, Santa Clara*, San Francisco*, San Joaquin*, Solano, Sonoma*, Stanislaus*, and Yolo Counties (CNPS, 2014). There is only one CNDDB record of alkali milk-vetch within five miles of the Proposed Project site or areas of potential off-reservation impacts associated with the Proposed Project, as shown in **Figure 3.1-1**. This record is located approximately 2.7 miles southeast of the intersection of SR-16 and County Road (CR)-98 (the easternmost point of the traffic mitigation areas). (*Indicates species may be extirpated from these counties.)

Brittlescale (*Atriplex depressa*)

- Federal Status – None
- State Status – None
- Other – CNPS 1B.2

Brittlescale is an annual herb from the Chenopodiaceae family that occurs in shadescale scrub, valley grassland, alkali sink, and wetland-riparian communities between 1 and 320 meters amsl. This species blooms from April to October. The known range of brittlescale is within the Great Valley, and the species has been observed in Alameda, Contra Costa, Colusa, Fresno, Glenn, Kern, Merced, Solano, Stanislaus, Tulare, and Yolo Counties. There are four CNDDB records within 5 miles of the Proposed Project site or areas of off-reservation impacts associated with the Proposed Project, with the closest record being 1.3 miles northeast of the intersection of SR-16 and CR-98 (the easternmost point of the traffic mitigation areas).

Round-leaved filaree (*California macrophylla*)

- Federal Status – None
- State Status – None
- Other – CNPS List 1B.1

Round-leaved filaree is an annual herb in the geranium family (Geraniaceae) that occurs in cismontane woodland and valley and foothill grassland communities at elevations that range from 15 to 1,200 meters amsl. It often occurs on clay-soil substrates. This species blooms from March through May. The known range of round-leaved filaree includes Alameda, Butte*, Contra Costa, Colusa, Fresno, Glenn, Kings, Kern, Lake, Lassen, Los Angeles, Merced, Monterey, Napa, Riverside, Santa Barbara, San Benito, Santa Clara, Santa Cruz Island*, San Diego, San Joaquin, San Luis Obispo, San Mateo, Solano, Sonoma, Stanislaus, Tehama, Ventura, and Yolo Counties. It also occurs in Baja California and Washington (CNPS, 2014). There are no CNDDB records within 5 miles of the Proposed Project site or potential off-reservation impacts related to the Proposed Project. (*Indicates species may be extirpated from these counties.)

Palmate-bracted bird's-beak *(Chloropyron palmatum)*

- Federal Status – Endangered
- State Status – Endangered
- Other – CNPS 1B.1

Palmate-bracted bird's beak is a hemiparasitic annual from the figwort family (Scrophulariaceae). It occurs in chenopod scrub and alkaline valley and foothill grassland at elevations between 5 and 155 meters amsl. This species blooms from May through October. Its known range includes Alameda, Colusa, Fresno, Glenn, Madera, San Joaquin (potentially extirpated), and Yolo Counties (CNPS, 2014). There are three CNDDB records within 5 miles of potential off-reservation impacts: one record 1.5 miles northeast of the intersection of SR-16 and CR-98 (the easternmost point of the traffic mitigation areas) from 1952 recorded as likely extirpated, and two records 2.7 miles southeast of the intersection of SR-16 and CR-98 (the easternmost point of the traffic mitigation areas) from 1996 and 2012.

San Joaquin spearscale (*Extriplex joaquinana*)

- Federal Status – none
- State Status – none
- Other – 1B.2

San Joaquin spearscale is an annual herb in the family Chenopodiaceae. This species is found in chenopod scrub, meadows and seeps, playas, and alkaline valley and foothill grassland habitats from 1 to 835 meters amsl. This species blooms from April through October, and its known range includes Alameda, Contra Costa, Colusa, Fresno, Glenn, Merced, Monterey, Napa, San Benito, Santa Clara*, San Joaquin*, San Luis Obispo, Solano, Tulare*, and Yolo Counties (CNPS, 2014). There are four CNDDB

records within 5 miles of the off-reservation impacts, with the closest being 1.5 miles northeast of the intersection of SR-16 and CR-98 (the easternmost point of the traffic mitigation areas). (*Indicates species may be extirpated from these counties.)

Adobe lily (*Fritilaria pluriflora*)

- Federal Status – None
- State Status – None
- Other – CNPS List 1B.2

The adobe lily is a bulbous perennial of the lily family (Liliaceae) and has acquired its name from the types of soil it is most found on: adobe clay. The flowers are nodding, pink to purple, with bright yellow stamens and petal tips that are rounded to acute and not recurved. Community types where this species is found include valley and foothill grassland, cismontane woodland, and chaparral communities, generally at elevations of less than 700 meters amsl. Its range extends from the Inner Coast Range through the Sacramento Valley to the northern Sierra Nevada foothills (CNPS, 2014). The blooming period is from February to April (CDFW, 2003b). There are no CNDDB records of this species within 5 miles of the potential off-reservation impacts associated with the Proposed Project.

Baker's navarretia (*Navarretia leucocephala* ssp. *Bakeri*)

- Federal Status – None
- State Status – None
- Other – CNPS List 1B.2

Baker's navarretia is an annual herb in the phlox family (Polemoniaceae). It occurs in cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland, and vernal pool communities at elevations that range from 5 to 1,740 meters amsl. This species blooms from April through July. The range of Baker's navarretia includes Colusa, Glenn, Lake, Marin, Mendocino, Napa, Solano, Sonoma, Sutter, Tehama, and Yolo Counties (CNPS, 2016). This species is noted for having an inflorescence that is a dense cyme (as opposed to a head), a glabrous or slightly hairy calyx, and included corolla tubes. This particular subspecies has an inflorescence that is typically 10=60 flowered, white corollas that are greater than or equal to the calyx, erect stems, and ascending branches. There are no CNDDB records of this species within 5 miles of the potential off-reservation impacts associated with the Proposed Project.

California alkali grass *(Puccinellia simplex)*

- Federal Status – None
- State Status – None
- Other – CNPS List 1B.2

California alkali grass is an annual grass of the grass family (Poaceae). Community types where this species is found include valley and foothill grassland, chenopod scrubland, meadows and seeps, and vernal pools, generally at elevations of less than 920 meters amsl. It has been observed in Alameda, Butte, Contra Costa, Colusa, Fresno, Glenn, Kings, Kern, Lake, Los Angeles, Madera, Merced, Napa, San Berardino, Santa Clara, Santa Cruz, San Luis Obispo, Solano, Stanislaus, Tulare, and Yolo Counties. The blooming period is from March to May (CDFW, 2003b). There are no CNDDB records of this species within 5 miles of the potential off-reservation impacts associated with the Proposed Project.

Saline clover (*Trifolium hydrophilum*)

- Federal Status – None
- State Status – None
- Other – CNPS List 1B.2

Saline clover is a fleshy annual herb that occurs in marshes and swamps, vernal pools, and valley and foothill grassland. Within grassland habitats it has an affinity to alkaline soils or mesic areas. This species occurs at elevations that range from 0 to 300 meters amsl. Saline clover blooms from April through June. The known range of this species includes Alameda, Colusa, Monterey, Napa, San Benito, Santa Clara, Santa Cruz, San Luis Obispo, San Mateo, Solano, and Sonoma Counties, although the status and/or identity of the occurrences in Colusa County are uncertain (CNPS, 2014). There is one CNDDB record within 5 miles of the potential off-reservation impacts associated with the Proposed Project, approximately 2.9 miles southeast of the intersection of SR-16 and CR-98 (the easternmost point of the traffic mitigation areas).

Special-status Amphibians

The following amphibian species have been listed as threatened under FESA and/or designated as species of concern to the CDFW.

California tiger salamander (*Ambystoma californiense*)

- Federal Status: Threatened
- State Status: Species of Concern

CTS are separated into three distinct population segments (DPSs): Sonoma County DPS, Santa Barbara County DPS, and Central California DPS. The Central California DPS is in the Coast Ranges from southern San Mateo County south to San Luis Obispo County, and in the Central Valley and surrounding Sierra Nevada and Coast Range foothills, from northern Yolo County south to northwestern Kern County

and northern Tulare and Kings Counties (69 Federal Register 47212-47248). The Proposed Project site is at the northern extent of the range for the Central California DPS.

The CTS requires suitable aquatic habitat for breeding and upland habitat for aestivation. Aquatic breeding habitat includes vernal pools and seasonal and perennial ponds in grassland and oak savannah plant communities from sea level to approximately 3,600 feet amsl. Aquatic breeding ponds are almost always found in grassland. CTS breeding ponds have rarely been observed in grasslands with scattered oak trees or in scrub or chaparral habitats. CTS spend most of their lives in upland consisting of grassland and oak savannah with burrows of small mammals such as California ground squirrels (*Spermophilus beecheyi*) and Botta's pocket gopher (*Thomomys bottae*). CTS most commonly use burrows in open grassland or under isolated oaks, and less commonly in oak woodlands. They cannot dig or maintain their own burrows, and consequently require the presence of burrowing mammals for burrow construction and maintenance. CTS have been observed on land up to 1.24 miles from a potential breeding pool (CDFW and USFWS, 2003).

There is one CNDDB record for CTS within five miles of the Proposed Project site. This record is located across Cache Creek approximately one mile northeast of the Proposed Project site (CNDDB occurrence number 851). This isolated record is from 2005 and is the only known occurrence of CTS in the Capay Valley. The next closest records occur 13 miles to the northeast and 15 miles to the southwest of the Proposed Project site. The 2005 observation found CTS in a cattle stock pond that contained filamentous brown algae and no emergent vegetation and was surrounded by native/non-native grassland. The occurrence is separated from the Proposed Project site by Cache Creek, which is a natural barrier impassible by CTS. Suitable aquatic breeding habitat for CTS may be provided by stock ponds and reservoirs in the off-reservation vicinity of Proposed Project site, and suitable upland habitat could be located up to 1.24 miles from any suitable aquatic breeding habitat. Based upon an evaluation of aerial photography and previous site visits by Analytical Environmental Services (AES) biologists, two reservoir/stock ponds are located southeast of the Proposed Project site and may provide suitable aquatic breeding habitat for CTS. These reservoirs/stock ponds are separated from the Proposed Project site by annual grassland and development and are approximately 2 miles from the Proposed Project site.

Foothill yellow-legged frog (*Rana boylii*)

- Federal Status: None
- State Status: Species of Concern

Historically, the foothill yellow-legged frog (FYLF) range extended from west of the crest of the Cascade Ranges in Oregon south through the Coast Ranges to the Transverse Mountains in Los Angeles County, California, and through the western slope of the Sierra Nevada from Oregon south to Kern County, California (Zweifel, 1955; Stebbins, 2003). The species' current range does not include coastal areas south of northern San Luis Obispo County and areas south of Fresno County. This species can be found at elevations ranging from 0 to 6,000 feet amsl (Stebbins, 2003).

The FYLF requires shallow, flowing water and appears to prefer small- to moderate-sized streams that have at least some cobble-sized substrate. Habitats utilized by FYLF include valley foothill hardwood, valley foothill hardwood-conifer, valley foothill riparian, ponderosa pine, mixed conifer, coastal scrub, mixed chaparral, and wet meadow (Zeiner et al. 1988). Unlike the California red-legged frog (CRLF; described below), FYLF is rarely found farther than a few feet from permanent water. FYLF requires permanent streams or pools that retain water through the summer (Stebbins, 1951). Egg laying occurs between late March and early June, after the high flows of winter and spring (Jennings and Hayes, 1994). FYLF are active all year in warmer locations and may hibernate in colder areas. This species spends most of its time in or near streams in all seasons. Tadpoles require water for at least three or four months before developing into terrestrial frogs. During periods of inactivity, FYLF seek cover under rocks in streams or within a few feet of water. Significant migrations or other seasonal movements from breeding areas have not been reported (CDFW, 2005).

There are two CNDDB records of FYLF occurring within five miles of the Proposed Project site. These CNDDB records for FYLF are 1999 observations of four adult and juvenile frogs in a stock pond and a small seep in an area grazed by cattle on Blue Ridge, approximately four miles west of the Proposed Project site (CNDDB occurrence numbers 275 and 276). Within the off-reservation vicinity of the Proposed Project site, FYLF could reside in shallow, slow-moving streams and within a few feet of these areas. FYLF may be found in the off-reservation vicinity of the Proposed Project site if suitable conditions exist, although they do not travel more than a few feet from suitable habitat and are unlikely to occur in or near the areas of disturbance associated with the Proposed Project.

California red-legged frog (*Rana aurora draytonii*)

- Federal Status – Threatened
- State Status – Species of Special Concern

CRLF requires a variety of habitat elements, with aquatic breeding areas embedded within a matrix of riparian and upland dispersal habitats. Breeding sites occur in aquatic habitats, including pools and backwaters within streams and creeks, ponds, marshes, springs, sag ponds, dune ponds, and lagoons. CRLF also breed in artificial impoundments, including stock ponds. The breeding period is from November to March. During periods of wet weather, starting with the first rains of fall, some individuals may make overland excursions through upland habitats. Most of these overland movements occur at night. CRLF may move distances up to one mile throughout a wet season. CRLF rest and forage in riparian vegetation (USFWS, 2002). CRLF disperse from their breeding habitat to forage and seek summer habitat if water is not available. Summer habitats include spaces under boulders or rocks and organic debris, such as downed trees or logs; industrial debris; and agricultural features, such as drains, watering troughs, abandoned sheds, or hay-ricks (USFWS, 2002). CRLF requires 11 to 30 weeks of permanent water for larval development (CDFW, 2003b). There are no CNDDB records within 5 miles of the areas of off-reservation impacts associated with the Proposed Project.

Birds

The following bird species have been listed as threatened or endangered under CESA and/or designated as species of concern to the CDFW.

Western burrowing owl (*Athene cunicularia*)

- Federal Status: None
- State Status: Species of Concern

Burrowing owls reside in open grasslands, including prairie, plains, and savannah, and occasionally in open areas, including vacant lots near human habitation or airports. Burrowing owls spend much of their time on the ground or on low perches such as fence posts or dirt mounds, in search of prey that consists of insects, small mammals, birds, and carrion. Nesting often occurs in abandoned burrows (e.g., those of the prairie dog, ground squirrel, fox, woodchuck, and tortoise), and nests can be identified by the lining of feathers, pellets, debris, and grass. They prefer burrows with a view of flat, open ground for foraging. This species maintains a circadian rhythm and hunts day or night. They often take cover during the warmest part of the day.

There are four CNDDB records of burrowing owls within five miles of the Proposed Project site. The closest of these records is 3.75 miles south of the off-reservation impacts area and is identified as extirpated. Western burrowing owl nesting habitat may be provided by grassland, oak savannah, and agriculture in the off-reservation vicinity of the Proposed Project site.

Swainson's hawk (*Buteo swainsoni*)

- Federal Status: None
- State Status: Threatened

Swainson's hawks arrive to their breeding grounds in the Central Valley in early March. They often nest peripherally to valley riparian systems and utilize trees in agricultural fields. Valley oak, Fremont cottonwood, walnut, and large willow trees ranging in height from 41 to 82 feet are the most commonly used nest trees in the Central Valley (CDFW, 2003a). Eggs are laid from mid- to late April and are incubated into mid-May when young begin to hatch. Young remain near the nest and depend on the adults for approximately four weeks after fledging until they permanently leave the breeding territory (CDFW, 1994). Nesting typically occurs from March 1 to August 15.

Swainson's hawks feed primarily on small mammals, birds, and insects. Typical foraging habitat includes annual grasslands, alfalfa, and other dry farm crops that provide suitable habitat for small mammals. Suitable foraging habitat near nesting sites is critical for the success of fledglings. There are 160 CNDDB records of Swainson's hawks within five miles of the Proposed Project site and off-reservation impact areas, some of which are adjacent to the roadways where off-reservation impacts would occur. Potential suitable nesting and foraging habitat for Swainson's hawk is provided by oak

woodland, riparian woodland, oak savannah, grasslands, and agriculture in the off-reservation vicinity of the Proposed Project site.

Mountain plover (*Charadrius montanus*)

- Federal Status: None
- State Status: Special Concern

Mountain plovers are winter residents of California from September through March and generally reside below 3,200 feet amsl. The mountain plover's range extends from Sutter and Yuba Counties in the Central Valley south to southern California. The species is also known to winter in the foothill valleys west of the San Joaquin Valley and in the Imperial Valley. Habitats include grasslands, plowed fields, and areas of sparse vegetation on open plains or rolling hills. This species does not nest in California. Food sources are generally large insects found in grasslands and plowed fields.

There are six CNDDB record of mountain plover within five miles of the Proposed Project site. The closest of these are approximately 3.5 miles north of off-reservation impacts associated with the Proposed Project. The range of the mountain plover includes the Sacramento Valley, with the potential to be found in the Capay Valley. Suitable habitat for the mountain plover can be found in agricultural fields, grassland, and oak savannah in the off-reservation vicinity of the Proposed Project site

Prairie falcon (*Falco mexicanus*)

- Federal Status: None
- State Status: Special Concern

This species is a migrant that ranges from southeastern deserts northwest along the inner Coast Ranges and Sierra Nevada. Habitats include anything from annual grasslands to alpine meadows, but this bird is associated primarily with perennial grasslands, savannahs, rangeland, agricultural fields, and desert scrub areas. Nest sites include cliffs, bluffs, and discarded eagle or crow nests in large trees.

There is one CNDDB record of prairie falcon within five miles of the Proposed Project site. This record is from 1999 and occurs somewhere in the Brooks United States Geological Survey (USGS) quadrangle, which encompasses the project area. The areas of potential off-reservation impact may provide marginal nesting habitat for prairie falcons in large trees, and suitable foraging habitat may be present in agricultural fields, grassland, and oak savannah.

American peregrine falcon (*Falco peregrinus anatum*)

- Federal Status: Delisted
- State Status: Endangered

Historically, the American peregrine falcon was present throughout most of California (CDFW, 1980). The current breeding range includes the central and southern California coast, inland North Coast Ranges, Klamath Mountains, Cascade Ranges, and the Sierra Nevada. Nesting habitat for this species consists almost exclusively of protected ledges on vertical rocky cliffs in undisturbed areas of woodland, forest and coastal habitats (CDFW, 1980). A small number of nests have been found in trees and on tall buildings, bridges, rock quarries, and raised platforms. Nest sites usually provide a panoramic view of the surrounding environment, are near water, and provide a local abundance of passerine, waterfowl, or shorebird prey (White et al., 2002). Peregrine falcons have been known to nest as high as 10,000 feet amsl, but most nest sites are below 4,000 feet amsl. The breeding season typically begins in February and lasts until June. Young falcons fledge the nest in late May or early June. Foraging habitat for this species consists of open areas such as grassland, pasture, or rivers. Their prey is almost exclusively birds, generally medium-sized passerines as well as small waterfowl and shorebirds. Some small mammals and invertebrates also contribute to their diet.

There is one CNDDB record of American peregrine falcon within five miles of the Proposed Project site. This record is from 1999 and occurs approximately five miles south of the Proposed Project site in the Monticello Dam USGS quad. Suitable nesting habitat does not exist in the areas of potential off-reservation impacts associated with the Proposed Project. These areas are characterized by rolling hills and flat valley floor without any vertical rocky cliffs. Potential foraging habitat for American peregrine falcon can be found in these areas in agricultural fields, grassland, oak savannah, and particularly along Cache Creek.

Bank swallow (*Riparia riparia*)

- Federal Status: None
- State Status: Endangered

Bank swallows historically colonized areas along large lowland rivers in central and northern California. In southern California, bank swallows historically lived along the Pacific Ocean and at the mouths of large rivers. Nesting bank swallows have been extirpated from southern California, and in northern California their range has been reduced by 50 percent since 1900 (Garrison, 1999). Most populations can be found north of the town of Colusa along the Sacramento River. Some colonies remain along the Feather River, along the coast, and in northeastern California. Bank swallows dig nest burrows on nearly vertical bank and cliff faces. They require soft substrates such as fine sandy loam, silt loam, loam, and sand (Garrison et al., 1987). Suitable banks must be at least 3.3 feet above ground or water for predator avoidance (Garrison, 2002). Bank swallows usually initiate breeding in April, and young are hatched in

May (Garrison, 1999). The young typically fledge the nest by July. Bank swallows migrate to South America each year.

There are six CNDDB records of bank swallows within five miles of the Proposed Project site. All of the records occur along the banks of Cache Creek and were documented in 1987 or 2007. The nearest documented occurrence of this species is located approximately 0.8 miles north of the Proposed Project site on Cache Creek.

Special-status Invertebrates

The following invertebrate species has been listed as threatened under FESA.

Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)

- Federal Status: Threatened
- State Status: None

The valley elderberry longhorn beetle (VELB) is completely dependent throughout its life cycle on its host plant, the elderberry (*Sambucus* spp.), in California's Central Valley and associated foothills (USFWS, 1999). VELB larvae live in the soft pith of branches on elderberry shrubs, where they feed for 1 to 2 years. During the spring, adults emerge from pupation inside the wood of elderberry shrubs as the plant begins to flower. Adults feed on the elderberry foliage until they mate. Females lay their eggs in the crevices of elderberry bark. Upon hatching, the larvae tunnel into shrub stems and feed there. VELB typically utilize stems that are greater than one inch in diameter at ground level (USFWS, 1999). Due largely to the loss of riparian habitat in California's Central Valley, VELB populations in the state decreased to such a level that in 1980 the USFWS listed the species as threatened under FESA.

There are seven documented occurrences of VELB within five miles of the Proposed Project site. The closest occurrence is located approximately 0.8 mile north of the Proposed Project site in the riparian forest along Cache Creek. Elderberry shrubs are frequently found along the banks of Cache Creek, and some have been observed with exit holes. For that reason, there is a high likelihood that these shrubs host VELB. Potential habitat for elderberry shrubs exists in riparian woodland in the areas of off-reservation impacts associated with the Proposed Project, but none were observed in the areas immediately adjacent to the traffic mitigation areas. VELB are sensitive to dust and vibration from activities within 100 feet of their host plant. Although VELB may reside in the areas of off-reservation impacts, it has not been observed to occur within 100 feet of the areas of disturbance associated with the Proposed Project. Scattered non-riparian elderberry plants occur near some portions of SR-16.

Special-status Mammals

The following mammal species have been designated as species of concern to the CDFW.

Pallid bat (*Antrozous pallidus*)

- Federal Status: None
- State Status: Species of Concern

The range of pallid bats extends through much of western North America from British Columbia to central Mexico (Jameson and Peeters, 2004). In California, pallid bats are found throughout the state except in the high Sierra Nevada from Shasta County to Kern County. The pallid bat is most commonly found in dry, open habitats with rocky areas for roosting at elevations below 6,562 feet amsl. This species has three different roosts: the day roost, usually in a warm horizontal opening such as in attics or rock cracks; the night roost, usually in the open, near foliage; and the hibernation roost, often in buildings, caves, or cracks in rocks (CDFW, 2003a). Pallid bats frequently collect in small nursery colonies (Jameson and Peeters, 2004). Mating takes place in autumn, but it is not until late June that birth occurs. Pallid bats make local seasonal movements but do not appear to migrate (Jameson and Peeters, 2004).

There is one CNDDB record of pallid bats within five miles of the Proposed Project site, with the CNDDB record (non-specific area, one-mile buffer) centered in west Woodland near the area of off-reservation traffic mitigation associated with the Proposed Project. This record is from 1957. Potential roosting habitat may exist in the off-reservation vicinity of the Proposed Project site in old buildings and structures.

Townsend's big-eared bat (*Corynorhinus townsendii*)

- Federal Status: None
- State Status: Species of Concern

Townsend's big-eared bats are found throughout California in a variety of habitats, excluding alpine and subalpine. Townsend's big-eared bats are often found in desert scrub and pinon-juniper habitats (Jameson and Peeters, 2004). This species prefers habitats near water and forages at night on small moths and beetles. Roosting habitat is generally cold (although not below 32 ºF) and consists of caves, mines, tunnels, or human-made structures. Mating takes place in autumn. This species roosts during the day from October to April, when hibernating. Maternity colonies are comprised of groups of females and their young, which roost in relatively warm sites in caves, tunnels, mines, and occasionally in abandoned buildings. These colonies form in May or June when the young are born and remain in the roost until August, by which time the young have been weaned and fledged (CDFW, 2005).

There are no CNDDB records of Townsend's big-eared bats within five miles of the Proposed Project site. Potential roosting habitat may be provided by various old buildings and structures in the off-reservation vicinity of the Proposed Project site and traffic mitigation areas.

Western red bat (*Lasiurus blossevillii*)

- Federal Status: None
- State Status: Species of Concern

The western red bat is found throughout California, west of the Sierra Nevada and Cascade crest and deserts, from Shasta County south to Mexico. This species roosts in forests and woodlands from sea level to mixed conifer forests. Roosts are commonly solitary in trees near streams, fields, or urban areas. Edges or habitat mosaics with water are the most suitable habitats. This species is migratory. In California, the western red bat migrates short distances between summer and winter ranges and can be found in unusual habitats during this time. Hibernation takes place during the coolest months when temperatures drop below 68 °F. Young are born from late May through early July (CDFW, 2008). There are four occurrence of Western red bat within five miles of the Proposed Project site. The closest occurrence is a non-specific area one mile in diameter located in the town of Esparto, adjacent to the area of off-reservation traffic mitigation associated with the Proposed Project. This record is from 1954 and is presumed extant. Potential roosting and foraging habitat for western red bat may be located in riparian woodland areas within the areas of off-reservation traffic mitigation areas associated with the Proposed Project.

Special-status Reptiles

The following reptile species has been listed as threatened under FESA.

Giant garter snake (*Thamnophis gigas*)

- Federal Status – Threatened
- State Status – Threatened

The giant garter snake is one of the largest garter snakes and can reach lengths of up to five feet. It is also one of the most aquatic garter snakes in California. The dorsal side is brownish with two alternating rows of well-separated small dark spots between stripes. The dorsal stripe, when evident, is yellowish and often with irregular edges. Ventral coloration is cream to olive color. Mating occurs in March-April with a clutch size of 10-46. They can inhabit agricultural wetlands and other waterways such as irrigation and drainage canals, sloughs, ponds, small lakes, low gradient streams, and adjacent uplands. The giant garter snake requires adequate water during its active season (early spring through mid-fall) to provide food and cover; emergent, herbaceous wetland vegetation for foraging and cover; grassy banks and openings in waterside vegetation for basking; and higher elevation uplands for cover and refuge from flood waters during its dormant season (winter). They inhabit small mammal burrows and other soil crevices with sunny exposure along south- and west-facing slopes, above prevailing flood elevations, when dormant. The giant garter snake relies on small fish, tadpoles, and frogs as a primary diet and hunts primarily during morning and evening hours. Nighttime hours are spent in mammal burrows for cover and refuge (Stebbins, 2003). The historic distribution is from the Sacramento and San Joaquin Valleys as far north as Butte County down to Kern County.

There are seven CNDDB records of giant garter snake within five miles of the Proposed Project site and off-reservation traffic mitigation areas. The closest of these records is 3.5 miles southeast of the eastern edge of the area of potential traffic improvements, within the Yolo Bypass. This record is from 2009. There are areas of potential habitat for the giant garter snake adjacent to the traffic mitigation areas, particularly in areas adjacent to water sources such as roadside ditches, agricultural wetlands, and streams.

WETLAND HABITATS AND WATERS OF THE US

Two delineations of waters of the US have been conducted in the off-reservation vicinity of the Proposed Project site: one on the property southeast of the Proposed Project site, and the other on the property where the Yocha Dehe Golf Club is located to the east of the Proposed Project site. The Thlo property delineation was conducted on August 9-10 and 16-17, 2007, but has not been verified by the USACE. The Yocha Dehe Golf Club delineation was conducted on November 26, 2003, and was verified by USACE on April 7, 2005 (AES, 2003a) (verification number 200300786).

The Proposed Project site is located in the lower Cache Creek watershed. Cache Creek flows adjacent to the eastern boundary of the Yocha Dehe Golf Club, approximately 0.75 miles east of the Resort. The streamflow varies seasonally, with peak flows occurring during the winter rainy season after storm events and lowest flows occurring during the dry season. Numerous tributaries of Cache Creek occur in the off-reservation vicinity of the Proposed Project and are described below. Refer to **Section 3.7**, **Hydrology and Water Quality**, for a detailed discussion of the hydrology in the vicinity of the Proposed Project.

Seasonal Wetlands

Seasonal wetlands are closed, depressional features that are ephemerally wet due to the accumulation of surface runoff and rainwater collection in low-lying areas. The length of inundation tends to be relatively short and seasonal wetlands are typically dominated by non-native, hydrophytic plant species. Six seasonal wetlands were mapped within the southern region of the Thlo property. These features are poorly defined low spots in highly disturbed areas, exhibit high levels of disturbance and soil compaction from cattle, are heavily grazed, and are relatively flat in comparison to the steep topography elsewhere in the off-reservation vicinity of the Proposed Project. A slight berm is located along the western boundary of the Thlo property that functions to discourage surface water connections from the seasonal wetlands to the roadside drainage ditch, which runs along SR-16. Likewise, there is no visible outlet and/or mechanism (i.e., topography, swales, slope) for connectivity of the seasonal wetlands to any other jurisdictional feature(s). Plant species observed in these seasonal wetlands included Mediterranean barley, creeping spikerush (*Eleocharis macrostachya*), bur clover, ryegrass, slender popcorn flower (*Plagiobothrys stipitatus*), curly dock, turkey mullein, mayweed (*Anthemis cotula*), yellow star-thistle, soft brome, alkali-mallow (*Malvella leprosa*), and morning glory.

Ephemeral Drainage (ED)

Ephemeral drainages (EDs) are linear features that exhibit an ordinary high water mark. They are seasonal features that typically convey rainwater and surface runoff flows seasonally and for short periods. EDs are not typically influenced by groundwater. The channels within EDs tend to be largely unvegetated due to the scouring effects of flowing water. If plants do exist within EDs, they tend to be in the upper limits of the drainage or in areas where sediment has deposited that can function as a plant substrate.

Five EDs have been mapped in the off-reservation vicinity of the Proposed Project. These EDs are located on the Thlo property and are considered non-jurisdictional (not subject to regulation) because they have "no significant nexus with traditional navigable waterways (TNWs)" (*Rapanos v. United States*, 126 S. Ct. 2208 [2006] and *Carabell v. United States*, 391 F.3d 704 [6th Cir. 2004]). Plant species observed in the EDs include Mediterranean barley, ryegrass, swamp grass (*Crypsis shoenoides*), soft chess, ripgut brome, bur clover, and yellow star-thistle.

Drainage Ditches

Human-made drainage ditches are essentially trenches that were excavated within uplands. These features are straight, linear, and uniformly constructed and are found along roadways and other human-made features in the off-reservation vicinity of the Proposed Project site. Under the *Rapanos* case (cited above), in the absence of a significant nexus with TNWs, these features are non-jurisdictional and are therefore not subject to regulation. Plant species observed in the human-made drainage ditches in the vicinity of the Proposed Project include Mediterranean barley, ryegrass, morning glory, and curly dock.

RESIDENT OR MIGRATORY WILDLIFE CORRIDORS

The riparian corridor around Cache Creek provides the only off-reservation wildlife corridor in the off-reservation vicinity of the Proposed Project site. This corridor allows for the movement of animal species such as black-tailed deer (*Odocoileus hemionus*).

PROTECTED TREES

Protected oak trees can be found in the off-reservation vicinity of the Proposed Project site along SR-16 and in oak woodland, oak savannah, and riparian woodland. These trees provide nesting and perching habitat for birds, cover and food for various animal species, and are an important part of the local ecosystem.

3.4.3 IMPACT ANALYSIS

SIGNIFICANCE CRITERIA

The following criteria are established by Section IV of the Environmental Impact Analysis Checklist in the Tribal-State Compact (Checklist) (**Appendix A**) and are used in this section to evaluate the potential

off-reservation environmental impacts of the Proposed Project on off-reservation biological resources. Such an impact is considered significant if it would:

- Have a substantial adverse impact, either directly or through habitat modifications, on any species in local or regional plans, policies, or regulations, or by the CDFW or USFWS;
- Have a substantial adverse effect on any off-reservation riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFW or USFWS;
- Have a substantial adverse effect on federally protected off-reservation wetlands as defined by Section 404 of the CWA;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites; or
- Conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or state HCP.

METHODOLOGY

Proposed Project Site and Vicinity

Assessment of existing off-reservation biological resources was based upon biological field surveys conducted to document existing habitat types and determine the potential for occurrence of special-status species. AES biologists conducted biological surveys on March 29 and May 4, 2010, and reconnaissance-level surveys in June and August 2016. In addition to these surveys, numerous site visits to the Proposed Project site and adjacent areas have been conducted from February 2003 to present. All visible fauna and flora found in these areas were noted and identified to the lowest possible taxon (level of identification and classification). The areas of off-reservation impacts associated with the Proposed Project were also assessed for the presence of jurisdictional water features (waters of the US), isolated wetlands, and other biologically sensitive features.

The off-reservation impact assessment was based on information gathered from field surveys and described in the Environmental Setting (**Section 3.4.2**), the Project Description (**Chapter 2.0**), and the significance criteria presented above.

Off-reservation Traffic Mitigation Locations

An assessment of existing biological resources was conducted for the areas of off-reservation intersection and road improvements identified as mitigation in **Sections 3.2** and **3.13** (see **Figure 3.1-1** in **Section 3.1**). The assessment was based upon special-status species record searches and biological resource surveys that were performed in these locations in May 2010, June 2016, and August 2016. The off-reservation areas along roadways where such mitigation measures would or could be implemented were surveyed on foot using aerial photographs and topographic maps as guidance. All visible fauna and flora

found in these areas were noted and identified to the lowest possible taxon, for identification and classification. No special-status species were identified as a result of these surveys.

The special-status species record search identified several biological resources within the area of the recommended off-reservation mitigation measures described in **Section 3.1**, **Introduction to the Environmental Analysis**. Occurrences of pallid bat, western red bat, prairie falcon, and Swainson's hawk were identified within the vicinity of areas of recommended roadway mitigation corridors and each of these species is discussed in **Section 3.4.2** above. Numerous non-riparian elderberry shrubs that occur in the vicinity of areas of recommended roadway mitigation measures shown in **Figure 3.1-1** may present suitable habitat for VELB, although no occurrences of this species have been noted along these routes (CDFW, 2003a). In addition, trees in the vicinity of these mitigation sites could potentially provide suitable nesting habitat for raptors and migratory birds.

Potential off-reservation mitigation areas were also evaluated for potential waters of the US and, with the exception of roadside ditches created out of upland, none were identified. The roadside ditches are located along sections of SR-16 in the area of CR-89. These roadside swales and ditches created from uplands were evaluated and were deem non-jurisdictional.

As noted above, additional analysis of biological resources would be conducted by the County and/or Caltrans prior to the approval and implementation of any transportation improvements recommended as mitigation for Proposed Project impacts.

OFF-RESERVATION IMPACTS OF THE PROPOSED PROJECT

Impact 3.4.1

The Proposed Project could potentially have a substantial adverse impact, either directly or through habitat modifications, on any species identified in local or regional plans, policies, or regulations, or by the CDFW or USFWS.

Special Status Bat Species: Potential roosting and foraging habitat for special-status bat species may be present in the off-reservation vicinity of the Proposed Project site along riparian corridors and in human-made structures such as barns and bridges. Bats can roost in relatively close proximity to human disturbance, and such disturbance can generally remain below the level of significance if this distance is greater than 100 feet. None of the potential off-reservation bat habitats are located within 100 feet of components of the Proposed Project, and no evidence of bat presence was observed during site visits. No impact would occur.

California Tiger Salamander: The sole occurrence of CTS in the Capay Valley is separated from the Proposed Project site by Cache Creek, which is a natural barrier for CTS. Although there is potentially suitable aquatic breeding habitat and upland habitat in the off-reservation

vicinity of the Proposed Project, this habitat is separated from the Proposed Project site by rolling hills, annual grassland, and development by a distance of approximately 2 miles. No impact would occur.

Foothill Yellow-Legged Frog: FYLF requires shallow flowing water and appears to prefer small to moderate-sized streams with at least some cobble substrate. None of the EDs or Cache Creek provides the proper habitat requirements for FYLF (AES, 2010). Therefore, although FYLF do occur within five miles of the Proposed Project site, suitable habitat for this species is not present within the Proposed Project area. No impact would occur.

Valley Elderberry Longhorn Beetle: Elderberry bushes occur in the off-reservation vicinity of the Proposed Project along roadways and in riparian corridors along drainages and provide potentially suitable habitat for VELB. No elderberry bushes occur within 100 feet of the areas of disturbance associated with the Proposed Project. The USFWS has provided guidance that if disturbance occurs more than 100 feet from an elderberry bush, no impact to VELB habitat would occur.

Bank Swallows: While bank swallows have been identified as having nesting colonies on Cache Creek in the general vicinity of the Proposed Project site, the nearest colony is located approximately one mile east of the Proposed Project site (CDFW, 2003a). Bank swallows have very specific nesting areas and foraging requirements and commonly forage within 200 meters of their nesting colonies when nesting (Garrison, 1998). No construction activities are proposed in the vicinity of any bank swallow colony along Cache Creek, and therefore no impacts to this species would occur.

Nesting and Migratory Birds: Potential foraging and nesting habitat for migratory bird and raptor species, including Swainson's hawk, burrowing owl, mountain plover, prairie falcon, and American peregrine falcon, is present in the off-reservation vicinity of the Proposed Project site. The Proposed Project would not affect off-reservation foraging habitat; however, construction activities such as building, grading, and earth moving involve increased machinery, noise levels, and activity that have the potential to adversely affect off-reservation nesting migratory bird and raptor species. **Mitigation Measure 3.4.1** has been recommended to address potential impacts on nesting and migratory birds if they nest adjacent to the Proposed Project site before the start of such construction. The mitigation requires a preconstruction survey for nesting birds and establishing an avoidance buffer during construction activities for any identified active nests. After mitigation, potential impacts on nesting birds from construction activities would be reduced to a less-than-significant level.

Mitigation

3.4.1 Nesting and Migratory Birds

If feasible, construction activities related to the Proposed Project, including movement of heavy equipment and grading, shall be conducted outside of the nesting period (generally between March and mid-September), and outside of the peak nesting period for most migratory bird species. If construction activities cannot be avoided during the nesting period, a qualified biologist shall conduct preconstruction surveys for raptor nests within 0.5 miles of those activities. These surveys shall be conducted for ground-nesting, tree-nesting, and utility pole–nesting birds. The surveys shall be conducted no less than 14 days and no more than 30 days before the beginning of construction. If construction activities are delayed or suspended for more than 30 days after the preconstruction survey is completed, the area within 0.5 miles of the construction activities shall be resurveyed. If no active bird nests are identified, no further mitigation is necessary.

If active bird nests are identified, construction activities within 500 feet, or another distance as determined by a qualified biologist based on the identified species, shall be postponed until after the nesting season, or until after a qualified biologist has determined that the young have fledged and are independent of the nest site. No known active nests shall be disturbed without a permit or other authorization from the USFWS and/or CDFW.

Impact 3.4.2

The Proposed Project would not have a substantial adverse effect on any off-reservation riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFW or USFWS.

Construction or operation of the Proposed Project would not occur on or adjacent to any riparian habitats or other sensitive natural communities identified in local or regional plans, policies, or regulations or by the CDFW or USFWS. No off-reservation riparian habitats or other sensitive vegetation communities would be impacted by construction or operation of the Proposed Project. No impact would occur.

Impact 3.4.3

The Proposed Project would not have a substantial adverse effect on federally protected off-reservation wetlands as defined by Section 404 of the CWA.

Based upon the results of the Grading and Drainage Study for the Proposed Project (**Appendix G**) and with implementation of a Stormwater Pollution Prevention Plan, as discussed in **Section 3.7**, **Hydrology and Water Quality**, grading and other construction and operations on the

Proposed Project site would not affect any off-site jurisdictional wetlands or waters of the US. No impact would occur.

Impact 3.4.4

The Proposed Project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

The Proposed Project does not involve any components that would interfere with the movement of native resident or migratory fish or wildlife species in the Cache Creek riparian wildlife corridor. There are no other migratory wildlife corridors in the off-reservation vicinity of the Proposed Project site. There are no native wildlife nursery sites in the off-reservation vicinity of the Proposed Project site. The movement of native resident or migratory fish or wildlife species, resident or migratory wildlife corridors, and native wildlife nursery sites would not be impacted as a result of construction or operation of the Proposed Project. No impact would occur.

Impact 3.4.5

The Proposed Project would not conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or state HCP.

As is discussed in **Section 3.4.1**, no HCP, NCCP, or other approved local, regional, or state HCPs have been adopted that are applicable to the Proposed Project. No biological resources protected by the provisions of an adopted HCP, NCCP, or other approved local, regional, or state HCP would be impacted as a result of construction or operation of the Proposed Project. No impact would occur.

IMPACTS OF POTENTIAL OFF-RESERVATION MITIGATION MEASURES

As discussed in **Section 3.1**, **Introduction to the Environmental Analysis**, the following analysis addresses potential off-reservation impacts to biological resources as a result of potential traffic mitigation measures recommended in this TEIR. The locations of potential traffic improvements resulting from recommended mitigation measures within this TEIR are identified in **Figure 3.1-1**. The potential mitigation measures under consideration are discussed more thoroughly in **Sections 3.2** and **3.13**.

As explained elsewhere in this document, construction of off-reservation traffic improvements is within the discretion of Caltrans and the County, and, for legal purposes, those agencies would ultimately be responsible for identifying, approving, implementing, and monitoring the effectiveness of any transportation improvements identified as mitigation for the Proposed Project. For purposes of this TEIR, however, it is important to note that each of the potentially significant impacts on biological resources can

be mitigated to a less-than-significant level. Sample mitigation measures are provided below (where warranted).

Impact M-3.4.1

Construction and operation of the off-reservation traffic mitigation measures described in Sections 3.2 and 3.13 could have a substantial adverse effect, either directly or through habitat modifications, on any species identified in local or regional plans, policies or regulations or by the CDFW or USFWS.

Nesting and Migratory Birds: Construction activities, such as grading and earth moving, involve increased human activity, machinery, and increased noise levels. During the nesting season (approximately March through mid-September), such activities within 500 feet of an active nest can cause nest abandonment or premature fledging of the young. Construction and ground-disturbing activities as a result of the implementation of off-reservation road improvements for traffic mitigation could adversely impact nesting or migratory birds if active nests are found to be present when construction takes place. This is a potentially significant impact.

Swainson's Hawk Nesting Habitat: Implementation of off-reservation traffic mitigation may involve the removal of trees and construction activities that increase human activity, machinery, and noise levels. Such activities within 0.5 miles of an active Swainson's hawk nest could cause nest abandonment or premature fledging of the young (CDFW, 1994). This is a potentially significant impact.

Western Burrowing Owl: Suitable nesting and foraging habitat for western burrowing owl is provided by oak savannah and grassland habitats adjacent to the off-reservation roadways that may be improved as a result of implementation of off-reservation traffic mitigation. No suitable burrows were observed during AES field surveys of the sites of recommended mitigation, and construction related to any off-reservation traffic mitigation would occur within existing roadway areas and would avoid areas where burrowing owl may reside. No impact would occur.

Special-status Bat Species: A number of bat species roost in tree cavities or under flaking tree bark – the kinds of flaws that are commonly found in conifer snags and in live, mature cottonwoods, sycamores, and oaks, particularly along stream and river corridors. Other bat species, including western red bat, are foliage roosting and are particularly concentrated in stands of mature riparian cottonwood and sycamore (Harvey, 2004). These prime habitats do not occur along the potential off-reservation traffic mitigation sites. Because the construction activities related to off-reservation traffic mitigation measures would occur within roadway areas and would not disturb surrounding roosting habitats, no impact would occur.

Valley Elderberry Longhorn Beetle: Based on the AES surveys, some non-riparian elderberry bushes currently exist in the vicinity of some of the potential off-reservation traffic mitigation sites. If full avoidance of VELB habitat – defined as no disturbance within 100 feet of VELB habitat based on current guidance from the USFWS – cannot be achieved, then off-reservation traffic mitigation could adversely affect the VELB for which the plant could serve as a host plant.

The following mitigation measures are designed to be illustrative examples of the type of measures that could be used to reduce potential impacts to a less-than-significant level. Actual mitigation measures would be developed and enforced by the lead agency or agencies overseeing any needed traffic improvement projects. That process would take place as part of the CEQA and/or National Environmental Policy Act (NEPA) process prior to the implementation of the off-reservation traffic mitigation measures described in **Section 3.2** and **3.13**.

With implementation of **Mitigation Measure M-3.4.1**, potential off-reservation impacts on nesting birds and special-status species from implementation of traffic mitigation measures described in **Sections 3.2** and **3.13** would be less than significant.

Mitigation

M-3.4.1 Protection of Species and Habitats from Traffic Mitigation

a. **Worker Awareness and Training:** Before initiation of vegetation removal, grading, or any other ground-disturbing activities related to off-reservation traffic mitigation, a qualified biologist shall conduct mandatory worker awareness training for all construction personnel. The awareness training shall provide information on how to avoid impacts on biological resources, particularly special-status species. The training shall also inform workers of the penalties for not complying with mitigation requirements. If new construction personnel are subsequently engaged for such mitigation, they shall also receive the training.

b. **Nesting and Migratory Birds:** If feasible, construction activities related to off-reservation traffic mitigation, including vegetation removal, movement of heavy equipment, and grading, shall be conducted outside of the nesting period (generally between March and mid-September) and outside of the peak nesting period for most migratory bird species. If construction activities cannot be avoided during the nesting period, a qualified biologist shall conduct preconstruction surveys for raptor nests within 0.5 miles of those activities. These surveys shall be conducted for ground-nesting, tree-nesting, and utility pole–nesting birds. The surveys shall be conducted no less than 14 days and no more than 30 days before the beginning of construction. If construction activities related to traffic mitigation are delayed or suspended for more than 30 days after the preconstruction surveys are completed,

the area within 0.5 miles of the construction activities shall be resurveyed. If no active bird nests are identified, no further mitigation is necessary.

If active bird nests are identified, construction activities within 500 feet of the identified nest(s), or another appropriate distance as determined by a qualified biologist based on the identified species, shall be postponed until after the nesting period, or until after a qualified biologist has determined that the young have fledged and are independent of the nest site. No known active nests shall be disturbed without a permit or other authorization from the USFWS and/or CDFW.

c. **Swainson's Hawk:** A qualified biologist shall conduct preconstruction surveys for raptor nests in the vicinity of off-reservation traffic mitigation construction activities within 14 days prior to commencement of those activities. If active Swainson's hawk nests are identified, no construction activities shall take place within 0.5 miles of active nests between March 1 and September 15, if feasible. If it is not feasible to postpone construction activities within the 0.5-mile buffer zone until after September 15, permission to infringe on the buffer region shall be obtained from the CDFW. A qualified biologist shall monitor the nest site until the biologist has determined that the nestlings have successfully fledged and are no longer dependent on the nest. If the biologist determines that the nest has been abandoned, the Tribe shall fund the recovery, rearing, and controlled release of the young by a qualified organization, such as the University of California, Davis Raptor Center.

   Impacts to Swainson's hawk nesting habitat shall be mitigated as follows:

   1. No nesting tree (i.e., any tree that either has the potential to be used by Swainson's hawks to nest or has been documented by the CDFW as being used by Swainson's hawks in the past) shall be removed unless there is no feasible way of avoiding that removal.

   2. When known or potential mature nest trees must be removed, the proper authorization must be obtained from CDFW prior to removal. This authorization would specify the time of year during which the tree may be removed (generally between October 1 and February 1) and the mitigation measures necessary to offset the loss of the tree.

Impact M-3.4.2

Construction and operation of the off-reservation traffic mitigation measures described in Sections 3.2 and 3.13 would not have a substantial adverse effect on any off-reservation riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS.

Cache Creek and several EDs occur in the general vicinity of the sites identified in **Figure 3.1-1** for potential traffic mitigation measures. These drainages have substantial riparian vegetation, including elderberry bushes that provide potential habitat for VELB and large oak and cottonwood trees that provide potential nesting habitat and roosting habitat for special-status and migratory birds and bat species, respectively. However, none of the off-reservation traffic mitigation measures identified in **Sections 3.2** and **3.13** would occur within or adjacent to these riparian areas. No impact would occur.

Impact M-3.4.3

Construction and operation of the off-reservation traffic mitigation measures described in Sections 3.2 and 3.13 would not adversely affect federally protected off-reservation wetlands as defined by Section 404 of the CWA.

No off-reservation jurisdictional wetlands or waters of the US were identified in the immediate vicinity of the recommended off-reservation traffic mitigation sites, based on the field inspections performed by AES. Although some roadside ditches were present, these are not likely to be federally jurisdictional. Given this, no impact on wetlands or waters of the US attributable to the implementation of the off-reservation traffic mitigation measures described in **Sections 3.2** and **3.13** is anticipated. If such wetlands or waters are found to be present at the time mitigation is implemented, or if roadside ditches are later determined to be jurisdictional at a mitigation site, then the CEQA and/or NEPA analysis required for implementation of the related mitigation measure would include a determination of whether there is an impact on any such wetlands or waters and, if so, the appropriate mitigation. The wetland replacement ratio for mitigation, if appropriate, would be no less than 1:1 for losses (based on the current USEPA/USACE mitigation guidelines and only after wetland avoidance has been deemed not feasible). If a Section 401 water quality certification is required, the ratio would be 1:1.5 (based on the current mitigation guidance of the Central Valley Regional Water Quality Control Board [CVRWQCB]). If any waters of the state are determined to be impacted, a Streambed Alteration Agreement would be obtained from the CDFW and mitigation to fully offset any impacts on riparian trees would be replaced at a ratio of not less than 1:1 for each inch of diameter at breast height of any riparian trees actually removed (although none are currently present, based on the field inspections performed by AES). With adherence to applicable laws and associated permitting requirements, any potential impacts on wetlands and/or waters of the US resulting from potential traffic mitigation measures would be reduced to less than significant.

Impact M-3.4.4

Construction and operation of the off-reservation traffic mitigation measures described in Sections 3.2 and 3.13 would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

Construction and operation of the off-reservation traffic mitigation measures described in **Sections 3.2** and **3.13** would not interfere substantially with the movement of native resident or migratory fish or wildlife species. While the riparian corridors adjacent to EDs and Cache Creek provide excellent wildlife corridors for resident and/or migratory species, based on the locations of the potential sites of the off-reservation traffic mitigation measures described in **Section 3.2**, construction activities would not occur in or near these corridors. No impact would occur.

Impact M-3.4.5

Construction and operation of the off-reservation traffic mitigation measures described in Section 3.2 and 3.13 would not conflict with the provisions of an adopted HCP/NCCP, or other approved local, regional, or state HCP.

Currently, there are no adopted HCP/NCCPs or other approved local, regional, or state HCPs that apply to the sites of the off-reservation traffic mitigation measures described in **Sections 3.2** and **3.13**. The YHC has been working on an NCCP that will cover Yolo County (including those sites), but has not yet adopted a plan. Implementation of the off-reservation traffic mitigation measures described in **Sections 3.2** and **3.13** would be permitted only after the additional environmental review required by CEQA and/or NEPA with respect to such mitigation measures is completed. If any such review establishes that the provisions of an HCP/NCCP that is then in effect apply, the implementation of such mitigation measures would be consistent with the requirements of that review.

Construction in such off-reservation traffic mitigation sites could require the removal of trees along roadway segments slated for improvement. Although the County does not currently have an adopted tree protection ordinance, the County is required to determine whether a significant impact on oak woodlands would result from a proposed project within its jurisdiction (which could include implementation of the off-reservation traffic mitigation measures described in **Section 3.2** and **3.13**) in accordance with the California Oak Woodlands Conservation Act. Mitigation for tree impacts attributable to the implementation of any off-reservation traffic mitigation would be consistent with any Yolo County tree protection ordinance in effect at the time of the actual implementation. This is a less-than-significant impact.

3.5 CULTURAL AND PALEONTOLOGICAL RESOURCES

This section addresses the off-reservation environment associated with cultural and paleontological resources, discusses potential impacts of the Proposed Project on off-reservation cultural and paleontological resources, and recommends mitigation measures to reduce any potentially significant off-reservation impacts to less-than-significant levels. Where off-reservation mitigation measures have been recommended for traffic impacts, potential cultural and paleontological resources impacts resulting from those mitigation measures have also been evaluated.

3.5.1 REGULATORY SETTING

FEDERAL

Section 106 of the National Historic Preservation Act (NHPA)

Section 106 of the National Historic Preservation Act (NHPA) as amended, and its implementing regulations found at 36 Code of Federal Regulations (CFR) Part 800, require federal agencies to identify cultural resources that may be affected by actions involving federal lands, funds, or permitting actions.

The significance of the resources must be evaluated using established criteria outlined at 36 CFR 60.4, as described below. If a resource is determined to be a *historic property*, Section 106 of the NHPA requires that effects of the project on the resource be determined. A historic property is defined as:

> …any prehistoric or historic district, site, building, structure or object included in, or eligible for inclusion in the National Register of Historic Places [NRHP], including artifacts, records, and material remains related to such a property… (NHPA Section 301[5]).

Section 106 of the NHPA prescribes specific criteria for determining whether a project would adversely affect a historic property, as defined in 36 CFR 800.5. An impact is considered significant when prehistoric or historic archaeological sites, structures, or objects that are listed, or eligible for listing, in the NRHP are subjected to the following:

- physical destruction of or damage to all or part of the property;
- alteration of a property;
- removal of the property from its historic location;
- change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
- introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features;
- neglect of a property that causes its deterioration; and
- transfer, lease, or sale of the property.

If it is determined that a historic property would be adversely affected by implementation of a proposed project, prudent and feasible measures to avoid or reduce adverse impacts must be taken. The State Historic Preservation Officer (SHPO) must be provided an opportunity to review and comment on these measures prior to project implementation.

National Environmental Policy Act (NEPA)

The National Environmental Policy Act (NEPA) requires that federal agencies take all practical measures to "preserve important historic, cultural, and natural aspects of our national heritage." NEPA's mandate for considering the impacts of a federal project on important historic and cultural resources is similar to that of Section 106 of the NHPA, and the two processes are generally coordinated when applicable. Section 800.8(a) of NHPA's implementing regulations provides guidance on coordination with NEPA.

Antiquities Act of 1906

Significance for paleontological resources is reflected in terms of compliance with the Antiquities Act of 1906 (Public Law 59-209; 16 United States Code [USC] 431 et seq.; 34 Stat. 225), which calls for the protection of historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest on federal land. Additional provisions appear in the Archaeological and Historic Data Preservation Act of 1974, as amended, for the survey, recovery, and preservation of significant scientific, prehistoric, historic, archaeological, or paleontological data, in such cases wherein this type of data might be otherwise destroyed or irrecoverably lost as a result of federal projects.

TRIBAL

In 1992, the NHPA was amended to allow tribes to be treated in the same way as states concerning cultural resources on tribal lands. The responsibilities can include identifying and maintaining inventories of culturally significant properties, nominating properties for inclusion on national and tribal registers of historic places, and conducting Section 106 reviews of federal agency projects on tribal lands. This includes designating Tribal Historic Preservation Officers (THPOs) with whom federal agencies are required to consult, in lieu of the SHPO, for undertakings occurring on or affecting historic properties on tribal lands. The Yocha Dehe Wintun Nation (Tribe) has elected to assume these responsibilities and has elected to incorporate a THPO into the Tribal government operations.

STATE AND LOCAL

The Proposed Project site is located on trust land and is not subject to state or local controls concerning cultural and paleontological resources. However, such controls apply to off-reservation land in the vicinity of the Proposed Project site.

California Environmental Quality Act (CEQA)

The California Environmental Quality Act (CEQA) requires that, for projects financed by or requiring the discretionary approval of public agencies in California, the effects that a project has on historical and

unique archaeological resources must be considered (Public Resources Code [PRC] Section 21083.2). *Historical resources* are defined as buildings, sites, structures, or objects, each of which may have historical, architectural, archaeological, cultural, or scientific importance (PRC Section 50201). The CEQA Guidelines (Section 15064.5) define four cases in which a property may qualify as a significant historical resource for the purposes of CEQA review:

A. The resource is listed in or determined eligible for listing in the California Register of Historical Resources (CRHR). PRC Section 5024.1 defines eligibility requirements and states that a resource may be eligible for inclusion in the CRHR if it:

    1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

    2. Is associated with the lives of persons important in our past;

    3. Embodies the distinctive characteristics of a type, period, region, or method of construction, represents the work of an important creative individual, or possesses high artistic values; or

    4. Has yielded, or may be likely to yield, information important in prehistory or history.

    In addition to meeting one or more of the above criteria, a significant property must also retain integrity. Properties eligible for listing in the CRHR must retain enough of their historic character to convey the reason(s) for their significance. Integrity is judged in relation to location, design, setting, materials, workmanship, feeling, and association. Properties that are listed in or eligible for listing in the NRHP are considered eligible for listing in the CRHR, and thus are significant historical resources for the purpose of CEQA (PRC Section 5024.1[d][1]).

B. The resource is included in a local register of historic resources, as defined in Section 5020.1(k) of the PRC, or is identified as significant in a historical resources survey that meets the requirements of PRC Section 5024.1(g) (unless the preponderance of evidence demonstrates that the resource is not historically or culturally significant).

C. The lead agency determines the resource to be significant as supported by substantial evidence in light of the whole record.

D. The lead agency determines that the resource may be a historical resource as defined in PRC Section 5020.1(j) or 5024.1.

A substantial adverse change to a historical resource(s) is considered a significant effect on the environment under CEQA. When it is determined that a project that is subject to CEQA may cause a substantial adverse change to a historical resource, alternative plans or measures to mitigate the effects to the resource(s) must be considered.

County of Yolo 2030 Countywide General Plan

The *County of Yolo 2030 Countywide General Plan* (General Plan), adopted in 2009, is the guiding document for development in the unincorporated areas of the County, which includes the potential off-reservation traffic improvement locations investigated for this Tribal Environmental Impact Report (TEIR). Policies in the General Plan that are relevant to the off-reservation cultural resources in the vicinity of the Proposed Project and traffic mitigation areas include the following.

Conservation and Open Space Element

Goal CO-4: Cultural Resources. Preserve and protect cultural resources within the County.

Policy CO-4.1: Identify and safeguard important cultural resources.

Action CO-A57: Identify and establish historic districts, where appropriate, to better preserve individual historical resources and their context.

Action CO-A58: Establish an inventory and map of known significant historic and cultural resources, as well as sensitive areas where such resources are likely to occur. Work with the Rumsey and Cortina Tribes to identify sacred sites and develop a cultural sensitivity map. This information is protected as confidential under State law.

Action CO-A59: Conduct historic resource surveys as part of community and specific plan preparation to document and identify those resources that meet the criteria for listing at the local level, on the CRHR, and on the NRHP.

Action CO-A60: Review and monitor demolition permits, grading permits, building permits, and other approval procedures to reinforce preservation goals.

Action CO-A62: Preserve historical records and make them accessible to the public by maintaining the Yolo County Archives and Record Center.

- Provide additional space for accommodation of the growing Archives collections.
- Ensure that the collection is housed in an appropriate archival manner.

Action CO-A63: Require cultural resource inventories of all new development projects in areas where a preliminary site survey indicates a medium or high potential for archaeological, historical, or paleontological resources. In addition, require a mitigation plan to protect the resource before the issuance of the permits. Mitigation may include:

- Having a qualified archaeologist or paleontologist present during initial grading or trenching;
- Redesign of the project to avoid historic or paleontological resources;

- Capping the site with a layer of fill; and/or
- Excavation and removal of the historical or paleontological resources and curation in an appropriate facility under the direction of a qualified professional.

Action CO-A64: Require that discretionary projects which involve earth disturbing activities on previously undisturbed soils in an area determined to be archaeological sensitive perform the following:

- Enter into a cultural resources treatment agreement with the culturally affiliated tribe.
- Retain a qualified archaeologist to evaluate the site if cultural resources are discovered during the project construction. The archaeologist will have the authority to stop and redirect grading activities, in consultation with the culturally affiliated tribe and their designated monitors, to evaluate the significance of any archaeological resources discovered on the property.
- Consult with the culturally-affiliated tribe to determinate the extent of impacts to archaeological resources and to create appropriate mitigation to address any impacts.
- Arrange for the monitoring of earth disturbing activities by members of the culturally affiliated tribe, including all archaeological surveys, testing, and studies, to be compensated by the developer.
- Implement the archaeologist's recommendation, subject to County approval.
- Agree to relinquish ownership of all artifacts that are found on the project area to the culturally affiliated tribe for proper treatment and disposition.

Action CO-A65: Require that when cultural resources (including non-tribal archaeological and paleontological artifacts, as well as human remains) are encountered during site preparation or construction, all work within the vicinity of the discovery is immediately halted and the area protected from further disturbance. The project applicant shall immediately notify the County Coroner and the Planning and Public Works Department. Where human remains are determined to be Native American, the project applicant shall consult with the Native American Heritage Commission (NAHC) to determine the person most likely descended from the deceased. The applicant shall confer with the descendant to determine appropriate treatment for the human remains, consistent with State law.

Action CO-A66: Prohibit the removal of cultural resources from the project site except by a qualified consultant and after the County planning staff have been notified.

Prehistoric resources include chert or obsidian flakes, projectile points, mortars, pestles, dark friable soil containing shell and bone dietary debris, heat-affected rock, or human burials. Historic resources include stone or adobe foundations and walls, structures and features with square nails, and refuse deposits often in old wells and privies.

Action CO-A69: Refer all development proposals that may adversely affect cultural resources to the Northwest Information Center (NWIC) at Sonoma State University for review and comments. The NWIC will identify the presence or absence of known cultural resources and/or previously performed studies in or near a given project area and will offer recommendations regarding the need for additional studies, where necessary. If the NWIC recommends further study, the project applicant shall contract with a qualified professional to conduct the study and make recommendations designed to avoid or minimize adverse impacts on cultural or historic resources and indicate whether further investigation in needed. All studies shall be completed and submitted to the County prior to the completion of any environmental document for the project.

Action CO-A70: Refer the draft environmental documents, including any studies and recommended mitigation measures, to the appropriate culturally affiliated tribes for review and comment as part of the public review process.

Policy CO-4.3: Encourage owners of historic resources to preserve and rehabilitate their properties.

Policy CO-4.10: Encourage voluntary landowner efforts to protect cultural resources consistent with State law.

Policy CO-4.11: Honor and respect local tribal heritage.

Policy CO-4.12: Work with culturally affiliated tribes to identify and appropriately address cultural resources and tribal sacred sites through the developmental review process.

Policy CO-4.13: Avoid or mitigate to the maximum extent feasible the impacts of development on Native American archaeological and cultural resources.

Town of Esparto General Plan

The Conservation Element of the *Town of Esparto General Plan* (Yolo County, 2007) includes a section on archaeological, cultural, and historical resources that identifies goals, policies, and programs to protect those resources, as listed below.

Conservation Goals, Policies, and Programs

Goal 1: To protect the town's natural, cultural, visual and historical resources.

Policy E-R.4: If the development of a site uncovers cultural resources, the procedures and recommendations developed according to Section 15064.5 of the California Environmental Quality Act shall be followed for identification, documentation, and preservation of the resource. If human remains are discovered, the specific requirements of Public Resources Code section 5097.98 must be followed. The law requires that a county coroner be contacted to investigate any human remains found during excavation, and if the coroner determines that they are Native American in origin, the coroner must report this discovery to the NAHC. The NAHC must then contact the persons it believes to be the most likely descended from the deceased Native American.

Policy E-R.5: The County shall document and record data or information relevant to prehistoric and historic cultural resources which may be impacted by proposed development. The accumulation of such data shall act as a tool to assist decision-makers in determinations of the potential development effects to prehistoric and historical resources located within the County.

Policy E-R.8: Historically or architecturally significant buildings should not be demolished or substantially changed in outward appearance, unless doing so is necessary to remove a threat to health and safety and other means to avoid the threat are infeasible.

Capay Valley Area Plan

The *Capay Valley Area Plan* was updated in 2010 and includes goals, policies, and implementation measures relevant to off-reservation cultural and paleontological resources (Yolo County, 2010). Those that pertain to off-reservation cultural and paleontological resources in the vicinity of the Proposed Project can be found in the Conservation and Natural Resources element, and are outlined below.

Conservation and Natural Resources

Goal 2: Preserve historic buildings and sites.

Policy 1: The County shall continue to identify historic buildings and sites and mitigate adverse impacts thereon.

Policy 2: The County shall protect for future generations the information contained in historic and prehistoric sites and preserve representative historical structures as identified in the Historical Resource Survey.

Implementation Measure 1: In accordance with CEQA, and utilizing the resources available at the NWIC at the Sonoma State University campus, the County shall identify archaeological sites and mitigate adverse impacts thereon.

Implementation Measure 2: The County shall encourage property owners as well as support efforts of the Yolo County Museum and Historical Landmarks Advisory Committee to designate buildings, sites, or areas for inclusion in the NRHP or State Register of historic points of interested, places, or structures.

Goal 3: Protection and preservation of Tribal archeological resources and Native American cultural places as open space.

Policy 2: Work with culturally affiliated tribes to identify and appropriately address cultural resources and tribal sacred sites through the development review process.

Policy 3: Avoid or mitigate to the maximum feasible extent impacts of development on Native American archaeological and cultural resources, including impacts related to habitat projects and discretionary County projects such as roadways and drainage facilities.

3.5.2 ENVIRONMENTAL SETTING

DEFINITION OF TERMS

The following definitions of terms used in this section are based on California state guidelines and/or professionally accepted standards for defining and evaluating off-reservation cultural and paleontological resources.

For the purpose of this section, *off-reservation historical resources* and *off-reservation archaeological resources* include buildings, sites, structures, or objects discovered outside the boundaries of trust land, each of which must have historical, architectural, archaeological, cultural, or scientific importance. To be considered an off-reservation historical resource or off-reservation archaeological resource in this context, the resource must meet one or more of the four established criteria for inclusion on the CRHR, be listed on a local register of historic resources, and meet the definition of a *unique archaeological resource* as defined in PRC Section 21083.2. PRC Section 5024.1 states that a resource must meet one or more of the following criteria to be eligible for listing on the CRHR:

- Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- Is associated with the lives of persons important in our past;
- Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
- Has yielded, or may be likely to yield, information important in prehistory or history.

In addition to meeting one or more of these criteria, a CRHR-eligible historic resource must retain sufficient integrity to convey its historic character and importance. Integrity is judged in relation to location, design, setting, materials, workmanship, feeling, and association.

Isolated off-reservation artifacts, unless they exhibit exceptional qualities, are not considered archaeological or historical resources. Exceptional qualities may include being the only known specimen, the best example of a type, or the oldest specimen.

Off-reservation paleontological resources are defined as the traces or remains of prehistoric plants and animals. Such remains often appear as fossilized or petrified skeletal matter, imprints or endocasts, and reside in sedimentary rock layers. Fossil remains of vertebrates are considered *unique paleontological resources* and may also be considered unique if they function as index fossils. Invertebrate fossils are considered significant if they function as index fossils. Index fossils are those that appear in the fossil record for a relatively short and known period of time, allowing geologists to interpret the age range of the geological formations in which they are found.

A *unique geologic feature* is a geological resource or formation that:

- Is the best example locally or regionally;
- Embodies distinct characteristics of a geologic principal that is exclusive locally or regionally;
- Provides a key piece of geologic information important in geology or geologic history;
- Is a type locality of a geologic feature;
- Contains a mineral not known to occur elsewhere locally or regionally; or
- Is used repeatedly as a teaching tool.

CULTURAL RESOURCES

Prehistoric Context

An analytical framework for the interpretation of western Yolo County prehistory is provided by Fredrickson (1973, 1974). Fredrickson divided human history in California into three broad periods: the Paleo-Indian period, the Archaic period, and the Emergent period. Fredrickson used sociopolitical complexity, trade networks, population, and the introduction and variations of artifact types from the Sacramento Valley, North Coast Ranges, and San Francisco Bay Area to differentiate between cultural units. Fredrickson's scheme remains the dominant framework for this region's prehistoric archaeological research.

The **Paleo-Indian period (12,000-8000 years before present [B.P.])** was characterized by small, highly mobile groups occupying broad geographic areas. Evidence of occupation of northern California during this period is scant. Artifacts frequently associated with Paleo-Indian sites include large fluted or stemmed projectile points, flaked stone crescents, large bifaces, scrapers, and other flaked stone. Milling tools are absent or rare during this period. Lakeshores and marshes were favored environments, probably due to the diversity of natural resources found in these biomes.

During the **Archaic period**, consisting of the **Lower Archaic period (8000-5000 B.P.)**, the **Middle Archaic period (5000-3000 B.P.)**, and the **Upper Archaic period (3000-1500 B.P.)**, geographic

mobility may have continued, although groups began to establish longer-term base camps in localities from which a more diverse range of resources could be exploited. The addition of milling tools and obsidian and chert concave-based projectile points and the occurrence of sites in a wider range of environments suggest that the economic base was more diverse. By the Upper Archaic period, mobility was being replaced by a more sedentary adaptation in the development of numerous small villages, and the beginnings of a more complex society and economy began to emerge.

During the **Emergent period (1500-200 B.P.)**, social complexity developed toward the ethnographic pattern of large, central villages where political leaders resided, with associated hamlets and specialized activity sites. Artifacts that commonly occur in regional sites dated to this period include small, corner-notched projectile points, shell and magnesite beads, elongated charmstones, slab mortars used with hopper baskets and pestles, and a diverse array of bone tools.

Ethnographic Context

At the time of Euroamerican contact, the Proposed Project area was within the territory of the Patwin-speaking people (Johnson, 1978). Patwin are members of the California Penutian linguistic stock and are the southernmost division of the Wintun group, a distinction based primarily on linguistic variation. Sources on the ethnographic Patwin include monographs and articles by Johnson (1978), Kroeber (1925, 1932), McKern (1922, 1923), Powers (1976), and the testimony of Princess Isidora, wife of Chief Solano (Sanchez, 1930). Synonymous names for the Patwin include Copeh and Southern Wintun.
The core Patwin territory included lands in the southern Sacramento Valley, west of the Sacramento River, from the town of Princeton south to San Pablo and Suisun Bays in Solano County.
The village community formed the primary social unit among the Patwin (Kroeber, 1925). Villages were autonomous social units generally composed of a central village site, with outlying hamlets. Dialects were sometimes shared across villages. Johnson notes that at least 16 villages were documented among the Hill Patwin during the ethnographic period (Johnson, 1978). Principal villages were invariably located along major drainages, inhabited mainly in the winter; for the rest of the year, temporary seasonal camps were established in the hills and higher elevations to exploit locally available resources. Kroeber (1925, 1932) identified several Patwin villages located near the Proposed Project region, including *Kisi* and *Imil*, which were situated along the west side of Cache Creek in the Capay Valley. McKern documented four primary structures typically found within Patwin villages, including the family house, dance house, sudatory, and menstrual hut (cf. Johnson, 1978).

Fishing, hunting, and gathering formed the basis of the Patwin domestic economy. The Patwin made full use of the various environments within their territory, emphasizing different areas depending upon the season and available resources. Game was hunted either by the individual or in community drives, and salmon runs and other food resources available along Cache Creek also contributed significantly to Hill Patwin subsistence, as well as acorns harvested in the foothills. The Patwin culture was significantly disrupted during the historic period as the natives dealt with new diseases introduced by settlers,

disruption of traditional subsistence patterns, forced labor, religious conversion, violence, and theft of traditional lands (Castillo, 1978).

Based on the foregoing review of the region's prehistory and history, archaeological resources that may reasonably be expected in the vicinity of the Proposed Project site and/or potential traffic improvement areas include prehistoric habitation sites with associated midden deposits and/or features; lithic scatters (containing flaked stone and groundstone artifacts); bedrock milling features; human burials; and isolated artifacts. The area is rich in prehistory, and archaeological and cultural resources may be found in any context, although proximity to a reliable water source increases the likelihood of prehistoric land use.

Historic Context

After the settlement of San Diego in 1769, the Spanish made steady progress in the exploration and occupation of the coastal regions of Alta California. The inland regions, however, remained largely uncharted. Spaniards made occasional forays into the San Joaquin and Sacramento Valleys in pursuit of Native Americans who had fled the forced labor imposed on them at coastal missions. Between 1804 and 1823, the Spanish made numerous trips into the San Joaquin Valley prospecting for new mission sites, attempting to recover stolen horses and cattle, or making punitive raids on the local natives believed responsible for the theft of livestock. Chief among the Spanish explorers in the Central Valley was Pedro Fages, who led at least 46 explorations into the interior between 1805 and 1820. During his many expeditions, Fages named the San Joaquin, Mariposa, Merced and Sacramento Rivers (Caughey, 1940). During the first decade of the 18th century, Gabriel Moraga led an expedition up the Sacramento River; he was followed by Luis Argüello, who led the first overland expedition across portions of Yolo County in 1821. After 1820, Spain's control over California grew even more tenuous.

The Hudson's Bay Company established a presence near the Proposed Project area in the 1820s as its explorers trapped along the Sacramento River and its tributaries, including Cache Creek. Cache Creek derives its name from the numerous furs that trappers cached along its banks (Hoover et al., 2002). The arrival of Europeans and Euroamericans in Alta California introduced hitherto-unknown pathogens, resulting in a series of devastating illnesses. Coupled with military campaigns, forced labor, disruption of traditional subsistence patterns, and colonial government, the epidemics of the first half of the 19th century decimated indigenous populations, including the Wintun (Castillo, 1978).

In 1821, Mexican forces prevailed in their struggle for independence from Spain and declared California part of the Mexican empire. This event marked the beginning of the short-lived Mexican period in California history. In 1833, the formal process of secularizing the missions began and their land holdings were granted to various *Californios*. The grants, known as *ranchos*, enriched those fortunate enough to receive one, while effectively subjugating the native labor force. The Proposed Project site is located wholly within the Rancho Canada de Capay, granted to Francisco Berryessa and his brothers Santiago and Demisio in 1846. The rancho, covering more than 40,000 acres, stretched from the mouth of Capay

Valley on the east, through the northern reaches of Capay Valley (Hoover et al., 2002). This represented only a portion of Patwin territory, however.

In early 1848, the area now known as Yolo County scarcely had 30 non-native inhabitants (Gregory, 1913). Most were engaged in agricultural pursuits such as farming grain and raising livestock. In February 1850 the newly formed California legislature established 27 counties, of which Yolo was one. The first county seat was established at the short-lived settlement of Fremont (1850–1851), and later moved to Washington (1851–1857; 1861–1862) and Cacheville (1857–1861), before finally settling at Woodland (1862 – present) (Hoover et al., 2002). The latter half of the 19th century witnessed profound changes in Yolo and surrounding counties, particularly with the growth and development of major population centers such as Sacramento and Woodland.

An important facet of the historic development of Yolo County was the establishment of the Rumsey Rancheria. Land for Rumsey Rancheria was purchased by the federal government in 1907 and 1908 near the community of Rumsey (34 Stat. 333, 303504; 35 Stat. 76-77, c. 153). Surviving Patwin were forcibly moved to the Rancheria shortly after its purchase. This mostly wooded and hilly land proved to be agriculturally unproductive and lacking in water, and in 1940 the Rancheria was relocated to more viable farmland farther down the valley in Brooks. Unlike many other northern California Indian tribes, the Rumsey Band of Wintun Indians was never "terminated" by the federal government and has continuously retained its federal recognition. In 2010 the Rumsey Band formally changed its name back to the more traditional "Yocha Dehe Wintun Nation."

Historic sites that may be reasonably expected within the Capay Valley and near the Proposed Project site include residential, commercial, and agricultural structures; stone or concrete building foundations, corrals, and walls; filled wells or privies; historic cemeteries or burial grounds; and deposits of metal, glass, and/or ceramic refuse.

GEOLOGY AND PALEONTOLOGY

The presence of paleontological resources at any particular site is influenced by geological composition resulting from formation processes occurring over long periods of time. Fossils typically reside in sedimentary layers, and may or may not become mineralized depending upon the mineral composition within their depositional environment.

The region's geologic history is characterized by tectonic uplifting and alluvial deposition. The Capay Valley's geologic profile generally consists of upper Cretaceous marine deposits of sandstone, shale, and conglomerate in the uplands, and Pliocene and Pleistocene non-marine deposits of sandstone, shale, and loosely consolidated gravel and alluvium in the lowlands, including the valley floor (Yolo County, 2009a).

3.5.3 METHODS AND RESULTS

CULTURAL RESOURCES

Proposed Project Site and Vicinity

Analytical Environmental Services (AES) archaeologists conducted research in the Cultural Resources library on file at AES and consulted with the Tribe's THPO to reveal potential locations of off-reservation cultural resources in the vicinity of the Proposed Project site. AES examined various sources detailing the prehistory, ethnohistory, and history of the vicinity of the Proposed Project, including an analysis of a previously proposed expansion on the Proposed Project site that was later removed from consideration. Additionally, historic maps and aerial photographs were inspected to identify the locations of former off-reservation buildings, roads, and other potentially relevant cultural features on and near the Proposed Project site. AES has on file a record search from 2007 of the project vicinity that included the Proposed Project area, conducted by the NWIC of the California Historical Resources Information System (NWIC File No. 07-0074). The results indicate the Capay Valley is rich in cultural resources. This cursory examination of the existing records indicated the presence of prehistoric archaeological sites, historic refuse scatters, a historic toll road, historic structures, and several groves of valley oak trees. However, no resources were identified in the immediate vicinity of the Proposed Project site boundary (trust land boundaries) near the areas of disturbance for the Proposed Project.

Off-reservation Traffic Mitigation Locations

A cultural resources record search was completed in May 2010 (NWIC File No. 09-1371) by the NWIC that included all of the off-reservation intersection and road improvement locations identified as mitigation in **Sections 3.2** and **3.13** (see **Figure 3.1-1** in **Section 3.1**). A second record search was completed by AES at the NWIC in June 2016, resulting in the addition of several new sites documented since 2010. The record search area included the segment of State Route 16 (SR-16) that runs roughly from Brooks to Woodland in Yolo County with a record search buffer of 1/8 mile. The record search buffer area was defined to be large enough to encompass the entire area of potential effects associated with improvements to SR-16. The record search results are included as **Appendix I**.

The 2016 record search revealed a total of 78 previously recorded resources located within a 1/8-mile radius of recommended traffic mitigation areas; because the exact locations of any traffic improvements are currently undecided, **Table 3.5-1** divides the sites by proximity to the potentially affected roadway or intersection, as well as presenting a summary of the previously recorded resources. The vast majority of resources are historic structures, some eligible for listing on the NRHP. Most are residences; however, a number consist of prehistoric archaeological sites, some of which underlie and edge portions of SR-16.

TABLE 3.5-1
PREVIOUSLY RECORDED RESOURCES
WITHIN 1/8 MILE OF RECOMMENDED LOCATIONS FOR TRAFFIC MITIGATION

Site Number	Constituents	Period	Date Recorded	NRHP/CRHR Eligibility	Distance to Potential Area of Effects
P-57-31	Mortars, pestles, beads	Prehistoric	1955	Potentially eligible	In / Adjacent
P-57-100	Midden, lithics, burial	Prehistoric, Historic	1961, 2002, 2004	Eligible	In / Adjacent
P-57-132	Oak groves	Historic	2007, 2012	Locally significant	In / Adjacent
P-57-210	Cache Creek Canyon Road	Historic	2000, 1986	Eligible	In / Adjacent
P-57-458	1870 Residence	Historic	2003	Not eligible	In / Adjacent
P-57-459	Relocated 1888 depot	Historic	1986	Eligible	In / Adjacent
P-57-481	1875-1949 complex	Historic	2003	Not eligible	In / Adjacent
P-57-482	1930s debris	Historic	2004	Eligible	In / Adjacent
P-57-483	Historic debris/residence	Historic	2003	Not eligible	In / Adjacent
P-57-484	Cadenasso District School	Historic	2001	Not eligible	In / Adjacent
P-57-485	Historic debris	Historic	2002	Eligible	In / Adjacent
P-57-486	1879-1948 Tabers' Corner Historic District	Historic	2003	Eligible	In / Adjacent
P-57-509/715	Vaca Valley & Clear Lake RR 1888, 1909	Historic	2004, 2003, 2002	Not eligible	In / Adjacent
P-57-510	Midden	Prehistoric	2004	Eligible	In / Adjacent
P-57-511	19th century farmstead	Historic	2002	Eligible	In / Adjacent
P-57-513	Historic debris	Historic	2002	Not evaluated	In / Adjacent
P-57-605	1850s ditch	Historic	2007	Eligible	In / Adjacent
P-57-591	Tree row	Historic	2007	Not eligible	In / Adjacent
P-57-774	1900s Lautze Saloon	Historic	2014	Not eligible	In / Adjacent
P-57-853	Brown's Corner District	Historic	2015	Not eligible	In / Adjacent
P-57-854	Brown's Corner Service Station – 1930s-1950s	Historic	2015	Not eligible	In / Adjacent
P-57-899	1960s Yolo SMOG Shop	Historic	2015	Not evaluated	In / Adjacent
P-57-900	1960s Gonzalez Tires	Historic	2015	Not evaluated	In / Adjacent
P-57-1025	1945 Skip's Welding	Historic	2015	Not evaluated	In / Adjacent
P-57-1032	1860s Turner House	Historic	2015	Not eligible	In / Adjacent
P-57-1041	1920 Woodland-Watts Airport	Historic	2015	Not evaluated	In / Adjacent
P-57-1066	1853 Moore's South Fork Ditch	Historic	2015	Not evaluated	In / Adjacent
P-57-1075	1900 Jacob's Corner	Historic	2015	Not evaluated	In / Adjacent
P-57-1094	1930s Willow Oak Grocery	Historic	2015	Not evaluated	In / Adjacent
P-57-1095	1950s Aoki Farm fields	Historic	2015	Not evaluated	In / Adjacent
HRI 2/036	1884 residence	Historic	1986	Locally significant	In / Adjacent
HRI 1/018	1875 residence	Historic	1986	Eligible	Within 1/8 Mile
HRI 1/023	1876 residence	Historic	1986	Eligible	Within 1/8 Mile
HRI 1/027	1885 residence	Historic	1986	Locally significant	Within 1/8 Mile
P-57-458	1870 residence	Historic	2003	Not eligible	Within 1/8 Mile
P-57-459	1888 Capay Depot	Historic	1986	Eligible	Within 1/8 Mile
P-57-460	1875 residence	Historic	2003	Eligible	Within 1/8 Mile
P-57-461	1948 residence	Historic	2003	Not eligible	Within 1/8 Mile

Site Number	Constituents	Period	Date Recorded	NRHP/CRHR Eligibility	Distance to Potential Area of Effects
P-57-462	1935 triplex	Historic	2003	Not eligible	Within 1/8 Mile
P-57-463	1872 residence	Historic	2003, 1986	Eligible	Within 1/8 Mile
P-57-465	1870 residence	Historic	2003, 1986	Eligible	Within 1/8 Mile
P-57-466	1948 commercial building	Historic	2003	Not eligible	Within 1/8 Mile
P-57-467	1890 residence	Historic	2003	Not eligible	Within 1/8 Mile
P-57-470	1920 residence	Historic	2003	Not eligible	Within 1/8 Mile
P-57-471	1908 residence	Historic	2003	Not eligible	Within 1/8 Mile
P-57-472	1930 residence	Historic	2003	Not eligible	Within 1/8 Mile
P-57-473	1930s commercial building	Historic	2003	Not eligible	Within 1/8 Mile
P-57-486	Tabers' Corner Historic District	Historic	2004	Eligible	Within 1/8 Mile
P-57-487	1890 orchard	Historic	2003	Eligible	Within 1/8 Mile
P-57-488	1880 well	Historic	2003	Eligible	Within 1/8 Mile
P-57-489	1885 washhouse	Historic	2003	Eligible	Within 1/8 Mile
P-57-490	1915 garage	Historic	2003	Not eligible	Within 1/8 Mile
P-57-491	1905 grain barn	Historic	2003	Eligible	Within 1/8 Mile
P-57-492	1879 cow barn	Historic	2003	Eligible	Within 1/8 Mile
P-57-493	1940 manager's cabin	Historic	2003	Eligible	Within 1/8 Mile
P-57-494	1948 sheep shed	Historic	2003	Eligible	Within 1/8 Mile
P-57-495	1948 harvester barn	Historic	2003	Eligible	Within 1/8 Mile
P-57-496	1905 privy	Historic	2003	Eligible	Within 1/8 Mile
P-57-497	1949 bunkhouse	Historic	2003	Eligible	Within 1/8 Mile
P-57-498	1940/1990 pumphouse	Historic	2003	Not eligible	Within 1/8 Mile
P-57-499	1905 blacksmith shop	Historic	2003	Eligible	Within 1/8 Mile
P-57-500	1930 shop building	Historic	2003	Eligible	Within 1/8 Mile
P-57-501	1930 shed	Historic	2003	Eligible	Within 1/8 Mile
P-57-502	1930 almond processing shed	Historic	2003	Eligible	Within 1/8 Mile
P-57-503	1930 woodchopper cabin	Historic	2003	Eligible	Within 1/8 Mile
P-57-504	1919 residence	Historic	2003	Eligible	Within 1/8 Mile
P-57-505	1920 flagpole	Historic	2003	Eligible	Within 1/8 Mile
P-57-506	1919 shed	Historic	2003	Eligible	Within 1/8 Mile
P-57-507	1919 garage	Historic	2003	Eligible	Within 1/8 Mile
P-57-508	1946 residence	Historic	2003	Eligible	Within 1/8 Mile
P-57-885	1952 George Aoki Farms	Historic	2015	Not evaluated	Within 1/8 Mile
P-57-896	1970s 98 Auto Repair	Modern	2015	Not eligible	Within 1/8 Mile
P-57-897	Post-WWII Cache Creek Monuments	Historic	2015	Not evaluated	Within 1/8 Mile
P-57-945	1960s trailer site	Historic	2015	Not evaluated	Within 1/8 Mile
P-57-1007	1860s James Oliver farm site	Historic	2015	Not evaluated	Within 1/8 Mile
P-57-1015	1950s Monument Hill	Historic	2015	Not evaluated	Within 1/8 Mile
P-57-1031	1880s Turner barn	Historic	2015	Not evaluated	Within 1/8 Mile
P-57-1157	1875 residence	Historic	1986	Locally significant	Within 1/8 Mile

Source: NWIC, 2016.

The 2016 records search also revealed that more than 30 cultural resources investigations have taken place within 1/8 mile of recommended traffic mitigation measures along SR-16. A summary of the previously conducted investigations is provided in **Table 3.5-2**.

TABLE 3.5-2
PREVIOUSLY CONDUCTED CULTURAL RESOURCES INVESTIGATIONS
WITHIN 1/8 MILE OF RECOMMENDED LOCATIONS FOR TRAFFIC MITIGATION

Report Number	Author	Date	Title
S-2953	True	1976	An Archaeological Survey near Madison, Yolo County, CA: Waste Water Disposal Facility
S-2955	Jackson and Dietz	1978	An Archaeological Reconnaissance of Cache Creek between Capay and Yolo in Yolo County, California
S-2958	Flynn and Wheeler	1978	City of Woodland Cultural Resource Study: Criteria for Significance and Methods of Historic Preservation
S-2959	Peak & Associated	1977	Cultural Resources Assessment of the Proposed Buried Cable Route from Woodland to Esparto, Yolo County, California
S-2967	Gerry	1981	Cultural Resource Assessment of a Newly Acquired Portion of the Rumsey Indian Rancheria, Yolo County, California
S-5156	Treganza, Edwards, and King	1965	Archaeological Survey and Excavation along the Tehama-Colusa Canal, Central California
S-5207	Arnold	1964	A Survey of Archaeological Resources along the Pacific Gas and Electric Company's Canadian Gas Line in California
S-6877	Bethard	1984	An Archaeological Survey of the Monument Hills Specific Plan Area, Yolo County, California
S-9357	Werner, Praetzellis, and Praetzellis	1987	Class I Cultural Resources Survey of the Proposed AT&T Fiber Optics Cable Line from Point arena, Mendocino County, to Dunnigan, Yolo County, California
S-9465	Orlins	1987	An Archaeological Survey of the Madison Migrant Housing Center, Yolo County, California
S-9881	Bass	1988	Archaeological Survey Report, proposed Bridge (No. 22-27) replacement project over Capay Canal, 03-YOL-16 P.M 25.2-25.4 03209-306500
S-10043	Offermann and Mott	1988	Archaeological Survey Report, Proposed Widening of State Route 16, 03-Yol-16 P.M. 39.1/40.6 03209-307600
S-12300	Moratto, et al.	1990	Final Cultural Resources Assessment Report, PGT-PG&E Pipeline Expansion Project, Idaho, Washington, Oregon, and California, Phase 1: Survey, Inventory, and Preliminary Evaluation of Cultural Resources
S-16207	Price	1992	Subcontract #20822-SC-41, Cultural Resource Studies, Phase-1 Surveys of Main Line Valves In California
S-19675	PAR Environmental Services	1997	Cultural Resources Inventory and Evaluation of the Gwaltney Parcel, Yolo County, CA
S-20307	Derr	1998	Pacific Bell Mobile Services: 26790 Capay Street, Esparto, Yolo County; Site # SA-ESP-MI
S-22267	Peak & Associates	1999	Cultural Resources Assessment of Portions of the Proposed AT&T Dunnigan to Manchester Fiber Optic Cable Alignment, Lake, Napa, Mendocino and Yolo Counties, California
S-22536	Peak & Associates	2000	Cultural Resources Assessment of Portions of the Proposed AT&T Dunnigan to Manchester Fiber Optic Cable Alignment, Lake, Napa, Mendocino and Yolo Counties, California

Report Number	Author	Date	Title
S-22726	Peak & Associates	2000	Determination of Eligibility and Effect for Cultural Resources Located on BLM Lands along the Proposed AT&T Dunnigan to Manchester Fiber Optic Cable Alignment, , Napa County, California
S-23009	Neuenschwander	2000	Determination of Eligibility and Effect within Waters of the United States along the Proposed AT&T Dunnigan to Manchester Fiber Optic Cable Alignment, Lake, Napa, Mendocino and Yolo Counties, California
S-23627	Harper	1974	Field Survey of OL-505 from Interstate 5 to Russell Boulevard near Winters, 03-YOL-505 PM 0.0/14.0. 14.0/22.0 03208-057331, 03209-059011
S-23674	Moratto, et al.	1995	Archaeological Investigations, PGT-PG&E Pipeline Expansion Project, Idaho, Washington, Oregon, and California (Volume I, II, III, IV, V)
S-26702	Wulf and Lortie	2002	Historic Property Survey Report for the Proposed Culvert Replacement Project in Fifty-Three Locations on Six Routes in Five Counties within District 3, Caltrans, EA 03-2A0500
S-28767	Allred et al.	2004	Historic Property Survey Report, State Route 16 Traffic Calming Project Through the Towns of Capay and Esparto, Yolo County, California: KP 40.41.4 (Capay) and 44.4/45.6 (Esparto), PM 25.1/25.7 (Capay) and 27.6/28.3 (Esparto), EA 03-4C6500
S-26925	Allred	2003	Archaeological Survey report, State route 16 Interim Safety Improvements Project, Superelevation Correction & Guardrail Installation, 03-YOL-16, K.P. 33.84/34.13, KP 39.67/40.40.12, KP 40.70/40.73, EA 03-1C1400
S-27402	Brown	2003	Cache Creek Casino Traffic Improvements Project, 03-Yolo-16, K.P. 30.43-31.55 (P.M. 18.88-19.60) CU 03-173, EA 03-4C4900
S-27403	Loyd	2003	Archaeological Survey Report, Cache Creek Casino Traffic Improvements Project, May 2003; 03-Yolo-16, P.M. 18.91-19.63, KP 30.43-31.59, 03-173, EA 03-4C4900
S-28767	Allred, Calpo, and Hope	2004	Historic Property Survey report, State Route 16 Traffic Calming Project Through the Towns of Capay and Esparto, Yolo County, California: KP 40.41.4 (Capay) and 44.4/45.6 (Esparto), PM 25.1/25.7 (Capay) and 27.6/28.3 (Esparto), EA 03-4C6500
S-29-771	Whatford	2004	Rumsey Incident, CA-LNU-007867, Cultural Resources Narrative, October 18, 2004
S-30274	Pitsenberger and Edwards	2005	Cultural Resources Inventory, County Roads 21A and 85B Road Rehabilitation and Bridge Widening, Yolo County, CA
S-30519	Hope	2004	Finding of Effect Report for the Traffic Calming Project on Highway 16, Esparto and Capay, Yolo County, 03-YOL-16, KP 40.4/41.4 and 43.645.6 (PM 25.1/25.7 and 27.1
S-30899	Allred et al.	2005	Historic Property Survey Report for the Proposed State Route 16 Widening project between Brooks and Madison in the Capay Valley, Yolo County California EA 03-0C4700, KP 29.9/51.0, PM 18.6/31.7.
-	Crull	2015	"Walk-about" architectural survey and recordation.
Source: NWIC, 2016.			

In 2010, AES consulted with the Tribe's THPO and Tribal Cultural Resources Committee regarding potential improvements to SR-16. The two parties agreed that pedestrian surveys would be conducted at the locations then under consideration for traffic improvements and that AES would be accompanied by the Tribe's archaeological monitors.

A reconnaissance survey along SR-16 was performed by AES on May 12, 2010, accompanied by the Tribe's archaeological monitors. As a result, it was determined that the SR-16 area was previously disturbed and had been developed as mixed-use commercial and agricultural properties.

In June 2016, a windshield survey of traffic improvement areas associated with the Proposed Project was completed. The windshield survey and updated NWIC record search results identified the removal of some resources since 2010 and the addition of others that were recorded in the period from 2010 to 2016 (**Table 3.5-1** includes these updated results).

During the 2010 survey, a piece of historical green glass was observed on the northwest corner of SR-16 and County Route 89 in an area called "Browns Corner" on the modern Woodland, CA United States Geological Survey quadrangle map. Additionally, AES and a Tribal monitor both observed a plethora of small modern clam shells near the creek on the east side of the SR-16 and Interstate 505 (I-505) interchange.

PALEONTOLOGICAL RESOURCES AND UNIQUE GEOLOGIC FEATURES

AES consulted several sources to identify off-reservation unique geologic features in the vicinity of the Proposed Project site and potential traffic mitigation locations. Sources reviewed included the *California Geotour Index* maintained by the California Geologic Survey (2016); *California Geology* (Harden, 2004); *California Landscape* (Hill, 1984); *Roadside Geology of Northern and Central California* (Alt and Hyndman, 1975); and *California Fossils for the Field Geologist* (Schenck and Keen, 1955). A review of these sources did not reveal the presence of any off-reservation unique geologic features near the segment of SR-16 which may be affected by the Proposed Project and potential traffic improvements resulting from mitigation. Overall, the geology of the project region is typical of the surrounding western Sacramento Valley and eastern North Coast Ranges.

AES also searched the University of California Museum of Paleontology's (UCMP's) online database in May 2010 to identify unique paleontological resources in the Capay Valley (UCMP, 2016) and completed an updated search in April 2016 (UCMP, 2016). This database search indicated that seven fossils have been recorded in Capay Valley. Of these, four are foraminifera, single-celled organisms that are common in the fossil record for the past 540 million years. The other three specimens recorded for Capay Valley include a single Cephalopoda class specimen (*Baculites schencki*), a Bivalvia class specimen (*Nucula capeyensis*), and an Anthozoa class specimen (*Turbinolia capayensis*). The geologic chronology of the Capay Valley is relatively well understood, and these specimens are not considered unique paleontological resources.

3.5.4 IMPACT ANALYSIS

SIGNIFICANCE CRITERIA

The following criteria are established by Section V of the Environmental Impact Analysis Checklist in the Tribal-State Compact (Checklist) (**Appendix A**) and have therefore been used in this section to evaluate the potential off-reservation impacts of the Proposed Project with respect to off-reservation cultural resources. Such an impact is considered significant if it would:

- Cause a substantial adverse change in the significance of an off-reservation historical or archaeological resource;
- Directly or indirectly destroy a unique off-reservation paleontological resource or site or unique off-reservation geologic feature; or
- Disturb any off-reservation human remains, including those interred outside of formal cemeteries.

If an identified off-reservation building, site, structure, object, or artifact is neither an off-reservation historical or off-reservation archaeological resource as defined in **Section 3.5.1**, the effects of the Proposed Project on those objects shall not be considered potentially significant impacts on the off-reservation environment.

Off-reservation Cultural Resources

For purposes of this TEIR, a *substantial adverse change* to an off-reservation historical or off-reservation archaeological resource is defined as any one of the following: physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that its significance would be materially impaired.

Off-reservation Unique Paleontological Resources and Off-reservation Unique Geologic Features

Off-reservation unique paleontological resources and off-reservation unique geologic features are important for their scientific and educational value. Any action that results in the direct or indirect destruction of such materials is considered a significant impact.

OFF-RESERVATION IMPACTS OF THE PROPOSED PROJECT

This section addresses the Proposed Project's potential impacts on off-reservation cultural and paleontological resources.

Impact 3.5.1

The Proposed Project would not cause a substantial adverse change in the significance of an off-reservation historical or archaeological resource.

All Proposed Project construction and operational activities would occur on trust land. No off-reservation historical or archaeological resources are known to exist in the immediate vicinity of

the area of disturbance of construction activities for the Proposed Project, and no ground disturbance or other visual, atmospheric, or audible elements with the potential to diminish a cultural resource's integrity would take place. No impact would occur.

Impact 3.5.2

The Proposed Project would not directly or indirectly destroy an off-reservation unique paleontological resource or a unique geologic feature.

All Proposed Project construction and operational activities would occur on trust land. The Proposed Project would not involve any off-reservation ground disturbance that could directly or indirectly destroy an off-reservation unique paleontological resource or an off-reservation unique geologic feature. No impact would occur.

Impact 3.5.3

The Proposed Project would not disturb any off-reservation human remains, including those interred outside of formal cemeteries.

All Proposed Project construction and operational activities would occur on trust land. No off-reservation human remains, including those interred outside of formal cemeteries, are known to exist near areas proposed for ground disturbance for the Proposed Project. No impact would occur.

IMPACTS OF POTENTIAL OFF-RESERVATION MITIGATION MEASURES

As discussed in **Section 3.1**, the following analysis addresses potential off-reservation impacts on cultural and paleontological resources as a result of potential traffic mitigation measures recommended in this TEIR. The locations of potential traffic improvements resulting from recommended mitigation measures within this TEIR are identified in **Figure 3.1-1**. The potential mitigation measures under consideration are discussed more thoroughly in **Sections 3.2** and **3.13**.

As explained elsewhere in this document, construction of off-reservation traffic improvements is within the discretion of Caltrans and Yolo County, and, for legal purposes, those agencies would ultimately be responsible for identifying, approving, implementing, and monitoring the effectiveness of any transportation improvements identified as mitigation for the Proposed Project. For purposes of this TEIR, however, it is important to note that each of the potentially significant impacts on cultural resources can be mitigated to less-than-significant levels. Sample mitigation measures are provided below (where warranted).

Impact M-3.5.1

The Proposed Project could cause a substantial adverse change in the significance of a significant off-reservation historical or archaeological resource.

Historical and archaeological resources in or near the SR-16 corridor were identified as a result of the 2010 and 2016 record searches and field surveys. These resources could be impacted directly by construction or indirectly by changes to the viewshed near historical structures that are eligible for listing on the NRHP or CRHR.

A large number of individual prehistoric and historic resources and districts have also been identified within the SR-16 corridor. Some of the prehistoric archaeological sites underlie the road and could, therefore, be impacted by ground-disturbing activities associated with construction of recommended traffic improvements. The number of previously identified archaeological sites, as well as historic use of the region, indicates that there is also the possibility of encountering previously unknown archaeological resources within the areas of disturbance for off-reservation traffic mitigation improvements. **Mitigation Measure M-3.5.1** would reduce potential impacts on both known and as-yet-undiscovered cultural resources as a result of potential traffic mitigation measures; impacts would be less than significant after implementation of **Mitigation Measure M-3.5.1**.

Mitigation

M-3.5.1 Protection of Cultural Resources from Traffic Mitigation

a. **Preconstruction Record Search:** If more than 5 years pass prior to the construction of traffic improvements (i.e., after June 30, 2021), an updated record search shall be completed by the NWIC to identify any newly recorded cultural resources which may be impacted by construction of recommended traffic improvements.
b. **Investigation of Known Archaeological Sites:** If any known archaeological resources are identified within the staging or construction footprints of an off-site traffic improvement area and the site(s) has been previously assessed as eligible or potentially eligible for listing on the CRHR or NRHP, an archaeological investigation of the to-be impacted portions of the improvement area shall be conducted prior to construction, which may include any or all of the following, as appropriate: development of a Treatment Plan, development of a Mitigation or Monitoring Plan, Phase II site testing and evaluation, Phase III data recovery, construction monitoring, or development and implementation of avoidance measures. If a resource may be impacted that has not been assessed for CRHR/NRHP eligibility, an eligibility assessment shall be completed prior to construction and mitigation measures shall be identified and implemented if it is found to be eligible for listing.

c. **Historical Resource Viewshed Analysis:** Off-site traffic improvements that would result in permanent changes to the landscape (i.e., lane construction or intersection signalization) within one block of historical structures or districts (those resources identified as CRHR or NRHP eligible) shall be evaluated for their visual impacts on those resources by a qualified architectural historian, who may recommend site-specific mitigation to reduce any such impacts to less-than-significant levels.

d. **Inadvertent Discovery:** In the event that buried archaeological materials, such as flaked stone, historic debris, structural foundations, or unusual amounts of stone or shell, are inadvertently discovered within the area of potential effects during ground-disturbing activities, all work shall be halted within 50 feet of the find and the Lead Agency and the Tribe (if the find is a prehistoric resource) shall be contacted immediately. The Tribe shall retain a qualified professional archaeologist to assess the find and determine an appropriate course of action in consultation with the Lead Agency and the Tribe. The process outlined in **Mitigation Measure M-3.5.1(b)** shall be followed.

Impact M-3.5.2

The Proposed Project would not directly or indirectly destroy an off-reservation unique paleontological resource or a unique geologic feature.

No off-reservation unique paleontological resources or geologic features have been identified through background research or surveys, and the likelihood of such resources being found within the areas recommended for traffic improvements is low. Construction of the traffic improvements would not directly or indirectly destroy a known off-reservation unique paleontological resource or an off-reservation unique geologic feature. Therefore, potential impacts on paleontological resources as a result of potential traffic mitigation measures would be less than significant.

Impact 3.5.3

The Proposed Project could disturb off-reservation human remains, including those interred outside of formal cemeteries.

No off-reservation human remains, including those interred outside of formal cemeteries, are known to exist near areas recommended for off-reservation traffic improvements. Because the area is rich in cultural resources, there is the potential for construction activities to unearth human remains. Implementation of **Mitigation Measure M-3.5.3** would reduce impacts to a less-than-significant level, should such an inadvertent discovery occur during construction.

Mitigation

M-3.5.3 Protection of Human Remains Following Inadvertent Discovery

If human remains are uncovered during project construction, pursuant to PRC Section 5097.98 and Section 7050.5 of the California Health and Safety Code, all activities within a 100-foot radius of the find shall be halted immediately and the Tribe, Lead Agency, and Yolo County coroner shall be notified. California law recognizes the need to protect interred human remains, particularly Native American burials and items of cultural patrimony, from vandalism and inadvertent destruction. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code Section 7050.5[b]). If the coroner determines that the remains are those of a Native American, he or she must contact the NAHC by phone within 24 hours of making that determination (Health and Safety Code Section 7050[c]). The Lead Agency shall contact the Most Likely Descendent (MLD), as determined by the NAHC, regarding the remains. The MLD, in cooperation with the Lead Agency, Tribe, and a qualified professional archaeologist shall develop a plan of action to avoid or minimize significant effects on the human remains prior to resumption of ground-disturbing activities. Work may resume if the NAHC is unable to identify a descendant or the descendant fails to make a recommendation.

3.6 HAZARDS AND HAZARDOUS MATERIALS

This section addresses the off-reservation environment associated with hazards (wildland fires) and hazardous materials, discusses potential off-reservation impacts of the Proposed Project, and presents mitigation measures recommended to reduce any associated potentially significant off-reservation impacts to less-than-significant levels.

3.6.1 REGULATORY SETTING

DEFINITION OF HAZARDOUS MATERIAL

For the purposes of this section's off-reservation environmental impact analysis, a material is considered hazardous if it appears on a list of hazardous materials prepared by a federal, state, or local agency, or if it has characteristics defined as hazardous by such an agency. A hazardous material is defined in Title 22 of the California Code of Regulations (CCR) as:

> A substance or combination of substances which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed (22 CCR Section 66260.10).

FEDERAL

United States Environmental Protection Agency (USEPA)

The United States Environmental Protection Agency (USEPA) administers numerous statutes pertaining to human health and the environment at the federal level.

Resource Conservation and Recovery Act (RCRA)

The USEPA regulates the land disposal of certain hazardous materials through the Resource Conservation and Recovery Act (RCRA). RCRA authorizes the USEPA to control hazardous waste from generation to disposal, and provides a framework for managing non-hazardous wastes. The 1984 amendments to RCRA, known as the "Federal Hazardous and Solid Waste Amendments," require phasing out land disposal of hazardous waste. As amended in 1986, RCRA addresses potential problems associated with underground tanks storing petroleum and other hazardous substances (USEPA, 1986a).

Under RCRA, the USEPA regulates the activities of hazardous waste generators, transporters, and handlers (any individual who treats, stores, and/or disposes of a designated hazardous waste). RCRA further requires the tracking of hazardous waste from its generation to its final disposal through a process often referred to as the "cradle-to-grave" regulation. This "cradle-to-grave" regulation requires detailed

documentation and record keeping for hazardous waste generators, transporters, and/or handlers to ensure proper accountability for violations of applicable regulations. Hazardous waste generators are divided into three categories based upon hazardous waste generation rates: Conditionally Exempt Small Quantity Generators (CESQGs), Small Quantity Generators, and Large Quantity Generators. Each type of generator is subject to different regulations related to differences in the amount of hazardous waste generated.

Toxic Substances Control Act (TSCA)

The Toxic Substances Control Act of 1976 (TSCA) provides the USEPA with authority to implement reporting, record-keeping and testing requirements, and restrictions relating to chemical substances and/or mixtures (USEPA, 1976). Certain substances such as food, drugs, cosmetics, and pesticides are generally excluded from TSCA. TSCA addresses the production, importation, use, and disposal of specific chemicals, including polychlorinated biphenyls, asbestos, radon, and lead-based paint.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund, imposed a tax on the chemical and petroleum industries and provided broad federal authority to respond directly to releases (or threatened releases) of hazardous substances that may endanger public health or the environment. CERCLA established prohibitions and requirements concerning closed and abandoned hazardous substances sites; provided for liability of persons responsible for releases of hazardous substances at these sites; and established a trust fund to provide for cleanup of these sites when no responsible party could be identified. CERCLA was amended by the Superfund Amendments and Reauthorization Act on October 17, 1986 (USEPA, 1986b).

STATE AND LOCAL

The Proposed Project site is located on federally owned trust land and is therefore not subject to the following state or local controls concerning hazardous materials/substances or wildland fires. However, such controls apply to off-reservation land in the vicinity of the Proposed Project site.

California Environmental Protection Agency (CalEPA)

The California Environmental Protection Agency (CalEPA) was created in 1991 to better coordinate state environmental programs, reduce administrative duplication, and address the most significant off-reservation environmental and health risks. CalEPA unifies the state's environmental authority under a single cabinet-level agency. CalEPA also implements federal regulations delegated to the state level by the USEPA. CalEPA oversees the following agencies: California Air Resources Board, California Integrated Waste Management Board, California Department of Pesticide Regulation, State Water Resources Control Board (SWRCB), California Department of Toxic Substances Control (DTSC), and Office of Emergency Services (OES).

DTSC regulates the off-reservation generation, transportation, treatment, storage, and disposal of hazardous waste under RCRA and the State Hazardous Waste Control Law. Both laws impose "cradle-to-grave" regulatory systems for handling hazardous waste in a manner that protects human health and the environment.

California Health and Safety Code

Division 20, Chapter 6.95 of the California Health and Safety Code requires off-reservation businesses that generate, store, or transport hazardous materials to prepare and maintain a Hazardous Materials Business Plan (HMBP). DTSC delegates enforcement of HMBP requirements to local environmental health departments. These requirements do not apply to the trust land on which the Proposed Project would be located, or to the Proposed Project itself.

Hazardous Waste Control Act

The Hazardous Waste Control Act (HWCA) of 1972 established the basis for the California Hazardous Waste Control Program within the California Department of Public Health. Included in the HWCA are definitions for what is considered to be a "hazardous waste;" the definition of "hazardous;" and what is required for appropriate handling, processing, and disposal of hazardous and extremely hazardous waste in areas over which the state has jurisdiction in a manner that protects the public, livestock, and wildlife. The HWCA also established a tracking system for the off-reservation handling and transportation of hazardous waste from the point of waste generation to the point of ultimate disposition, as well as a system of fees to cover the costs of operating the hazardous waste management program. The HWCA is California's means for implementing the RCRA "cradle-to-grave" tracking requirement. The USEPA used several components of the HWCA when CERCLA was first introduced in 1980. The primary state entity that oversees the "cradle-to-grave" regulations is DTSC.

Yolo County Environmental Health Division

The Yolo County Environmental Health Division implements and enforces an off-reservation Hazardous Materials Business and Inventory Program, in accordance with the federal and state Community Right-to-Know laws. The Yolo County program requires any off-reservation facility generating hazardous waste or handling substantial quantities of hazardous materials to prepare a Business Emergency Response Plan and Inventory. The County's program defines substantial quantities of hazardous materials as greater than 55 gallons for liquids, 500 pounds for solids, or 200 cubic feet for compressed gases; or lesser quantities if the materials are extremely hazardous or radiological (Yolo County Environmental Health Division, 2016). The County's program does not apply to the trust land on which the Proposed Project would be located, or to the Proposed Project itself.

County of Yolo 2030 Countywide General Plan

The *County of Yolo 2030 Countywide General Plan* (General Plan), adopted in 2009, is the guiding document for development in the unincorporated areas of the County, which include the off-reservation

properties in the vicinity of the Proposed Project. The General Plan does not apply to the trust land on which the Proposed Project would be located, or to the Proposed Project itself. Policies in the General Plan that are relevant to the off-reservation hazardous materials and wildfire conditions in the vicinity of the Proposed Project include the following:

Health and Safety Element

Goal HS-3: Wildland Fires. Protect the public and reduce damage to property from wildland fires.

Policy HS-3.1: Manage the development review process to protect people, structures, and personal property from unreasonable risk from wildland fires.

Policy HS-3.2: Encourage well-organized and efficient coordination between fire agencies and the County.

Policy HS-3.3: Clearly communicate the risk, requirements, and options available to those who own land and live in wildfire hazard areas.

Goal HS-4: Hazardous Materials. Protect the community and the environment from hazardous materials and waste.

Policy HS-4.1: Minimize exposure to the harmful effects of hazardous materials and waste.

Policy HS-4.3: Encourage the reduction of solid and hazardous wastes generated in the County.

Town of Esparto General Plan

This Draft Tribal Environmental Impact Report (TEIR) examines the off-reservation land use impacts of the Proposed Project in the County. Because Esparto is the nearest sizable community to the Resort, and because many Resort employees currently live in Esparto, relevant hazardous materials policies from the *Town of Esparto General Plan* are provided below (Yolo County, 2007).

Safety Goals, Policies, and Programs

Goal 1: To protect the lives and property of the residents of Esparto from unnecessary risk due to flooding, earthquakes, and other natural and human-made hazards.

Policy E-HZ.1: New development shall be prohibited in areas with sensitive environmental characteristics, or where natural or human-caused hazards pose a significant threat to safety and property.

Policy E-HZ.6: Require additional hazardous materials investigations or cleanup prior to approval of additional construction or redevelopment of the sites identified in the Yolo County Environmental Health Department – Hazardous Waste Site Files.

Capay Valley Area Plan

The *Capay Valley Area Plan* was adopted in 2010 as a component of the General Plan. The *Capay Valley Area Plan* does not apply to trust land on which the Proposed Project would be located, or to the

Proposed Project itself. The plan establishes the following goal relevant to off-reservation hazards and hazardous materials (Yolo County, 2010):

Public Health and Safety

Goal 6: Reduce or eliminate the presence of toxic materials in the environment.

3.6.2 ENVIRONMENTAL SETTING

OBSERVED SITE CONDITIONS

Proposed Project Area

There are no identified signs of contamination at the Resort or elsewhere on the Tribe's trust land that would affect the off-reservation environmental quality. Off-reservation land uses adjacent to the Proposed Project site are primarily agricultural. Hazardous materials sometimes associated with these adjacent off-reservation land uses include agricultural chemicals such as fertilizers and pesticides, waste oils associated with maintenance of farming equipment, and aboveground storage tanks (ASTs) used to store diesel and unleaded fuel for farming equipment.

Environmental Site Assessment (ESA)

A Phase I Environmental Site Assessment (ESA) was completed for the Proposed Project site in 2003 to identify Recognized Environmental Conditions (RECs) on or in the vicinity of the site (AES, 2003b). RECs include the presence or likely presence of any hazardous materials or petroleum products that indicate an existing release, past release, or threat of release into soil, groundwater, or any structure on or in the vicinity of the Proposed Project site. No records of contamination were found during preparation of the Phase I ESA. The Phase I ESA concluded that, with the exception of underground storage tanks (USTs) at the Tribe's existing gas station, located northwest of the Proposed Project site on trust land, there were no indications of RECs on the Proposed Project site that could adversely impact the off-reservation environment, and no further studies for hazardous materials were recommended. The Proposed Project would not result in any alteration or modification of the existing USTs or any new USTs on the trust land.

An updated Environmental Data Resources, Inc. (EDR) Report was obtained in April 2016 (EDR, 2016). EDR conducts database searches for records of known storage tank sites and known sites of hazardous materials generation, storage, and/or contamination using a geographical information system to plot locations of past and current hazardous materials uses or releases. The updated database search lists several on-site records, including the National Pollutant Discharge Elimination System (NPDES) permit; existing gasoline USTs at the Cache Creek mini-mart; a CESQG at the Sprint cell tower site; and entries in the HAZNET database, which contains facility and manifest data concerning shipments of hazardous materials. None of these entries reflect current or past hazardous materials releases, and they are not generally considered to be potential issues for off-reservation land. The EDR report also contains a

record of an off-site leaking UST case approximately 0.5 miles north of the Resort, but this case has been closed since 1994.

Sensitive Receptors

Schools are considered sensitive receptors in relation to the emissions and handling of hazardous materials. The off-reservation school nearest to the Proposed Project site is located in Esparto, approximately seven (7) miles southeast of the Proposed Project site. There is also a tribal school located on reservation, approximately two (2) miles north of the Proposed Project site. There are no known schools proposed for development within the vicinity of the Proposed Project.

ON-SITE HAZARDOUS MATERIALS USE

Operation of the existing Resort and ancillary support and commercial facilities on the trust land involves the delivery, use, and storage of hazardous materials. The discussion below summarizes the hazardous materials currently in use and stored at the Resort and ancillary support and commercial facilities on the trust land, to provide the foundation for analyzing any potential off-reservation impacts associated with the Proposed Project. As noted above, on-site hazardous material use by the Resort and ancillary support and commercial facilities on the trust land is regulated by the USEPA. Due to the small amounts of hazardous materials used or stored by the Resort and ancillary support and commercial facilities on the trust land, permitting and tracking of these materials is not required.

Cache Creek Gas Station and Mini-Mart

The existing Cache Creek gas station and associated mini-mart are located on the trust land adjacent to the Resort and have been operating since the summer of 2003. The gas station has a current Hazardous Material Inventory and an HMBP.

Diesel Fuel Tanks

Commissioned and placed into service in August 2011, the existing on-site generator plant houses four 3-megawatt diesel electric generators. The generators supply standby power to the Resort, the emergency fire pumps for the Resort, and the wastewater treatment plant (WWTP). The generator plant has two 20,000-gallon diesel fuel tanks that would allow for up to 48 hours of operation at peak load in the event that the generators were needed. In addition, the generators are also designed to run on natural gas; natural gas piping and valves are installed at each generator, providing the ability to run the generators on natural gas once the manufacturer has a proven control system to integrate into the plant.

Water and Wastewater Treatment

Operation of the existing WWTP located on the trust land requires the delivery, storage, and use of hazardous materials, particularly the use of 12.5-percent sodium hypochlorite (NaOCl). NaOCl, also referred to as bleach, is commonly used for wastewater disinfection. NaOCl ingestion can cause severe gastrointestinal corrosion; inhalation can cause pulmonary edema. A weak (five percent strength)

solution of NaOCl is used in the wastewater treatment process to clean or inhibit biogrowth in the immersed membranes used to filter out solids. The NaOCl is stored in 1,000-gallon bulk storage tanks on a concrete slab in the WWTP building.

Operation of the existing water desalination treatment facility (WDTF) located at the Resort requires the delivery, storage, and use of hazardous materials, including potassium hydroxide solution, hydrochloric acid, NaOCl, calcium chloride, and sodium bisulfite, which are all stored in 1,000-gallon storage tanks within the chemical room of the WDTF. Two types of membrane cleaner (NLR 404 and NLR 505), which are solutions of alkaline salts and detergents, are used at the WDTF and are stored in 275-gallon containers in the WDTF. Antiscalant is stored in 55-gallon drums.

Chemicals used during wastewater and water treatment and disinfection operations at the WWTP and the WDTF are stored inside a chemical spill containment area sized to contain 125 percent of the storage volume in case of an unintentional spill. An emergency contingency plan for the WWTP and WDTF is included as part of the Resort's current emergency management plan. All wastewater and water treatment employees have been trained in hazardous materials handling and fire safety. All Material Safety Data Sheets for the WWTP and WDTF are located near the area where the corresponding material is stored and or used.

Resort Maintenance

The existing Resort does not generate significant quantities of hazardous materials. The Resort maintenance crew uses and stores small amounts of fuel, motor oil, and waste oil for maintenance of equipment and machinery. These materials are stored on a concrete slab in a secured locker in the Resort that is marked "Flammable," as required by the Occupational Safety and Health Administration. Gasoline is stored in clearly labeled five-gallon cans. Motor oil is purchased and kept in plastic one-quart sealed containers until needed. Due to the relatively small amounts of hazardous materials used or stored on the Resort property at any time, no permits for or tracking of these materials are required under RCRA by the USEPA.

Cleaning supplies are stored in secured janitorial closets or lockers at the Resort and are accessible only to authorized personnel. Biological wastes, including potential biohazardous materials from "sharps" receptacles provided in the restrooms, are stored within a secured locker and removed from the Resort on a weekly basis by a licensed medical waste removal service.

YOCHA DEHE FIRE DEPARTMENT (YDFD)

As described in **Section 3.10**, **Public Services and Utilities and Service Systems**, fire-fighting services for the Resort and surrounding region are provided by the Yocha Dehe Fire Department (YDFD). YDFD, which is headquartered on the trust land approximately 500 feet north, and within a few minutes response time, of the Resort, provides first response to service calls on the trust land. YDFD also assists in

emergency responses off of the trust land through mutual aid agreements with other fire service agencies and local volunteer fire departments. YDFD is staffed with full-time emergency responders on a 24/7 basis. Each YDFD shift is staffed with at least nine personnel, including one battalion chief, two captains, two engineer/paramedics, three firefighter/paramedics, and one firefighter/Emergency Medical Technician (EMT; YDFD, 2016).

3.6.3 IMPACT ANALYSIS

SIGNIFICANCE CRITERIA

The following criteria are established by Section VII of the Compact and have therefore been used in this section to evaluate the potential off-reservation impacts of the Proposed Project with respect to hazards and hazardous materials. Such an impact is considered significant if it would:

- Create a significant hazard to the off-reservation public or the off-reservation environment through the routine transport, use, or disposal of hazardous materials, or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed off-reservation school; or
- Expose off-reservation people or structures to a significant risk of loss, injury, or death involving wildland fires.

OFF-RESERVATION IMPACTS OF THE PROPOSED PROJECT

Impact 3.6.1

The Proposed Project could create a hazard to the off-reservation public and/or off-reservation environment through routine transport, use, or disposal of hazardous materials, or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the off-reservation environment during construction, but not operation, of the Proposed Project.

Construction

During construction of the Proposed Project, limited quantities of miscellaneous hazardous substances such as fuels, solvents, oils, and paint would be used and stored at the Proposed Project site. Various contractors could use temporary bulk ASTs as well as storage sheds or trailers for fueling and maintenance purposes. As with any liquid or solid, the handling and transfer from one container to another has the potential for an accidental release. If used, stored, and disposed of properly, these materials would not pose a hazard to the off-reservation public or the off-reservation environment. However, if these materials are not used, stored, or disposed of properly, spills or leaks could pose a hazard to the off-reservation public and to the off-

reservation environment. The presence of hazardous materials on the Proposed Project site during construction could create a significant off-reservation impact if spilled in such a way as to flow off reservation.

With implementation of **Mitigation Measure 3.6.1**, off-reservation environmental impacts associated with the storage and use of hazardous materials in the construction of the Proposed Project would be less than significant.

Operation

Implementation of the Proposed Project would not alter the hazardous materials operations at the gas station or emergency generator facilities discussed above, as these facilities are not a component of the Proposed Project and are already sized to meet the needs of the Resort, including the Proposed Project. Fuel storage on trust land would remain consistent with existing conditions and processes. Therefore, implementation of the Proposed Project would result in no impact to the off-reservation environment associated with fuel storage.

The use of NaOCl for the wastewater treatment process at the WWTP would minimally increase as a result of the additional wastewater generated by the Proposed Project. Additionally, the use of the chemicals at the WDTF to treat groundwater would increase as part of the Proposed Project. Due to the relatively small amounts of chemicals used and/or stored at the WDTF at this time, the increase would not result in a new requirement for permitting or tracking of these materials under RCRA by the USEPA. If needed, the storage containers would be resized for the Proposed Project to ensure that, should the additional treatment chemicals be required for water treatment, spill containment would be maintained at the 125 percent containment-to-storage ratio. Due to the existing provisions for adequate secondary containment of chemicals used for wastewater and water treatment, the increased use and storage of chemicals for wastewater and water treatment as a result of the Proposed Project would not result in a significant off-reservation impact associated with the storage and use of hazardous materials in the operation of the Proposed Project.

With no increase in fuel storage being required as a result of the Proposed Project, and with the minimal increase in on-site storage capabilities (including secondary containment at the WWTP and WDTF), operation of the Proposed Project would result in a less-than-significant impact associated with hazards to the off-reservation public and/or off-reservation environment through routine transport, use, or disposal of hazardous materials.

Mitigation

3.6.1 Protection of the Environment from Hazardous Materials during Construction

a. During construction of the Proposed Project, the Tribe shall ensure, through the enforcement of contractual obligations of the contractors performing such construction, that all contractors prepare HMBPs if quantities of hazardous materials to be used are above applicable threshold criteria, and that such contractors transport, store, and handle construction-related hazardous materials in a manner consistent with applicable regulations and guidelines. These requirements may include, but are not limited to, applicable federal, state, and/or local regulatory agency protocols for off-reservation transportation and storage of materials and applicable federal and Tribal protocols for on-trust land storage and handling of materials.

b. As discussed in **Section 3.7**, **Hydrology and Water Quality**, a Stormwater Pollution Prevention Plan shall be prepared for the Proposed Project that identifies best management practices (BMPs) to be implemented during construction of the Proposed Project, as required by the NPDES Construction Stormwater General Permit. All BMPs required by the NPDES General Permit shall be implemented to ensure that hazardous materials do not enter any nearby waterways. BMPs outlined in **Mitigation Measure 3.7.3** shall be implemented, including the following practices that pertain to reducing the potential for the release of hazardous materials during construction.

    1. Hazardous materials such as fuels and solvents used in the construction of the Proposed Project shall be stored in covered containers and protected from rainfall, runoff, vandalism, and accidental release to the environment. All stored fuels and solvents shall be contained in an area of impervious surface with containment capacity equal to the volume of materials stored.

    2. A stockpile of spill cleanup materials shall be readily available at the Proposed Project site. Construction workers shall be trained in spill prevention and cleanup, and individuals on each shift shall be designated as responsible for prevention and cleanup activities.

    3. Equipment used in the construction of the Proposed Project shall be properly maintained in designated areas equipped with runoff and erosion control measures to minimize accidental release of pollutants.

Impact 3.6.2

The Proposed Project would not emit hazardous emissions or involve handling of hazardous materials, substances, or waste within one-quarter mile of an existing or proposed off-reservation school.

The nearest off-reservation schools are in Esparto, approximately seven (7) miles southeast of the Proposed Project site. Implementation of the Proposed Project would not result in off-reservation hazardous emissions or off-reservation handling of hazardous materials. With the distance from the Proposed Project to the nearest off-reservation school being greater than one-quarter mile, and no off-reservation hazardous emissions or off-reservation handling of hazardous materials occurring as a result of the Proposed Project, no impact on off-reservation schools would occur.

Impact 3.6.3

The Proposed Project would expose off-reservation people or structures to a significant risk of loss, injury, or death involving wildland fires during construction, but not operation, of the Proposed Project.

Construction

The equipment used during construction of the Proposed Project may create sparks, which could ignite dry grass or vegetation on the Proposed Project site, leading to off-reservation wildfires. Additionally, the off-reservation environment surrounding the Proposed Project site consists of dry grazing land (to the south and north) and agricultural land (to the west). During construction, the use of power tools and acetylene torches may also increase the risk of fire hazard. This risk, similar to that found at other construction sites, is considered potentially significant.

Implementation of **Mitigation Measure 3.6.3** would reduce the impact associated with the potential for off-reservation wildland fires attributable to the construction of the Proposed Project to less than significant.

Operation

In accordance with the Compact, the Proposed Project would be constructed to meet or exceed the requirements of the California Building Code, ~~and~~ the Public Safety Code, and the Sacramento City Fire Department High-Rise Policy, including codes for fire and safety. The Tribe would, after implementation of the Proposed Project, continue to take all necessary steps to reasonably ensure the ongoing availability of sufficient and qualified fire suppression services to the Resort. Fire protection features such as sprinkler systems and fire-resistant materials would be incorporated into the design of the Proposed Project. These measures would reduce the risk of a large structure fire in the Proposed Project spreading to off-reservation wildland areas.

YDFD serves all of the Tribe's trust land, as well as providing emergency response service to the entire Capay Valley. As described in **Section 3.10**, **Public Services and Utilities and Service Systems**, YDFD, the Capay Valley Fire Protection District (CVFPD), the Esparto Fire Protection District (EFPD), and 19 other fire protection agencies maintain a mutual aid agreement that commits each jurisdiction to give aid to specified parties. These agreements allow fire departments to combine their forces when necessary. A seasonal fire station operated by the California Department of Forestry and Fire Protection (CAL FIRE) is located adjacent to the Resort, which provides regional wildland fire protection. Thus, adequate resources to combat wildfire in and around the Proposed Project site are available in the immediate area of the Proposed Project. **Section 3.10**, **Public Services and Utilities and Service Systems**, addresses potential off-reservation impacts of the Proposed Project associated with fire protection. The immediate response to fire calls from the Proposed Project made possible by the YDFD would greatly decrease the potential for any fire occurring at the Proposed Project spreading to any off-reservation location. Furthermore, the YDFD is equipped and able to respond to wildfire emergencies in the vicinity of the Proposed Project site. Therefore, impacts associated with exposing off-reservation people or structures to a significant risk of loss, injury, or death involving wildland fires during operation of the Proposed Project are less than significant.

Mitigation

3.6.3 Wildfire Prevention

Construction personnel shall follow written standard operating procedures (SOPs) for servicing and operating construction equipment and vehicles to reduce the potential for wildland fires. These SOPs shall address equipment use and the storage and use of hazardous materials during construction of the Proposed Project. The SOPs shall include the following procedures, to be implemented where feasible and when reasonable:

1. Refueling shall be conducted only with approved pumps, hoses, and nozzles;
2. Catch-pans shall be placed under equipment to catch potential spills during servicing;
3. All disconnected hoses shall be placed in containers to collect residual fuel from the hose;
4. Vehicle engines shall be shut down during refueling;
5. No smoking, open flames, or welding shall be allowed in refueling or service areas;
6. Service trucks shall be provided with fire extinguishers;
7. Staging areas, welding areas, and areas slated for development using spark-producing equipment shall be cleared of dried vegetation or other materials that

could serve as fire fuel. To the extent feasible, the contractor shall keep these areas clear of combustible materials to maintain a firebreak;

8. Any construction equipment that normally includes a spark arrester shall be equipped with an arrester in good working order; and
9. All hazardous materials transported to or from the Proposed Project site shall be transported in accordance with applicable state and federal regulations as required based on quantity and class of materials.

3.7 HYDROLOGY AND WATER QUALITY

This section addresses the off-reservation environment associated with hydrology and water quality, discusses potential impacts of the Proposed Project on off-reservation hydrology and water quality, and recommends mitigation measures to reduce any associated potentially significant off-reservation impacts.

3.7.1 REGULATORY SETTING

FEDERAL

Clean Water Act (CWA)

The Clean Water Act (CWA; 33 United States Code [USC] Sections 1251-1376), as amended by the Water Quality Act of 1987, is the major federal legislation governing water quality. The objective of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." The United States Environmental Protection Agency (USEPA) is delegated as the administrative agency under the CWA. Relevant sections of the CWA are as follows:

- *Sections 303* and *304* provide for water quality standards, criteria, and guidelines. Section 303(d) requires states to identify impaired off-reservation water bodies, rank these impaired bodies based on severity of contamination and uses for the waters, and develop water quality management strategies, usually in the form of total maximum daily loads (TMDLs) for the contaminant(s) of concern.
- *Section 401* (water quality certification) requires an applicant for any federal permit that proposes an activity that may result in a discharge to waters of the United States, to obtain certification from the USEPA, for on-trust land activities, or the state, for off-reservation activities, that the discharge will comply with other provisions of the CWA.
- *Section 402* establishes the National Pollutant Discharge Elimination System (NPDES), a permitting system for the discharge of any pollutant (except for dredged or fill material) into waters of the United States. Each NPDES permit contains limits on concentrations of pollutants discharged to surface waters to prevent degradation of water quality and protect beneficial uses.

Anti-degradation Policy

Federal policy (Code of Federal Regulations [CFR], Title 40, Part 131.6) specifies that each state must develop, adopt, and retain an anti-degradation policy to protect the minimum level of off-reservation surface water quality necessary to support existing uses. Each state must also develop procedures to implement the anti-degradation policy through water quality management processes. Each state's anti-degradation policy must include implementation methods consistent with the provisions outlined in 40 CFR §131.12. On trust land, these issues are addressed by the USEPA.

Safe Drinking Water Act

Minimum national drinking water standards are established through the 1974 Safe Drinking Water Act (amended in 1986 and 1996). Guidelines for groundwater protection are also issued through this act. Contaminants of concern relevant to domestic water supply are defined as those that pose a public health threat or that alter the aesthetic acceptability of the water. The USEPA regulates these types of contaminants through the development of national primary and secondary maximum contaminant levels (MCLs) for drinking water.

Disaster Relief Act

The Disaster Relief Act of 1974, as amended by the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988, created the Federal Emergency Management Agency (FEMA), which is responsible for determining flood elevations and floodplain boundaries based on United States Army Corps of Engineers (USACE) studies. FEMA is also responsible for distributing Flood Insurance Rate Maps, which are used in the National Flood Insurance Program (NFIP). These maps identify the locations of special flood hazard areas, including 100-year floodplains. A 100-year flood event is defined as a flood event which has a one percent chance of occurring in any given year.

FEMA allows non-residential development in a floodplain; however, construction activities are restricted within flood hazard areas, depending upon the potential for flooding within each area. Federal regulations governing development in a floodplain are set forth in 44 CFR Part 60.3 (c)(10). Cumulative development is restricted from increasing the water surface elevation of the base flood by more than one foot within the floodplain. These standards are implemented off reservation at the state level through construction codes and local ordinances applicable to residential and non-residential structural improvements.

NPDES Permitting Program

All facilities discharging pollutants from point sources into waters of the United States must obtain a discharge permit under the NPDES program. Municipal facilities discharging pollutants, such as publicly owned treatment works and municipal storm systems, are permitted either under individual permits issued for a given facility or under a general NPDES discharge permit that covers multiple discharge sources (USEPA, 2016a). For individual permits, an application package must be submitted to the permitting authority including the application form and supplemental documents that provide the permitting authority with information regarding the type of discharge, receiving water characteristics, and other pertinent information. After reviewing an application for an individual facility permit, the permitting authority may issue a permit with specific effluent limits, or Waste Discharge Requirements (WDRs), based on either water quality or limitations on available technology (USEPA, 2016a). The permitting authority is responsible for enforcement of the permit requirements. Individual facility permits must be renewed periodically, typically every five years, before they expire. A general permit covers multiple types of facilities or point-source discharges of the same nature or that require the same monitoring provisions.

Individual NPDES Permits for Discharge into Impaired Waterways

To ensure compliance with the CWA, USEPA must consider the status of the regional water quality before issuing an individual facility NPDES permit for discharge into waterways formally designated as "impaired." Pollutant load allocations typically take the form of TMDLs calculated for each pollutant of concern for which the waterway is impaired, and USEPA will consider these TMDLs when writing the WDRs for a given permit. TMDLs are calculated by determining a maximum amount of pollutant load than can enter the waterway from all sources and still allow water quality to improve sufficiently within a set time frame. According to 40 CFR §122.4(i):

> The owner or operator of a new source or new discharger proposing to discharge into a water segment which does not meet applicable water quality standards or is not expected to meet those standards even after the application of the effluent limitations required by sections 301(b)(1)(A) and 301(b)(1)(B) of CWA, and for which the State or interstate agency has performed a pollutants load allocation for the pollutant to be discharged, must demonstrate, before the close of the public comment period, that:
>
> (1) There are sufficient remaining pollutant load allocations to allow for the discharge; and
>
> (2) The existing dischargers into that segment are subject to compliance schedules designed to bring the segment into compliance with applicable water quality standards.

The applicant for an individual facility permit must therefore demonstrate to the USEPA that both of the conditions described in 40 CFR §122.4(i) are met before a permit may be issued for a discharge into an impaired waterway.

General NPDES Permit for Construction

In 1990, an amendment to the CWA directed the NPDES permitting program to address non-point-source pollution from construction activities. Construction activities include clearing, grading, excavation, stockpiling, and reconstruction of existing facilities involving removal and replacement of existing foundations or other hardscapes. Construction projects disturbing one or more acres of soil must be covered under the NPDES general permitting process. For tribal projects on land held in trust by the federal government, the tribe proposing the project must apply for coverage under the USEPA's Stormwater General NPDES Permit for Construction Activities.

Project proponents are required to submit to the USEPA a complete Notice of Intent (NOI) to comply with the permit. A complete NOI package consists of an NOI form, site map, and fee. The USEPA's Stormwater General NPDES Permit for Construction Activities also requires the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP contains a site map

showing the construction site perimeter, existing and proposed buildings, lots and roadways, stormwater collection and discharge points, general topography both before and after construction, and drainage patterns across the site. The SWPPP must list best management practices (BMPs) that will be implemented during construction and operation to address stormwater runoff rates and quality. BMPs include the following categories:

- *Site Planning Considerations*, such as preservation of existing vegetation;
- *Vegetation Stabilization* through methods such as seeding and planting;
- *Physical Stabilization* through use of dust control and stabilization measures;
- *Diversion of Runoff* by utilizing earth dikes and temporary drains and swales;
- *Velocity Reduction* through measures such as slope roughening/terracing; and
- *Sediment Trapping/Filtering* through use of silt fences, straw bales and sand bag filters, and sediment traps and basins.

STATE AND LOCAL

The Proposed Project is located on the Yocha Dehe Wintun Nation's (Tribe's) federally owned trust land and is not subject to state or local controls concerning hydrology and water quality. However, such controls apply to off-reservation lands in the vicinity of the Proposed Project site.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Division 7 of the California Water Code) provides the basis for off-reservation surface water and groundwater quality regulation within California. This act established the authority of the State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCBs). The SWRCB administers water rights, water pollution control, and water quality functions throughout the state, while the RWQCBs conduct planning, permitting, and enforcement activities within designated regions.

The Porter Cologne Act (§13242) requires that a TMDL program of implementation be developed in the Regional Water Quality Control Plans (see the following *RWQCB's Anti-degradation Policy* section) for off-reservation water bodies listed under Section 303(d) of the CWA that describes how water quality objectives will be attained. This, at a minimum, would require a description of the nature of actions that are necessary to achieve those objectives, including recommendations for appropriate action by any off-reservation entity, public or private; a time schedule for the actions to be taken; and a description of surveillance (monitoring) to be undertaken to determine compliance with the objectives. The objectives are enforced through the NPDES permitting program. Any action that may result in the off-reservation discharge of waste that could affect the quality of the state's waters requires the discharger to file a report of waste discharge (RWD) with the RWQCB when applying for coverage under the state's implementation of the NPDES permitting program. The RWQCB staff analyzes the RWD and characteristics of the waste proposed to be discharged and prepares draft WDRs, which constitute a permit for the discharge. Publicly-owned wastewater treatment facilities must obtain WDRs before

discharging treated effluent to off-reservation lands. WDRs include operational requirements, contaminant limitations, and monitoring requirements for both discharges and receiving waters.

RWQCB's Anti-degradation Policy

The Porter Cologne Act requires the state, through the SWRCB and the RWQCBs, to designate beneficial uses of off-reservation surface water and groundwater and to specify water quality objectives designed to protect those off-reservation uses. These water quality objectives are presented in the Regional Water Quality Control Plans (basin plans). Basin plans are developed and periodically reviewed to fulfill the state's requirements of the anti-degradation policy of the CWA. These basin plans designate beneficial uses within California's major off-reservation rivers and groundwater basins and establish water quality objectives for waters under state jurisdiction located in each region. The beneficial uses identified within each basin plan describe the qualities and services that are derived from a water body. In turn, water quality objectives are intended to protect and support the continued viability of beneficial uses. Implementation of basin plans occurs primarily through issuance of WDRs. Each basin plan provides a technical basis for determining WDRs and, when necessary, regulatory enforcement action.

California Water Code

The California Water Code designates the California Department of Public Health (CDPH) as the lead agency responsible for developing uniform statewide recycling criteria for each type of off-reservation use of treated wastewater for the protection of public health. The CDPH and the RWQCBs are directed under the California Water Code to regulate off-reservation treated wastewater production and use. The CDPH has jurisdiction over the off-reservation production of treated wastewater and the enforcement of California Code of Regulations (CCR) Title 22 for treated wastewater criteria. The RWQCB is responsible for issuing treated wastewater use requirements (including discharge prohibitions and monitoring and reporting programs) and user requirements associated with the implementation of off-reservation treated wastewater projects.

The California Water Code requires any entity under state jurisdiction proposing to recycle water or use treated wastewater to file a RWD with the corresponding RWQCB. It is state policy to encourage development of recycled water throughout California. The California Water Code further states that the use of potable water for non-potable uses (e.g., irrigation of greenbelt areas, such as cemeteries, golf courses, parks, highway landscaped areas, and industrial uses) is considered a waste and an unreasonable use of potable water, under the California State Constitution, when suitable recycled water is available at a reasonable cost and the development of facilities to recycle water is in the interest of the people of the state to supplement existing surface and groundwater supplies.

California Code of Regulations, Title 22

This section of the CCR, commonly referred to as Title 22, is a broad set of regulations dealing with social issues. Title 22 Divisions 4 and 4.5 address off-reservation environmental and public health issues such as hazardous waste, medical waste, and the protection of drinking water.

Division 4, Chapter 3 – Water Recycling Criteria

Division 4, Chapter 3 establishes the acceptable uses of treated wastewater, wastewater treatment requirements for each use, use area requirements, engineering report requirements, reporting and record-keeping requirements, and design requirements for operational reliability of treatment for generators and users of recycled water under state jurisdiction. These regulations establish acceptable levels of constituents in treated wastewater for a range of uses, and prescribe means for assuring reliability in the production of treated wastewater. Criteria for the production of treated wastewater include water quality standards, treatment process requirements, operational requirements, and treatment reliability requirements. The intent of these regulations is to ensure the protection of public health associated with the use of treated wastewater. Title 22 treated wastewater regulations for a specific reuse category are based on the expected degree of human contact with the treated wastewater.

Under Title 22, the highest level of wastewater treatment is disinfected tertiary recycled water, which may be used for the full range of non-potable uses, including irrigation of food crops, parks and playgrounds, school yards, residential landscaping, golf courses, and cemeteries. Under certain conditions, disinfected tertiary recycled water has been determined to be suitable for non-restricted recreational impoundments.

Division 4, Chapter 15 – Domestic Water Quality and Monitoring Regulations

Division 4, Chapter 15 contains California's drinking water MCLs, commonly referred to as Title 22 standards, and also includes rules for treatment techniques and best available technologies for treating water to Title 22 standards, as well as regulations regarding the certification of environmental laboratories that test for Title 22 constituents. The Central Valley Regional Water Quality Control Board (CVRWQCB) Basin Plan (Basin Plan) incorporates Title 22 standards as a basis for its water quality objectives for beneficial uses of the off-reservation water resources in the Central Valley Basin. Additionally, the Basin Plan provides more basin-specific goals for constituents with no California MCL, water quality objectives related to specific off-reservation bodies of water, and TMDLs for off-reservation impaired waterways (CVRWQCB, 2015).

Sustainable Groundwater Management Act (SGMA)

The intent of the Sustainable Groundwater Management Act (SGMA; California Water Code § 10720 et seq.) is to "enhance local management of groundwater consistent with rights to use or store groundwater… [and] to preserve the security of water rights in the state to the greatest extent possible consistent with the sustainable management of groundwater." The SGMA states that "any local agency or combination of local agencies overlying a groundwater basin may elect to be a groundwater sustainability agency for that basin" (California Water Code § 10723). A groundwater sustainability agency will be formed within each groundwater basin to prepare and implement a plan for long-term groundwater sustainability. The sustainability agency for the Proposed Project area has not yet been finalized.

County of Yolo 2030 Countywide General Plan

The *County of Yolo 2030 Countywide General Plan* (General Plan), adopted in 2009, is the guiding document for development in the unincorporated area of the County, which includes the off-reservation vicinity of the Proposed Project (Yolo County, 2009a). The General Plan does not apply to trust land or to the Proposed Project itself. Goals, policies, and implementation actions in the General Plan that are relevant to off-reservation surface waters and groundwater hydrology, water quality, and flooding in the vicinity of the Proposed Project include the following.

Conservation and Open Space Element

Goal CO-5: Water Resources. Ensure an abundant, safe, and sustainable water supply to support the needs of existing and future generations.

Policy CO-5.1: Coordinate with water purveyors and water users to manage supplies to avoid long-term overdraft, water quality degradation, land subsidence and other potential problems.

Policy CO-5.2: Support projects that provide reliable and sustainable surface water from a variety of energy efficient sources. Sources should be sufficient to serve existing and planned land uses in prolonged drought periods and protect natural resources and surface water flows.

Policy CO-5.3: Manage the County's groundwater resources on a sustainable yield basis that can provide water purveyors and individual users with reliable, high quality groundwater to serve existing and planned land uses during prolonged drought periods.

Action CO-A71: Collaborate with the Water Resources Agency to collect data from public water suppliers and other water users which use groundwater sources to monitor and report groundwater levels and yields, where appropriate, to manage long term aquifer conditions.

Policy CO-5.6: Improve and protect water quality for municipal, agricultural, and environmental uses.

Action CO-A78: Ensure the collection and maintenance of data on water use, water supplies, and water quality to avoid long-term overdraft, water quality degradation, land subsidence and other potential groundwater problems.

Action CO-A90: Adopt development design standards to reduce or eliminate impervious surfaces where possible.

Action CO-A93: Require the implementation of BMPs to minimize erosion, sedimentation, and water quality degradation resulting from new development and increases in impervious surfaces.

Policy CO-5.8: Support efforts to reduce the accumulation of methyl mercury in fish tissue in Cache Creek and the Sacramento/San Joaquin Delta (Delta), as well as the consumption of fish with high levels of methyl mercury.

Policy CO-5.15: Encourage new development and redevelopment to use reclaimed wastewater, where feasible, to augment water supplies and to conserve potable water for domestic purposes.

Policy CO-5.23: Support efforts to meet applicable water quality standards for all surface and groundwater resources.

Policy CO-5.29: Vigorously protect all water rights related to lands within Yolo County, including areas of origin, riparian water rights, and other existing water rights.

Policy CO-5.33: Strive to increase artificial recharge of important aquifers with surplus surface water supplies.

Town of Esparto General Plan

This Draft Tribal Environmental Impact Report (TEIR) examines the off-reservation land use impacts of the Proposed Project in the County. Because Esparto is the nearest sizable community to the Resort, and because many Resort employees currently live in Esparto, relevant hydrology and water quality policies from the Esparto General Plan are provided below (Yolo County, 2007). The *Town of Esparto General Plan* does not apply to trust land or to the Proposed Project itself.

Conservation Goals, Policies, and Programs

Goal 1: To protect the town's natural, cultural, visual, and historical resources.

Policy E-R.9: New development shall preserve and enhance existing riparian and wetland habitat along Lamb Valley Slough and other small canals in the planning area, unless the need for flood protection and maintenance prevents such preservation and enhancement.

Capay Valley Area Plan

The *Capay Valley Area Plan*, adopted in 2010 as a component of the General Plan, establishes the following policies relevant to off-reservation water resources (Yolo County, 2010). The *Capay Valley Area Plan* does not apply to trust land or to the Proposed Project itself.

Conservation and Natural Resources

Goal 4: Enhance the quality and conserve the quantity of groundwater, creek water, and runoff waters in the Cache Creek watershed.

Policy 1: Conservation measures in water usage for agriculture and residential areas should be encouraged.

Implementation Measure 1: Informational programs teaching methods of low water usage irrigation practices in agricultural and residential areas are encouraged.

Policy 3: The County shall continue efforts to manage Cache Creek and water resources and to encourage the long-range stewardship of Cache Creek as a renewable resource.

Implementation Measure 1: The County shall ensure that projects involving drainage modifications shall be constructed so as to minimize soil erosion and silt transport.

Public Health and Safety

Goal 7: Maintain or enhance air and water quality.

Policy 4: Capay Valley residents who have been able to determine that they share a common aquifer should cooperate in maintaining the quality of the water in that aquifer.

Implementation Measure 1: The County shall encourage residents to share water table depth data with neighbors.

Implementation Measure 2: The County shall encourage residents sharing a common aquifer to cooperate in the prevention of pollutants or toxic materials from entering the ground water.

Implementation Measure 3: The County shall conduct periodic water quality tests to establish annual fluctuations in chemical analysis.

Goal 8: Avoid loss of life and minimize loss of property due to flood.[1]

Policy 1: Consolidate all available flood hazard information and have available for public review.

Implementation Measure 1: The County shall maintain up to date and accurate floodplain information on Cache Creek. This information shall be made available to all County agencies and interested public as needed to make development decisions.

Yolo County Flood Control and Water Conservation District (YCFCWCD)

The Yolo County Flood Control and Water Conservation District (YCFCWCD) is an independent Special District that manages off-reservation water resources within approximately 195,000 acres of Yolo County, including the Cities of Woodland, Davis, and Winters, as well as the Capay Valley, including the

[1] The Yolo County Office of Emergency Services (OES), along with the Yocha Dehe Fire Department (YDFD), have received a grant to map all floodplains along Cache Creek within the Capay Valley. The floodplains will be available to emergency personnel in the spring of 2017.

community of Esparto. The YCFCWCD manages two reservoirs, approximately 150 miles of canals and laterals, three dams including an inflatable rubber dam near Capay, and a small hydroelectric power plant. The YCFCWCD's mission includes providing low-cost water supplies and preserving and enhancing the environment and quality of life in Yolo County.

Primary source waters for the YCFCWCD flow from Clear Lake, located in Lake County, where YCFCWCD holds appropriative rights for up to 150,000 acre-feet per year (af/yr). The YCFCWCD also operates the Indian Valley Reservoir (approximately 350,000 acre-feet [af]), which provides supplementary storage for agricultural use; Cache Creek Dam, which is located about five miles downstream of Clear Lake and provides winter storage of water from Clear Lake; and Chapman Reservoir, which has a capacity of approximately 200 af and serves both flood control and irrigation purposes.

3.7.2 ENVIRONMENTAL SETTING

SURFACE WATER

Surface Water Features

Cache Creek is the primary surface water feature in the Capay Valley. The creek flows generally southeast from Clear Lake through the Capay Valley into the Sacramento Valley, to its discharge point at the Cache Creek Settling Basin and the Yolo Bypass, located just north of the City of Woodland. The Cache Creek watershed is a sub-component of the greater Sacramento River hydrologic unit which, along with the San Joaquin River watershed, is generally regulated by the CVRWQCB. The Indian Valley Reservoir is located north of Yolo County and primarily serves as a water storage facility for irrigation, collecting runoff from the northern end of the Cache Creek basin that would normally flow uncontrolled through the Capay Valley. Releases from Clear Lake and the Indian Valley Reservoir supplement summer flows in the creek, primarily in support of agriculture. Cache Creek is designated for municipal, agriculture, industry, recreation, freshwater habitat, spawning, and wildlife habitat beneficial uses.

The Proposed Project site is located in the lower Cache Creek watershed, approximately 11.5 miles downstream from the community of Rumsey. Cache Creek flows adjacent to the eastern boundary of the Yocha Dehe Golf Club, approximately 0.75 miles east of the Resort. The stream flow varies seasonally, with the highest peak flows occurring during the winter rainy season after storm events, and the lowest flows occurring late in the dry season, after the summer irrigation season. Releases from upstream reservoirs for the summer irrigation season (April–October) increase the flow over the natural conditions to support agricultural diversions, creating relatively stable conditions throughout most of the normal dry season. Due to the lack of stream data for the portion of Cache Creek that is adjacent to the Tribe's golf course, a hydrological model was created using data from multiple stream flow gauges in the upper Cache Creek watershed to calculate the flow rate in Cache Creek adjacent to the Golf Course. Results of the model are described in the *Capay IGSM Update and Scenario Analysis Draft Report* (RMC, 2016a) included as **Appendix E**. As described therein, the annual average flow of Cache Creek is approximately

550,000 af/yr. A peak flow of approximately 2,500,000 af/yr occurred during 1983 (considered a wet year based on total precipitation of the region), and the low flow condition of 17,000 af/yr occurred in 1977 during drought conditions.

Drainage

Runoff from the existing drainage system at the Resort is directed through a collection system into a series of underground settling chambers. The runoff then passes through culverts beneath State Route (SR)-16, where runoff is then conveyed into a drainage ditch, across the Ponotla Piht property, and into an earthen detention basin.

Flooding

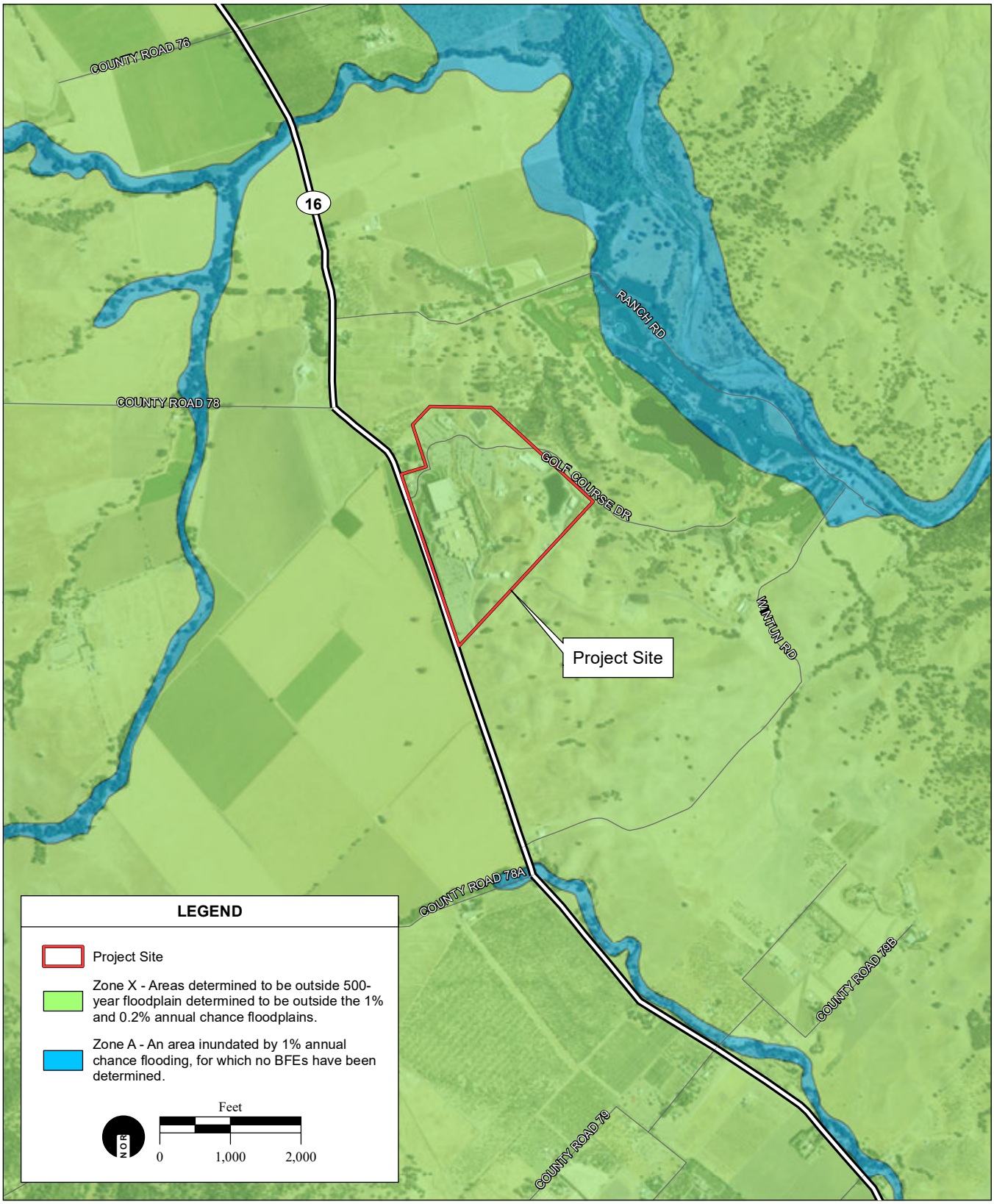
Floods within the Cache Creek basin may develop within hours of a major storm event and may recede within one day after the storm event has passed. Accordingly, characteristic floods in the basin may last up to three or four days. Most flooding events occur between December and March, although some flooding may also occur in November or as late as April. Based on the hydrology of the creek and topography of the area, the Proposed Project is outside of the FEMA 100-year flood zone (**Figure 3.7-1**).

Dam Inundation

The Indian Valley Reservoir, which was constructed in 1976, is located north of SR-20, approximately 32 miles northwest of the Proposed Project, near the town of Clearlake Oaks in Lake County. If this dam were to fail, water from the reservoir would flow south and east through the Cache Creek watershed toward the Yolo Bypass and Sacramento River (Yolo County, 2009b). According to Figure SS-3 in the *Capay Valley Area Plan*, the Proposed Project site would not be inundated if the Indian Valley Reservoir dam was to fail. The Clear Lake dam does not pose an inundation threat to the Capay Valley (Yolo County, 2010).

Surface Water Usage

Water diverted from Cache Creek under a Water Services Agreement (WSA) with the YCFCWCD is currently used to supplement recycled water used for irrigation of the Golf Course during the irrigation season (April 15 through October 15). Raw water from Cache Creek is also used for landscape irrigation at the Resort. This irrigation water is withdrawn from Cache Creek through an existing intake structure located within Cache Creek near the eastern end of the Golf Course. Between the years 2012 and 2015, the Tribe diverted an average of approximately 370 af/yr (199 million of gallons per year [MG/yr]) from Cache Creek for irrigation of the Golf Course during the summer irrigation season (RMC, 2016b) and 34 af/yr (11 MG/yr) for landscape irrigation (HydroScience, 2016; **Appendix F**). These uses result in a total average diversion of 404 af/yr, accounting for approximately 0.07 percent of the average total flow in Cache Creek (550,000 af/yr).



SOURCE: FEMA Q3 Digital Data, effective 6/18/2010;
DigitalGlobe aerial photograph, 4/1/2015; AES, 8/30/2016

Figure 3.7-1
FEMA Flood Zones

To supplement the Resort's potable water supply, in September 2007, the Tribe entered into a WSA with YCFCWCD to permit the Tribe to divert up to six acre feet per day from Cache Creek (in addition to the diversions for irrigation of the golf course). The Tribe does not currently divert water under this WSA; all potable water currently used at the Resort is treated groundwater. The WSA includes potential restrictions on diversion. When diverting surface water from Cache Creek, the Tribe must reduce water diversion at a comparable rate as other YCFCWCD water users when (a) the YCFCWCD has imposed general diversion limitations on all users; (b) water is not available for diversion under the YCFCWCD's water rights; or (c) water is not available for diversion due to damage to or operation, maintenance, or repair of YCFCWCD water storage and related facilities.

GROUNDWATER

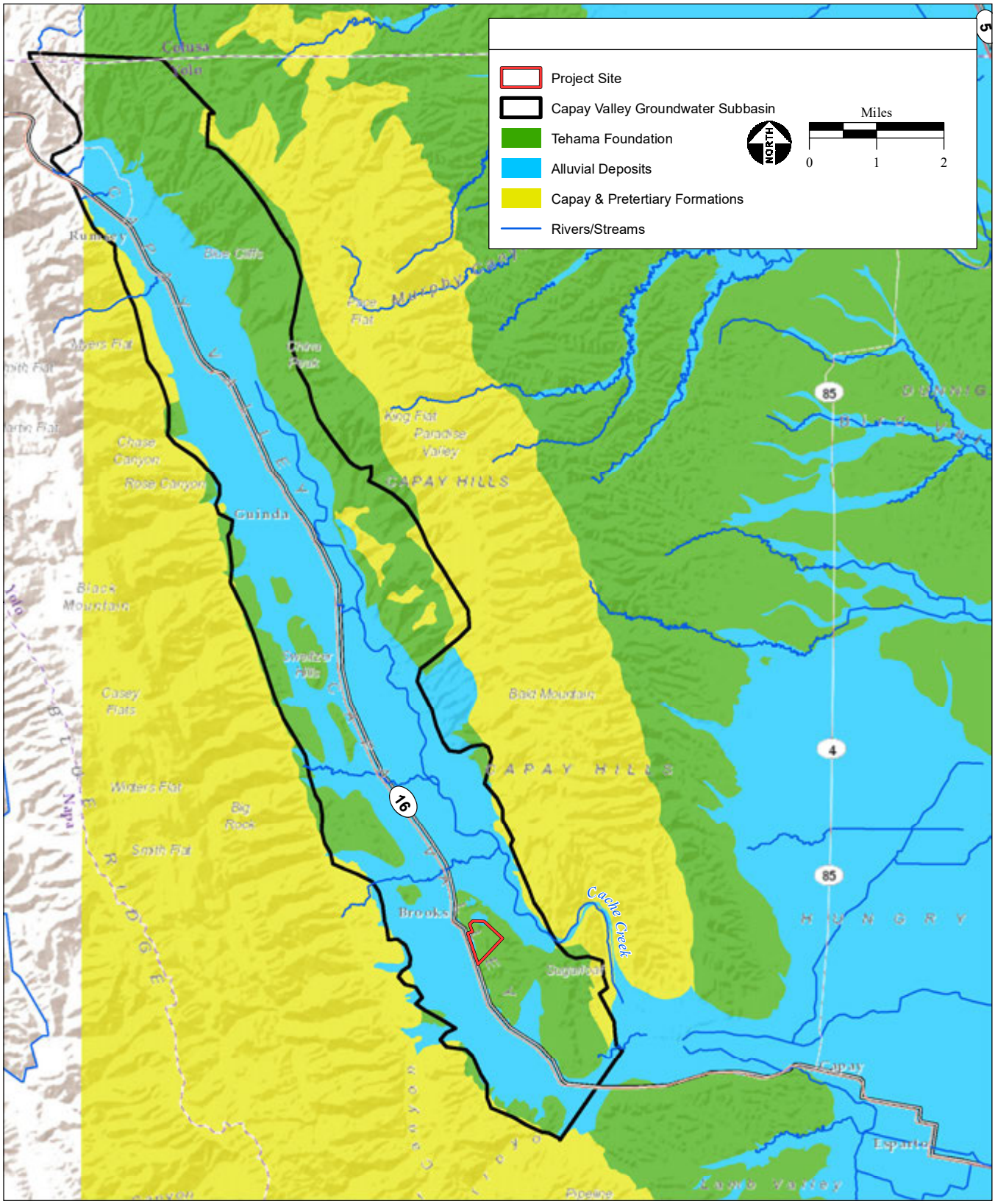
The Proposed Project site is located near the western edge of the Sacramento Valley Groundwater Basin, within the Capay Valley Subbasin (DWR, 2004). This subbasin is located within the Coast Ranges in the western portion of Yolo County and extends from the Yolo-Colusa boundary line to the confluence of Cache Creek and Salt Creek on the south, encompassing approximately 39 square miles (**Figure 3.7-2**).

Aquifers in the subbasin are composed of recent stream channel (alluvial) deposits and the Tehama Formation, which is underlain by older, brackish water-bearing Cretaceous marine rocks, as shown in **Figure 3.7-2**. Recent stream channel deposits consist of silt, sand, gravel, and occasional cobbles deposited along former riverbeds of Cache Creek and its tributaries. These recent deposits are moderately to highly permeable and range in thickness from 0 to 150 feet. Below these recent sediments, the Tehama Formation consists of moderately compacted silt, clay, and silty fine sand with lenses of sand, silt and gravel, sand and gravel, and cemented conglomerate. The Tehama Formation is generally less than a few hundred feet thick and has variable permeability. Underlying Cretaceous marine rocks make up the basement rock of the subbasin. These consolidated sediments generally contain saline connate water and are not considered usable water-bearing formations (DWR, 2004).

Groundwater flow typically follows the topography of the Capay Valley, running southeast toward Cache Creek in the vicinity of the Proposed Project (**Appendix E**). Groundwater levels in the Capay Valley subbasin are between 10 and 40 below ground surface and have remained relatively constant even through dry years (DWR, 2004). Groundwater levels in the vicinity of the Proposed Project have experienced historic fluctuations as great as 20 feet associated with drawdown from agricultural use (**Appendix E**). Additional information regarding groundwater levels and flow directions is presented in **Appendix E**.

Groundwater Usage

Most of the Capay Valley utilizes groundwater (exclusively or in combination with surface water) for its water supply (see Figure 2-12 of **Appendix E**). The largest share of groundwater in the Capay Valley is used for agricultural irrigation. Urban water use represents a relatively minor volume of water extracted



SOURCE: Department of Water Resources, 1997; CA Geological Survey, 2009; ESRI Data, 2016; AES, 7/13/2016

Figure 3.7-2

Capay Valley Groundwater Subbasin

from the subbasin. Urban uses include drinking water for the communities of Rumsey and Guinda; drinking water for the Resort; and drinking water for rural domestic/residential purposes. Agricultural and urban water demands were calculated in the hydrologic study (**Appendix E**) using a multiplier for water demand per acre based on variables such as land use, crop type. Total agricultural water use within the subbasin has remained, on average, relatively constant at approximately 25,000 af/yr over the past four decades. Urban water demand has increased from approximately 120 af/yr in the 1970s and 1980s to approximately 1,600 af/yr current average demand since 2008 (**Appendix E**).

Potable Water Supply

Potable water demands for the Resort are currently met through the use of three existing tribal groundwater wells (CCCR-1, CCCR-2, and CCCR-3). The groundwater wells are located west of the Resort on the Ponotla Piht property, as shown in **Figure 3.7-3**. The three wells currently used for production have a pumping capacity of approximately 380 gallons per minute (gpm), 315 gpm, and 200 gpm (**Appendix F**). Groundwater is pumped from the wells to a water desalination treatment facility (WDTF) and then to a 1.1 million-gallon storage tank at the Resort to provide the necessary fire storage and to meet peak water demands. Existing potable water demand is 245,000 gallons per day.

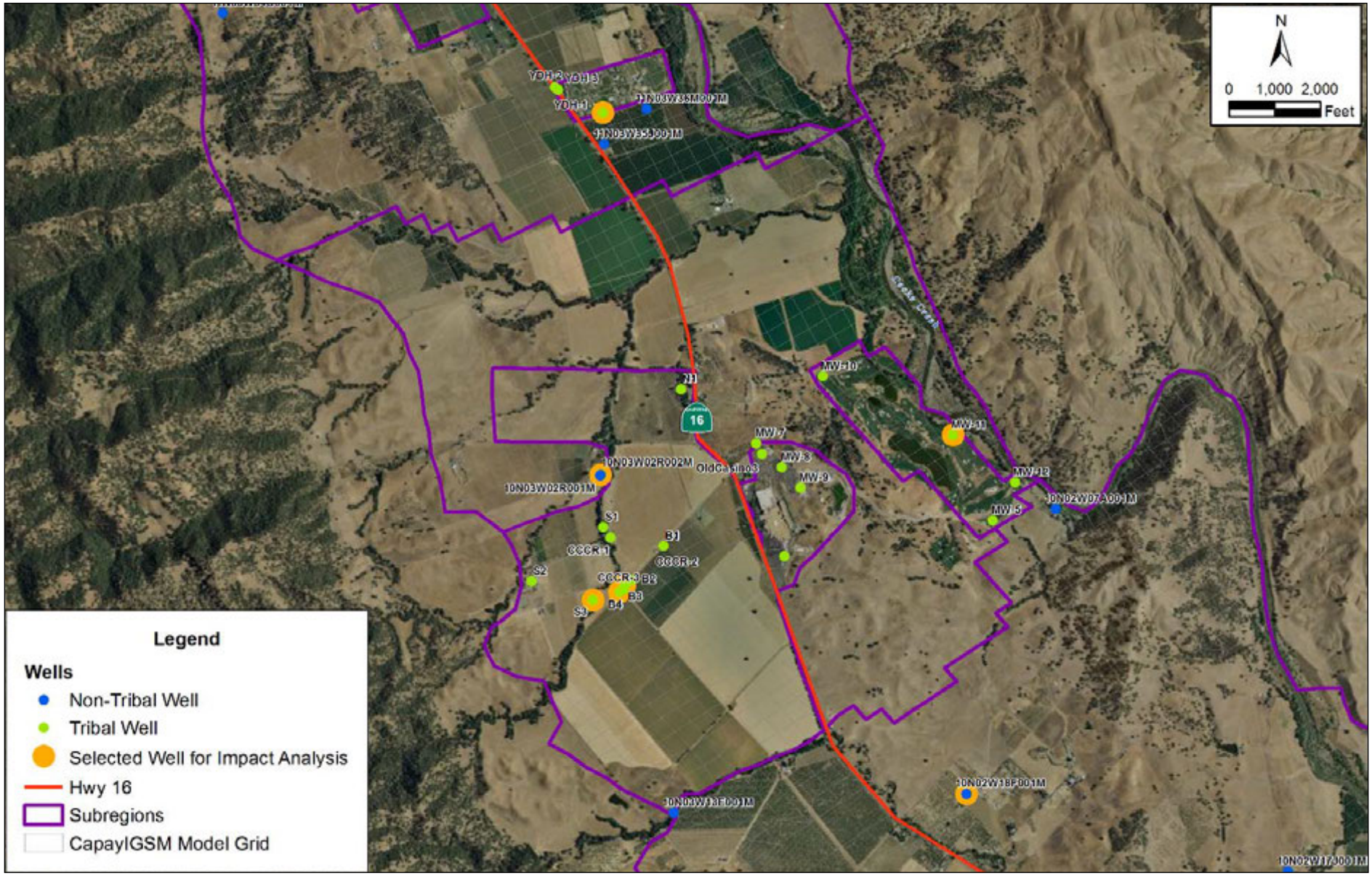
WATER QUALITY

Surface Water Quality

Complying with the anti-degradation provision of the CWA, the CVRWQCB has established water quality objectives for all inland surface waters in its jurisdiction to protect designated beneficial uses of those waters. Water quality objectives limit the impact of discharges to those waters. The water quality objectives that govern water quality within Cache Creek are summarized in **Table 3.7-1**. Beneficial uses of Cache Creek as defined in the Basin Plan include municipal and domestic water supply, agricultural irrigation and stock watering, industry process and service supply, contact recreation such as canoeing and rafting, other non-contact recreation, warm and cold freshwater habitat, warm and cold (potential) spawning habitat, and wildlife habitat (CVRWQCB, 2015).

Mercury Contamination

Cache Creek was placed on California's CWA Section 303(d) list for impaired water bodies in 1988 for mercury levels within the creek. The affected area covers 96 miles of the lower Cache Creek watershed, from the Clear Lake dam to the Cache Creek settling basin near the Yolo Bypass. Erosion of mercury in streambank sediment and discharge from mining operations within the drainage basin are considered to be the main causes of elevated mercury levels in Cache Creek. Runoff, drainage, and erosion of the large number of abandoned mining sites continue to contribute mercury-contaminated sediment into waterways, and contaminated sediments already deposited along stream banks and floodplain continue to erode (CVRWQCB, 2015).



SOURCE: RMC, 4/2016; AES, 7/13/2016

Figure 3.7-3
Well Locations

TABLE 3.7-1
CVRWQCB WATER QUALITY OBJECTIVES

Property/Constituent	Water Quality Objective
Bacteria	In waters designated for contact recreation (REC-1), the fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed a geometric mean of 200/100 milliliters (ml), nor shall more than 10 percent of the total number of samples taken during any 30-day period exceed 400/100 ml.
Biostiumulatory Substances	Water shall not contain biostimulatory substances that promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.
Chemical Constituents	Waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses. At a minimum, water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the MCLs specified in the provisions of Title 22 of the CCR. At a minimum, water designated for use as domestic or municipal supply (MUN) shall not contain lead in excess of 0.015 milligram per liter (mg/L).
Color	Water shall be free of discoloration that causes nuisance or adversely affects beneficial uses.
Dissolved Oxygen	For surface water bodies outside the legal boundaries of the Delta, the monthly median of the mean daily dissolved oxygen (DO) concentration shall not fall below 85 percent of saturation in the main water mass, and the 95th percentile concentration shall not fall below 75 percent of saturation. The DO concentrations shall not be reduced below the following minimum levels at any time: ▪ Waters designated WARM 5.0 mg/L ▪ Waters designated COLD 7.0 mg/L ▪ Waters designated SPWN 7.0 mg/L
Floating Materials	Water shall not contain floating materials in amounts that cause nuisance or adversely affect beneficial uses.
Methylercury	For Cache Creek (Clear Lake to Yolo Bypass) (54), North Fork Cache Creek, and Bear Creek (tributary to Cache Creek), the average methylmercury concentration shall not exceed 0.12 and 0.23 mg methylmercury per kilogram wet weight of muscle tissue in trophic level 3 and 4 fish, respectively. For Harley Gulch (tributary to Cache Creek), the average methylmercury concentration shall not exceed 0.05 mg methylmercury per kilogram wet weight in whole, trophic level 2 and 3 fish.
Oil and Grease	Waters shall not contain oils, greases, waxes, or other materials in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.
pH	The pH shall not be depressed below 6.5 nor raised above 8.5.
Pesticides	▪ No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses. ▪ Discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses. ▪ Total identifiable persistent chlorinated hydrocarbon pesticides shall not be present in the water column at concentrations detectable within the accuracy of analytical methods approved by the USEPA or the Executive Officer. ▪ Pesticide concentrations shall not exceed those allowable by applicable antidegradation policies (see SWRCB No. 68-16 and 40 CFR Section 131.12.). ▪ Pesticide concentrations shall not exceed the lowest levels technically and economically achievable. ▪ Waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of pesticides in excess of the MCLs set forth in CCR, Title 22, Division 4, Chapter 15. ▪ Waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of thiobencarb in excess of 1.0 microgram per liter (µg/L).

Property/Constituent	Water Quality Objective
Radioactivity	Radionuclides shall not be present in concentrations that are harmful to human, plant, animal, or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.
Sediment	The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.
Settleable Materials	Waters shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.
Suspended Materials	Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.
Tastes and Odors	Water shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance or otherwise adversely affect beneficial uses.
Temperature	The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the RWQCB that such alteration in temperature does not adversely affect beneficial uses.
Toxicity	All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.
Turbidity	All waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial use.
Source: CVRWQCB, 2015.	

In accordance with the CWA, a TMDL for total mercury was approved by the USEPA in 2007. The TMDL is geared toward protecting the beneficial uses of the Cache Creek watershed, specifically commercial and sport fishing, and consumption of fish meals by humans and wildlife (SWRCB, 2012). The accumulation of methylmercury in fish tissue is the major source of mercury toxicity, and fish consumption by wildlife and humans is the main mode of exposure to this toxicity (USGS, 2009). The Basin Plan was therefore amended pursuant to the Porter Cologne Water Quality Act to include a water quality management program to reduce concentrations of methylmercury in fish tissue, by reducing both total mercury and methylmercury loading into Cache Creek from various sources (CVRWQCB, 2007).

This amendment established a safe fish tissue concentration of methylmercury in Trophic Level 3 and 4 fish tissue (**Table 3.7-1**) which would protect humans and wildlife who consumed fish meals from Cache Creek. From these goals, CVRWQB staff calculated a site-specific water quality objective for aqueous methylmercury in Cache Creek using a statistically significant relationship between aqueous methylmercury and methylmercury in fish tissue. The relationship between aqueous methylmercury and methylmercury in fish tissue can be used to provide waste load allocations for point-source discharge (CVRWQCB, 2007). The objective of 0.14 nanograms per liter (ng/L), which would reduce annual methylmercury loading within Cache Creek to a total of 66 grams per year (g/yr), would result in a methylmercury reduction at the Yolo Bypass of approximately 54 percent (CVRWQCB, 2007). A total of 7 g/yr is allocated for future loads, calculated in the staff report using a 10 percent margin of safety over existing loads (CVRWQCB, 2007).

The reduction strategy detailed in the Basin Plan amendment is a phased compliance schedule. Phase I includes studies and pilot projects to develop and evaluate management practices to control methylmercury; pollution minimization programs; the development of upstream mercury control programs for major tributaries; the development and implementation of a mercury exposure reduction program to protect humans; and the development of a mercury offset program (CVRWQCB, 2015). Compliance schedules for mine remediation included issuance of cleanup and abatement orders by 2009 and the completion of mine cleanup actions by 2011, or the schedule identified in the orders (CVRWQCB, 2015). Phase II includes the implementation of methylmercury control programs and continued inorganic (total) mercury reduction programs. Phase II is to commence after Phase I is complete or on October 22, 2022, whichever comes first.

To meet site-specific water quality objectives, the Basin Plan amendment specifies implementation measures to reduce loads of total mercury into environments where it may be methylated from non-point sources. Preventing erosion of mercury-enriched sediments is the primary method of control of total mercury loading into aqueous environments (CVRWQCB, 2015). To that end, the Basin Plan specifies that proponents of new reservoirs, ponds, and wetlands must submit plans to control methylmercury discharges; construction projects within the 10-year floodplain of the creek are required to implement erosion control management practices and conduct monitoring to evaluate compliance with the turbidity objective of the Basin Plan.

In addition to protecting the beneficial uses of the Cache Creek watershed, reduction of methylmercury loading into Cache Creek will protect beneficial uses for downstream users in the Delta. A TMDL for mercury in the entire Delta was adopted by the CVRWQCB on April 22, 2010, and approved by the USEPA on October 20, 2011, with the goal to reduce total mercury loads to 30 g/yr in the Cache Creek Settling Basin, located adjacent to Woodland, downstream of the affected area identified for the 2007 TMDL. The Cache Creek Settling Basin includes waste loads from the various tributaries of the Sacramento and San Joaquin Rivers, including present and future sources. The staff report on the proposed TMDL also contains an explicit 10 percent margin of safety (CVRWQCB, 2010). The goal is to complete the load reductions in 10 years, with monitoring and implementation plans provided within 5 years of the effective date of the amendment to the Basin Plan (CVRWQCB, 2015).

Other Contaminants

Cache Creek was placed on the Section 303(d) list in 2010 for boron levels within a 96-mile segment of the creek (lower Cache Creek from the Clear Lake dam to Cache Creek Settling Basin near Yolo Bypass) that includes the segment adjacent to the Resort (SWRCB, 2012). The lower Cache Creek watershed is also on the 1996 CWA Section 303(d) list for unknown toxicity over the same 96-mile segment. According to the 2012 list, the TMDL for unknown toxicity for Cache Creek is anticipated to be reached in 2019 (SWRCB, 2012).

Surface Water Quality Analysis

Cache Creek surface water quality adjacent to the golf course was evaluated in 2010 to assess the water quality related to use as a drinking water source, although surface water is only used for irrigation and landscaping at the Resort. The highest results from two sampling events (February 1, 2010, and April 7, 2010) of Cache Creek surface water that took place in early 2010 are presented in **Table 3.7-2**. The results indicate good overall water quality, as shown by comparing analytical results to the off-reservation water quality objectives presented in the Basin Plan. None of the primary MCLs were exceeded – only secondary MCLs for aluminum and iron were exceeded. Mercury was not detected above the method reporting limit in the Basin Plan in any of the sampling events. Methylmercury was detected in Cache Creek surface water samples at 0.13 ng/L, which is below the site-specific water quality objective of 0.14 ng/L as stated in the Basin Plan amendment.

TABLE 3.7-2
SURFACE WATER QUALITY OF CACHE CREEK (2010)

Parameter	Cache Creek	Regulatory Level[1]
Conventional Chemistry		
Total Alkalinity (mg/L)	220	--
Bicarbonate as CaCO3 (mg/L)	220	--
Chloride (mg/L)	78	250-500, 600[4]
Flouride (mg/L)	0.15	2,000
Nitrate as NO3 (mg/L)	2.2	4,500
Sulfate as SO4 (mg/L)	47	250-500, 600[4]
Color (Color Units)	5	15[3]
Specific Conductance (EC, µmhos/cm)	720	--
Cyanide (total, mg/L)	<0.0050	0.15
Dissolved Oxygen (mg/L)	10	7[5]
Methylene Blue Active Substances (mg/L)	<0.10	--
Calcium (mg/L)	35	--
Magnesium (mg/L)	38	--
Potassium (mg/L)	2.6	--
Sodium (mg/L)	58	
Hardness as $CaCO_3$ (mg/L)	240	--
Nitrite as N (mg/L)	<0.10	45
Threshold Odor Number	<1	3[4]
Perchlorate (µg/L)	<4.0	6.0[2]
pH	8.01	6.5-8.5
Total Organic Carbon (mg/L)	2.9	--
Total Dissolved Solids (mg/L)	420	500-1,000, 1,500[4]
Turbidity (NTU)	8.7	5[4]
UV-absorbing organics as carbon (mg/L)	5.0	--

Parameter	Cache Creek	Regulatory Level[1]
Drinking Water Metals		
Mercury (µg/L)	<1.0	2.0
Aluminum (µg/L)	560	200[4]
Barium (µg/L)	100	1,000
Boron (µg/L)	1700	
Beryllium (µg/L)	<1.0	4.0
Chromium (µg/L)	<10	50
Copper (µg/L)	<50	1,300[RAL]
Iron (µg/L)	540	300[4]
Manganese (µg/L)	20	50[4]
Nickel (µg/L)	<10	100[2]
Silver (µg/L)	<10	100[4]
Zinc (µg/L)	<50	5,000[4]
Antimony (µg/L)	<6.0	6.0
Arsenic (µg/L)	<2.0	10
Cadmium (µg/L)	<1.0	5.0
Lead (µg/L)	<5.0	15[RAL]
Selenium (µg/L)	<5.0	50
Vanadium (µg/L)	3.6	CCL
Thallium (µg/L)	<1.0	20
E. Coli (MPN/100 mL)	>23	<200>/400
Chlorinated Pesticides	None Detected	
Nitrogen/Phosphorus Pesticides	None Detected	
Volatile and Semivolatile Organic Compounds	None Detected	
Radiochemistry		
Gross Alpha (pCi/L)	1.95±1.73	15
Gross beta (pCi/L)	1.46±1.35	50
Asbestos (# of Fibers/L)	<0.99	7

Notes: **Bold** print indicates a detection of the constituent above the method reporting limit.
< = Not detected above the laboratory method reporting limit
[1] Regulatory levels from the Basin Plan unless otherwise specified
[2] California MCL for which there is no federal MCL
[3] Recommended secondary MCL for consumer preference, not health related
[4] Secondary MCL, recommended – upper, short term maximum
[5] Dissolved oxygen is a minimum, not a maximum
RAL = Regulatory Action Level. If system exceeds, monitoring and/or treatment must take place.
CCL = Contaminant Candidate List, USEPA is evaluating potential MCL
MPN = most probably number
pCi/L = picocuries per liter
Source: AES, 2010.

Groundwater Quality

The CVRWQCB has established water quality objectives for groundwater within its jurisdiction to protect designated beneficial uses. The water quality objectives that govern off-reservation groundwater quality are summarized in **Table 3.7-3**.

TABLE 3.7-3
CVRWQCB GROUNDWATER QUALITY OBJECTIVES

Property/Constituent	Water Quality Objective
Bacteria	In groundwaters used for domestic or municipal supply, the most probable number of coliform organisms over any 7-day period shall be less than 2.2/100 ml.
Chemical Constituents	Groundwaters shall not contain chemical constituents in concentrations that adversely affect beneficial uses. At a minimum, groundwaters designated for use as domestic or municipal supply shall not contain concentrations of chemical constituents in excess of the MCLs specified in the provisions of Title 22 of the CCR.
Radioactivity	At a minimum, groundwaters designated for use as domestic or municipal supply shall not contain concentrations of radionuclides in excess of the MCLs specified in Table 4 (MCL Radioactivity) of Section 64443 of Title 22 of the CCR.
Tastes and Odors	Groundwaters shall not contain taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses.
Toxicity	Groundwaters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life associated with designated beneficial use(s).

Source: CVRWQCB, 2015.

In general, Capay Valley groundwater has moderate to very high hardness, salinity, and nitrates in the upper aquifer, but is otherwise of good quality. A representative groundwater analysis from the Resort supply wells is presented in **Table 3.7.4**. Results of the analysis indicate water of relatively good quality, as shown by comparing the analytical results to the MCL and secondary standard. Sample analysis results are consistent with groundwater in the region, with levels of total dissolved solids (TDS) and iron approaching or exceeding the secondary MCLs established for aesthetics.

WATER MONITORING PROGRAM

The Tribe currently implements a comprehensive water monitoring program that entails sampling for contaminants in surface water and groundwater, and monitoring of groundwater levels to ensure that Resort activities do not endanger water supply or water quality. The program was developed in accordance with regulatory requirements and voluntary measures designed to protect water supply and water quality. Because most of the Resort's water and wastewater infrastructure is located on trust land, USEPA has regulatory jurisdiction over their operation. However, some of the Tribe's wells are located on fee land, and thus are subject to state regulations. A map showing the location of the Tribe's monitoring wells is provided as **Figure 3.7-3**.

TABLE 3.7-4
GROUNDWATER QUALITY OF THE RESORT WELLS

Detected Constituent	Units	CCCR-1		CCCR-2		CCCR-3		MCL / Secondary Standard
		Dec 2001	Aug 2007	Nov 2003	Aug 2007	June 2016		
Conventional Chemistry Parameters								
Bicarbonate Alkalinity	mg/L	230	240	270	290		220	NA / NA
Total Alkalinity	mg/L	230	240	270	290		220	NA / NA
Color	Color Unit	13	ND	ND	ND		1	NA / 15
TDS	mg/L	540	480	540	600		470	NA / 500
Turbidity	NTU	5.4[1]	1.2	0.47	3.5		1.1	NA / NA
Chloride	mg/L	140	90	100	100		59	NA / 250
Fluoride	mg/L	1.0	0.25	ND	0.26		NS	4 / 2
Nitrate as N	mg/L	0.65	0.85	4.7	10		NS	10 / NA
Sulfate as SO_4	mg/L	75	70	63	70		60	NA / 250
Total Phosphorous as P	mg/L	NS	0.057	NS	0.060		0.10	NA / NA
pH	SU	7.3	7.02	7.26	7.22		7.16	NA / 6.5-8.5
Specific Conductivity	µmhos/cm	850	800	930	1,000		800	NA / 1,600[2]
Hardness	mg/L	NS	270	280	360		220	NA / NA
Metals								
Aluminum	mg/L	ND	ND	ND	ND		0.088	NA / 0.05-0.2
Barium	mg/L	0.099	0.098	ND	0.100			2 / NA
Boron	mg/L	NS	0.770	0.78	0.790		0.92	NA / NA
Calcium	mg/L	ND	71	73	99		56	NA / NA
Copper	mg/L	ND	ND	ND	0.011		ND	NA / 1.0
Iron	mg/L	0.37[3]	ND	0.055	0.400		0.21	NA / 0.3
Magnesium	mg/L	ND	24	23	30		19	NA / NA
Manganese	mg/L	0.021	ND	ND	ND		ND	NA / 0.05
Mercury[4]	mg/L	ND	ND	ND	ND		NS	0.002 / NA
Potassium	mg/L	NS	1.0	ND	ND		ND	NA / NA
Selenium	mg/L	ND	ND	0.0024	ND		NS	0.05 / NA
Sodium	mg/L	NS	81	81	93		NS	NA / NA

Detected Constituent	Units	CCCR-1		CCCR-2		CCCR-3		MCL / Secondary Standard
		Dec 2001	Aug 2007	Nov 2003	Aug 2007	June 2016		
Zinc	mg/L	0.450	0.024	ND	0.130		ND	NA / 5
Purgeable Organic Compounds								
Bromodichloromethane	µg/L	1.5	NS	NS	NS		NS	NA / NA
Chloroform	µg/L	8.7	NS	NS	NS		NS	NA / NA
Dibromochloromethane	µg/L	0.72	NS	NS	NS		NS	NA / NA
TTHM	µg/L	11	NS	NS	NS		NS	80 / NA
Toluene	µg/L	2.6	NS	NS	NS		NS	150 / NA

Notes: NA = Not Applicable ND = Not Detected NS = Not Sampled µg/L = micrograms per liter umhos/cm = micro-mhos per centimeter
1 - Nephelometric Turbidity Unit.
2 - Per California Title 22, Secondary Maximum Contaminant Levels, non-health based standards.
3 - Per California Title 22, Maximum Contaminant Levels.
4 - Per USEPA Secondary Maximum Contaminant Levels.
Source: Hydroscience, 2016 (**Appendix F**).

Groundwater Level Monitoring

The Tribe monitors groundwater levels at the Ponotla Piht property, located west of the Proposed Project site, where the Resort supply wells are located. Because this land is owned in fee simple by the Tribe, the supply wells were installed in accordance with county and state standards. Groundwater level monitoring is conducted and the results of that monitoring are reported in accordance with a 2002 Memorandum of Understanding (MOU) with Yolo County. Groundwater data since 1992 indicates that groundwater levels have risen in the vicinity of the Resort supply wells, due in large part to the conversion of the use of the Ponotla Piht property from heavily irrigated agricultural use to limited irrigated agriculture and dry-farming and the current Resort uses (see Appendix A of **Appendix E**). Existing groundwater use rates at the Ponotla Piht property are 50 percent lower than historic (pre-2004) agricultural groundwater use rates. The historic low groundwater level in the vicinity of the Resort was recorded in 1992, at the end of the severest drought conditions recorded for the past three decades (**Appendix E**).

Potable Water Quality Monitoring

The USEPA classifies the potable water system at the Resort as a Non-transient Non-community public water system (**Appendix F**). The Tribe monitors the potable groundwater supply for the existing Resort in accordance with Public Water System Compliance and Monitoring Report requirements established by the USEPA. As described above, water quality from the Resort supply wells is generally good, but is considered hard because of elevated TDS levels generally found in groundwater within the Capay Valley.

To address the hardness and TDS issues relating to its groundwater resources, the Tribe operates a WDTF, as described in **Section 2.4.7**, to improve the potable water quality, which in turn improves the quality of recycled water available after treatment. Currently, the potable water supply for the Resort is solely groundwater and does not require disinfection prior to use. However, the potable water supply is currently chlorinated to prevent biological growth within the Resort's potable water distribution and storage systems. All Resort water facilities are monitored on an ongoing basis and have been and remain in compliance with USEPA regulations (**Appendix F**).

Wastewater Treatment and Disposal

The Tribe operates an on-site wastewater treatment plant (WWTP) located on trust land. The WWTP is regulated by the USEPA's Office of Wastewater Management. The Resort currently generates a total average daily flow of 238,000 gpd of treated wastewater (**Appendix F**). The Tribe utilizes on-site recycling of treated wastewater for golf course irrigation, landscape irrigation, and toilet and urinal flushing in Resort restrooms (**Appendix E**). As discussed in **Section 2.4.8**, excess treated wastewater that cannot be recycled through irrigation and toilet flushing is stored for later use.

WWTP Effluent

Although operation of the WWTP by the Tribe is on trust land and is therefore regulated by the USEPA, treated effluent is applied to both fee and trust lands. Treated effluent used on the fee land (irrigation of

the golf course) meets the Title 22 standards. Throughout the operational stages of the WWTP, effluent water quality is monitored by the Tribe, and that quality meets all USEPA requirements as well as the CVRWQCB requirements for use of recycled water on land owned by, and not held in trust for, the Tribe. Salinity levels in the WWTP effluent are addressed through the treatment of potable water through the WDTF.

Yocha Dehe Golf Course Groundwater

Irrigation of the golf course occurs on both trust land and land owned in fee by the Tribe, and is therefore subject to the monitoring and reporting requirements developed by CVRWQCB in the WDRs (as modified by provisional limitations implemented in 2010). The Tribe is currently working with the CVRWQCB to update the WDRs with site-specific limitations and monitoring and reporting requirements in connection with a 2011 Revised Background Groundwater Quality Report and Request for Amendment to WDR and M&R Program Order No. R5-2005-0121. The site-specific limitations are anticipated to address the relatively high background salinity levels of the Capay Valley's groundwater and the current technology applied by the Tribe at the WDTF (**Appendix F**). The irrigation water salinity limits currently in effect are as follows:

- TDS: 855 mg/L;
- Chloride: 200 mg/L; and
- Sodium: 202 mg/L.

3.7.3 IMPACT ANALYSIS

SIGNIFICANCE CRITERIA

The following criteria are established by Section VIII of the Environmental Impact Analysis Checklist in the Tribal-State Compact (Checklist; **Appendix A**) and have been used in this section to evaluate the potential off-reservation impacts of the Proposed Project on off-reservation hydrological resources and water quality. Such an impact is considered significant if it would:

- Violate any off-reservation water quality standards or WDRs;
- Substantially deplete off-reservation groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted);
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion of siltation off reservation;

- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding off reservation;
- Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff off reservation;
- Place within a 100-year flood hazard area structures that would impede or redirect off-reservation flood flows; and/or
- Expose off-reservation people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam.

METHODOLOGY

The following impact analysis identifies off-reservation surface water, groundwater, water quality, and flooding issues that would potentially be affected or created by construction and operation of the Proposed Project. The impact analysis compares existing conditions to foreseeable changes to these off-reservation conditions that would likely result from implementation of the Proposed Project. Impacts on off-reservation surface water and groundwater supplies were evaluated based on water demands projected in the Water and Wastewater Feasibility Study included as **Appendix F** of the TEIR. Off-reservation water quality impacts were assessed by comparing projected quality of discharges from the implementation of the Proposed Project to the existing water quality of both off-reservation surface water and groundwater resources.

A groundwater study, which included a modeling simulation, was performed to assess impacts on off-reservation groundwater supplies and the off-reservation groundwater table and wells, and is included as **Appendix E** of the TEIR. The Capay Valley Integrated Groundwater and Surface Water Model (CapayIGSM) was utilized as a framework to forecast groundwater drawdown associated with implementation of the Proposed Project. The CapayIGSM was originally developed in 2010 from the YoloIGSM. The CapayIGSM was updated for the Proposed Project analysis based on land and water use information through water year 2015. The resultant CapayIGSM creates an accurate portrayal of the Capay Valley groundwater subbasin. Prior to use in simulating groundwater drawdown, the CapayIGSM calibration was validated by comparing historical water level data collected from tribal wells with simulated water levels generated by the CapayIGSM. Refer to **Appendix E** for more information regarding the CapayIGSM.

After being updated and recalibrated, the CapayIGSM was run for three scenarios over a 45-year hydrologic period that assumed a similar range of hydraulic variability (normal, wet, dry conditions) as was experienced in the Capay Valley between 1971 and 2015. The first scenario (Baseline Scenario) assumed groundwater-pumping rates would remain consistent with existing conditions. The second scenario utilized the pumping rate of the Resort with implementation of the Proposed Project. The third scenario utilized the pumping rate of the Resort with implementation of the Reduced Intensity

Alternative. Drawdown attributable to the Proposed Project and Reduced Intensity Alternative (discussed in detail in **Section 4.0**, **Alternatives**) was determined by subtracting the results of the Baseline Scenario from the results of the other simulations. Anticipated drawdowns were then calculated for existing wells in the off-reservation vicinity of the Proposed Project site, and potential impacts on these wells were evaluated. The potential effect of the Proposed Project on the flow of Cache Creek was also evaluated in the CapayIGSM, which incorporates the relationship between groundwater and surface water hydrology, seasonal fluctuations, and use patterns to determine the impacts for all simulations.

A Grading and Drainage Study was prepared for the Proposed Project and includes an analysis of the increase in stormwater runoff that would be generated as a result of the minimal increase in impervious surfaces associated with the Proposed Project (**Appendix G**). The existing Resort drainage system, including conveyance piping, settling basins, culverts, and the detention basin were modeled in conjunction with the calculated Proposed Project runoff rates to determine the required modifications to the system in the event the Proposed Project is implemented.

OFF-RESERVATION IMPACTS OF THE PROPOSED PROJECT

This section addresses the Proposed Project's potential impacts on off-reservation water resources and recommends mitigation measures to reduce off-reservation impacts to less-than-significant levels.

Impact 3.7.1

The Proposed Project would not violate any water quality standards or WDRs.

As discussed in **Section 2.4.8**, additional treated wastewater generated from the Proposed Project would be utilized as recycled irrigation water (for the golf course and on-site landscaping) and for toilet and urinal flushing at the Resort. Treated wastewater from the WWTP is generally of good quality, meeting the Title 22 standards for recycled water, unrestricted use.

Under the Proposed Project, additional treated wastewater from the WWTP attributable to the Proposed Project that could not immediately be used for golf course and landscape irrigation or for toilet flushing would be stored in the South Lake storage reservoir until irrigation is needed. The Proposed Project would increase the total recycled water available for irrigation; therefore, surface water used for irrigation at the golf course and for on-site landscaping would be reduced due to the increased availability of recycled water. Taking into consideration the use of the WDTF to reduce salinity of the water treated at the WWTP and the dilution of treated wastewater with surface water from Cache Creek at the time of application for irrigation, the existing average TDS levels of groundwater beneath the trust land would not degrade. Ongoing groundwater monitoring at the golf course is in place and would continue after implementation of the Proposed Project, consistent with the terms of the WDRs issued by the CVRWQCB. Existing groundwater monitoring programs have not indicated significant degradation of groundwater quality as a result

of existing Resort operations. With the improvements to the WWTP described in **Appendix F** and summarized in **Section 2.4.8**, and continued compliance with CVRWQCB and USEPA regulations, ongoing groundwater monitoring would ensure that implementation of the Proposed Project would comply with applicable water quality standards and WDRs. Therefore, the impact would be less than significant.

Impact 3.7.2

The Proposed Project would not substantially deplete off-reservation groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or lowering of the local groundwater table (e.g., cause the production rate of pre-existing nearby wells to drop to a level that would not support existing land uses or planned uses for which permits have been granted).

As described in **Section 2.4.7**, the Tribe would obtain potable water supply for the Proposed Project entirely from the three existing groundwater supply wells currently being used by the Resort. The current potable water demand from the wells is 245,000 gpd. Implementation of the Proposed Project would increase the potable water demand to 390,000 gpd, an approximate 59 percent increase. The Tribe's three supply wells (CCCR-1, CCCR-2, and CCCR-3, depicted in **Figure 3.7-3**) have a combined firm fixed capacity of 1,289,000 gpd, or 895 gpm (**Appendix F**); therefore, no upgrades to the existing wells are necessary.

Results of groundwater modeling indicate that the increase in groundwater pumping associated with the Proposed Project, under "worst case" drought conditions, would result in an average maximum groundwater drawdown of 9.7 feet at well B4, the well most affected by the Proposed Project. B4 is a tribal well that is located adjacent to CCCR-3 (**Figure 3.7-3**) and was selected to show representative groundwater levels on tribal land near the CCCR wells. The nearest non-tribal off-reservation private well would experience a 2.2-foot drawdown under "worst case" drought conditions when compared to the Baseline Scenario. The drawdown experienced by wells in the vicinity of the Resort supply wells decreases as the distance from the Resort wells increases (**Appendix E**). Contours representing groundwater drawdown under the Proposed Project are shown in Figure 6-1 (shallow agricultural well layer) and Figure 6-2 (casino well layer) of **Appendix E**. The anticipated drawdowns would not result in these wells going dry, becoming impaired, or being rendered unusable for current or planned land uses. Groundwater levels in the vicinity of the Proposed Project site vary historically as much as 20 feet seasonally, and the maximum drawdown for each well as a result of the Proposed Project would result in groundwater levels that are either above or within three feet of the historic minimum groundwater level for the area. Therefore, any impact of the Proposed Project on groundwater would be less than significant as there would not be a net deficit in aquifer volume or lowering of the local groundwater table (e.g., the production rate of pre-existing nearby wells would not drop to a level that would not support existing land uses or planned uses for which permits have been granted).

Impact 3.7.3

Construction of the Proposed Project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of a course of a stream or river, in a manner that would result in substantial erosion or siltation off site, or provide substantial additional sources of polluted runoff off reservation, but could result in off-reservation siltation from erosion or polluted off-reservation runoff.

The Proposed Project has no features in the Cache Creek floodplain. Therefore, earthwork activities associated with the construction of the Proposed Project would not disturb mercury-enriched sediments, and construction of the Proposed Project would comply with the Basin Plan amendment for the control of mercury within Cache Creek.

Construction of the Proposed Project would involve earth-moving, grading, and excavation activities, resulting in the alteration of the existing topography of the Proposed Project site. An estimated 35,000 cubic yards of soil would be excavated, stockpiled, and backfilled on that site to construct the Proposed Project. Open excavations and stockpiled soils that are not properly covered would be exposed to erosion by stormwater. Erosion increases sediment discharge to off-reservation surface waters during storm events and could result in off-site siltation.

The equipment and materials used during construction have the potential to leak fluids, thereby discharging pollutants into stormwater. Construction site pollutants typically include particulate matter, sediment, oils and greases, concrete, paints, and adhesives. Discharge of any of these pollutants could result in contamination of off-reservation drainages and, ultimately, Cache Creek. Because construction and excavation activities associated with the components of the Proposed Project have the potential to result in off-reservation soil erosion, siltation, and contamination of stormwater, which could lead to adverse environmental consequences, this is a potentially significant impact.

With the implementation of **Mitigation Measure 3.7.3**, which requires compliance with the USEPA's General NPDES Construction Permit and implementation of a SWPPP, the Proposed Project would have a less-than-significant impact on off-reservation water quality and runoff rates from drainage, erosion, and runoff from the Proposed Project.

Mitigation

3.7.3 Stormwater General NPDES Permit for Construction Activities

The Tribe shall comply with the terms of the USEPA's Stormwater General NPDES Permit for Construction Activities prior to and during construction of the Proposed Project. As part of its compliance with that permit, the Tribe shall prepare and implement a SWPPP for construction activities. The SWPPP shall identify pollutant sources that may affect the quality of stormwater discharge. The SWPPP shall include

site-specific BMPs to reduce these pollutants and minimize the potential for their release into natural waters. BMPs may include, but are not limited to, the following:

a. If excavation occurs during the rainy season, stormwater runoff from the construction area shall be regulated through a stormwater management/erosion control plan that shall include temporary on-site silt traps and/or basins with multiple discharge points to natural drainages and energy dissipaters. Stockpiles of loose material shall be covered and runoff diverted away from exposed soil material. If work stops due to rain, a positive grading away from slopes shall be provided to carry the surface runoff to areas where flow would be controlled, such as the temporary silt basins. Sediment basins/traps shall be located and operated to minimize the amount of off-reservation sediment transport. Any trapped sediment shall be removed from the basin or trap and placed at a suitable location on site, away from concentrated flows, or removed to an approved disposal site.
b. Temporary erosion control measures (such as fiber rolls, staked straw bales, detention basins, check dams, geofabric, sandbag dikes, and temporary revegetation or other ground cover) shall be provided until perennial revegetation or landscaping is established and can minimize discharge of sediment into nearby waterways. For construction within 500 feet of a water body, appropriate erosion control measures shall be placed upstream adjacent to the water body.
c. No disturbed surfaces shall be left without erosion control measures in place during the spring and winter months.
d. Erosion protection shall be provided on all cut-and-fill slopes. Revegetation shall be facilitated by mulching, hydroseeding, or other methods and shall be initiated as soon as possible after completion of grading and prior to the onset of the rainy season.
e. Hazardous materials such as fuels and solvents used on the construction site shall be stored in covered containers and protected from rainfall, runoff, vandalism, and accidental release to the environment. All stored fuels and solvents shall be contained in an area of impervious surface with containment capacity equal to the volume of materials stored.
f. A stockpile of spill cleanup materials shall be readily available at all construction sites. Construction workers shall be trained in spill prevention and cleanup, and individuals shall be designated as responsible for prevention and cleanup activities.
g. Equipment shall be properly maintained in designated areas with runoff and erosion control measures to minimize accidental release of pollutants.

Impact 3.7.4

Construction of the Proposed Project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding off site.

With the exception of the proposed Lot F and the water storage tank yard, construction associated with the Proposed Project would take place on existing asphalt parking areas on the south side of the existing main Resort building. For the development on existing paved areas, post-project runoff rates and volumes would be nearly identical to current runoff conditions. The added impervious areas of proposed Lot F and the water storage tank yard would yield approximately 0.5 af during a 100-year, 24-hour-duration storm event, which is less than 3 percent of the total impervious area of the Resort's current runoff area. The existing runoff storage requirement for the 100-year, 24-hour storm event is 22 af; therefore, the post-project runoff would be 22.5 af (existing 22 af plus 0.5 af). The existing stormwater runoff detention system, including the culverts, has a capacity of 24 af, which is greater than the total demand of the Proposed Project plus existing conditions (22.5 af). Specifically, the existing 48-inch diameter culvert under SH16 at the Winner's Way intersection has a no-surcharge capacity of 125 cfs. Runoff from a 100-year storm event at the Cache Creek Casino Resort site that flows through that culvert for the existing site development conditions is 91 cfs. The proposed development of Parking Lot F will increase the overall site's impermeable runoff area by less than 3percent. Increased runoff from the Parking Lot F area can easily be accommodated by the existing 48-inch culvert without causing any hydraulic surcharge. Based on the results of the analysis in the Grading and Drainage Study (**Appendix G**), the existing culverts under SR-16 have adequate capacity to convey stormwater from the Proposed Project to the off-reservation drainage system west of SR-16. With the available capacity of the existing drainage system, the minimal increase in stormwater runoff from the implementation of the Proposed Project would not result in off-reservation flooding. This is a less-than-significant impact.

Impact 3.7.5

The Proposed Project would not place within a 100-year flood hazard area any structure, and therefore would not impede or redirect off-reservation flood flows.

The FEMA-defined 100-year floodplain is generally located in close proximity to Cache Creek, as depicted in **Figure 3.7-1**. The Proposed Project would not result in any development within a FEMA-defined 100-year floodplain. Therefore, flood flows would not be impeded or redirected as a result of implementation of the Proposed Project. No impact would occur.

Impact 3.7.6

The Proposed Project would not expose off-reservation people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a dam or levee.

The Proposed Project would not result in any development within a FEMA-defined 100-year floodplain. No flood control dams or levees are located within the vicinity of the Proposed Project site (KQED, 2016). Therefore, the Proposed Project would not result in any disturbance or other changes to a dam or levee. The Proposed Project would not result in substantial additions of surface water to Cache Creek that would potentially affect downstream levees or other flood control devices. The Proposed Project is not within a dam inundation area (Yolo County, 2010; Yolo County, 2012a). Therefore, the Proposed Project would not result in or contribute to increased risk of flooding, including flooding as a result of failure of a dam or levee. No impact would occur.

3.8 AIR QUALITY

This section addresses the off-reservation environment associated with air quality and discusses potential impacts of the Proposed Project on off-reservation air quality. Also included within this section is a brief discussion of climate change. Climate change is also discussed in the cumulative analysis in **Section 3.13**.

3.8.1 REGULATORY SETTING

FEDERAL

The Clean Air Act (CAA) was enacted in 1970 (42 United States Code [USC] §7401 et seq.) for the purposes of protecting and enhancing the quality of the nation's air resources to benefit public health, welfare, and productivity. The CAA establishes a framework for national, state, and local air pollution control efforts. Basic components of the CAA and its amendments include national ambient air quality standards (NAAQS) for criteria air pollutants (CAPs), requirements for State Implementation Plans (SIPs) to meet the NAAQS, motor vehicle emissions standards, stationary-source emissions standards and permits, and enforcement provisions. The United States Environmental Protection Agency (USEPA) is the federal agency responsible for establishing the NAAQS, overseeing state air quality programs as they relate to the CAA, approving SIPs, and setting emissions standards for mobile sources under federal jurisdiction.

National Ambient Air Quality Standards

In 1971, the USEPA, under authority of the CAA, developed primary and secondary NAAQS. The primary NAAQS were established to protect the public health with an adequate margin of safety, and the secondary standards were established to protect the public welfare from known or anticipated adverse effects (e.g., aesthetics, crops, architecture) (42 USC §7409[b]). The USEPA designated six pollutants of primary concern as CAPs: carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), ozone, lead (Pb), and particulate matter (PM). The NAAQS are time-averaged maximum ambient air concentrations. For various CAPs, more than one time-averaged maximum concentration has been established by the USEPA to address the typical exposures to the population from natural and anthropogenic (human-caused) sources in the environment. Concentrations above these time-averaged maximum concentrations are anticipated to cause adverse health effects to sensitive receptors (defined below). The violation criteria established by the USEPA are based upon these time-averaged maximum concentrations specific to each CAP. For example, the NAAQS for ozone must be exceeded on more than three days in three consecutive years to constitute a violation. On the other hand, if the NAAQS for CO are exceeded on more than one day in any given year, a violation has occurred. **Table 3.8-1** presents the violation criteria for the various averaging times of the NAAQS for each CAP.

The USEPA allows states the option to develop independent standards only if the standards are more stringent than the NAAQS. California has selected to designate independent ambient air quality standards. California's standards are not applicable to trust land or the Proposed Project itself.

TABLE 3.8-1
NAAQS AND ASSOCIATED VIOLATION CRITERIA

Pollutant	Symbol	Average Time	NAAQS	Violation Criteria
Ozone	O_3	8 hours	0.07 ppm	If exceeded on more than 3 days in 3 years
Carbon monoxide	CO	1 hour	35 ppm	If exceeded on more than 1 day per year
		8 hours	9.0 ppm	If exceeded on more than 1 day per year
Nitrogen dioxide	NO_2	Annual average	0.053 ppm	If exceeded
		1 hour	0.1 ppm	If exceeded on more than 1 day per year
Sulfur dioxide	SO_2	24 hours	0.14 ppm	If exceeded
Inhalable particulate matter	PM_{10}	24 hours	150 µg/m^3	If exceeded on more than 1 day per year
Fine particulate matter	$PM_{2.5}$	Annual arithmetic mean	15 µg/m^3	If exceeded
		24 hours	35 µg/m^3	If exceeded on more than 1 day per year
Lead particles	Pb	Calendar quarter	1.5 µg/m^3	If exceeded

Notes: ppm = parts per millions; µg/m^3 = micrograms per cubic meter
Source: USEPA, 2016b.

Attainment Status

To determine conformance with the NAAQS, states are responsible for providing ambient air monitoring data to the USEPA. The USEPA then determines, using the violation criteria, if the results of the monitoring data indicate compliance with the NAAQS. The USEPA classifies areas in compliance with the NAAQS as being in "attainment." Areas that do not meet the NAAQS are classified as being in "nonattainment" by the USEPA. For ozone, if the air quality within a region is determined by the USEPA to be in nonattainment, the region is further classified as a marginal, moderate, serious, severe, or extreme nonattainment area. Areas designated as marginal (the least severe nonattainment group) must implement a permit program and conduct an inventory of ozone-producing emissions. The more severe classifications also require implementation of control measures. Control measures must be implemented to reduce emissions of the two pollutants known to be precursors to ozone. These two pollutants are nitrogen oxides (NO_X) and reactive organic gases (ROGs).

In accordance with the CAA, a state with nonattainment areas for CAPs within its borders must implement programs and procedures to reach attainment of the NAAQS by a specific timeline as designated by the USEPA. The compilation of these programs and procedures is the SIP. The SIP is not a single document, but a compilation of new and previously submitted plans, programs (such as monitoring, modeling, and permitting), regional rules, state regulations, and federal controls. SIPs may include control strategies, including emission standards for cars and heavy trucks, fuel regulations, and limits on emissions from consumer products.

Federal General Conformity

Title 40 Part 93 of the Code of Federal Regulations (CFR), known as the general conformity rule, was promulgated to ensure federal actions do not conflict with the provisions of an established SIP. A federal agency proposing an action that has the potential to emit CAPs in an area that is designated in nonattainment must determine the conformity of the federal action to the corresponding SIP. This general conformity determination must be completed before the action is taken.

The general conformity rule sets out a two-step process. First, potential air emissions are compared to screening levels known as "de minimis" thresholds. If potential emissions are below the *de minimis* thresholds, the proposed action is deemed consistent with the relevant SIP. If potential emissions are above *de minimis* thresholds, the agency must proceed to the second step of the conformity process — namely, a full general conformity review.

STATE AND LOCAL

The following state and local provisions addressing air quality apply to the off-reservation environment. State and local regulations do not apply to trust land or the Proposed Project itself.

California Clean Air Act (CCAA)

In 1988, the California State Legislature adopted the California Clean Air Act (CCAA), which established a statewide air pollution control program. CCAA requirements include annual emission reductions, development and use of low-emission vehicles, establishment of the California Ambient Air Quality Standards (CAAQS), and submittal of air quality attainment plans by air districts for incorporation into the California SIP. The California Air Resource Board (CARB) is the state agency responsible for coordinating both state and federal air pollution control programs in California. CARB designated CAAQS for the six federal CAPs and four additional pollutants: vinyl chloride, visibility-reducing particles, sulfates, and hydrogen sulfide.

CARB designated 15 individual air basins within the state by grouping together similar geographic or political areas (such as a county) that exhibit similar air quality conditions. The Proposed Project site is located within the Sacramento Valley Air Basin (SVAB) (refer to **Section 3.8.2**). Air districts were established for each air basin, or similar groups of air basins, within California to implement the enforcement provisions of the CCAA and the CAA and to develop individual air quality attainment plans for incorporation into the SIP. The air districts are designated as air quality management districts (AQMDs) or air pollution control districts (APCDs). AQMDs are a group of counties, portions of a county, or an individual county governed by a regional air pollution control board comprised mostly of elected officials from within the region. APCDs are county agencies governed by a district air pollution control board comprised of elected county supervisors. Both AQMDs and APCDs were given the authority under the CCAA to regulate stationary, indirect, and areas sources of air pollution (CARB, 2010a). Within the 15 designated air basins, there are 14 AQMDs and 21 APCDs (CARB, 2010b). The

off-reservation environment surrounding the Proposed Project site is governed by the Yolo/Solano Air Quality Management District (YSAQMD) (refer to **Section 3.8.2**).

California SIP

California's SIP is comprised of the state's overall air quality attainment plans to meet the NAAQS as well as the individual air quality attainment plans of each AQMD and APCD. The items included in the California SIP are listed in 40 CFR Chapter I, Part 52, Subpart F §52.220. The California SIP is a compilation of new and previously submitted plans, programs (such as monitoring, modeling, and permitting), AQMD and APCD rules, state regulations, and federal controls for each air basin and California's overall air quality. Many of the items within the California SIP rely on the same control strategies, such as emissions standards for cars and heavy trucks, fuel regulations, and limitations on emissions from consumer products. AQMDs and APCDs, along with other agencies such as the Bureau of Automotive Repair, prepare draft California SIP elements and submit them to CARB for review and approval. The CCAA identifies CARB as the lead agency for compiling items for incorporation into the California SIP and submitting the items to the USEPA for approval.

Toxic Air Contaminants (TACs)

In addition to the above-listed California CAPs, toxic air contaminants (TACs) are another group of pollutants regulated under the CCAA. TACs are less pervasive in the urban atmosphere than criteria pollutants but are linked to short-term (acute) or long-term (chronic or carcinogenic) adverse human health effects. There are 244 chemicals listed by the state as TACs with varying degrees of toxicity. Sources of TACs include industrial processes, commercial operations (e.g., gasoline stations and dry cleaners), and diesel motor vehicle exhaust. Public exposure to TACs can result from emissions from normal operations, as well as accidental releases. Health effects of TACs may include cancer, birth defects, neurological damage, and death. One of the most controversial TACs is diesel particulate matter (DPM), which accounts for more the 70 percent of the health risk from TAC exposures within the state (CARB, 2010c).

Ambient air quality standards have not been set for TACs. Instead, these pollutants are typically regulated through a technology-based approach for reducing TACs. This approach requires facilities to install maximum achievable control technologies on emission sources.

Yolo/Solano Air Quality Management District

As stated above, the YSAQMD is the responsible air district for regulating off-reservation air quality in the portion of the SVAB surrounding the Proposed Project site. The following YSAQMD rules and regulations apply to the off-reservation environment in the vicinity of the Proposed Project site:

Rule 2-1: Control of Emission

The emissions of material which may be the cause of air pollution shall be controlled by the contents of this regulation.

Rule 2-5: Nuisance

A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health, or safety of any such persons or the public or which have a natural tendency to cause injury or damage to business or property.

Rule 2-11: Particulate Matter

A person shall not release or discharge into the atmosphere, from any single source operation, dust, fumes, or total suspended particulate matter emissions in excess of 0.1 grain per cubic foot of gas at dry standard conditions.

Rule 2-12: Specific Contaminants

A person shall not discharge into the atmosphere from any single source of emission whatsoever, any one or more of the following contaminants, in any state or combination thereof, in excess of the following concentrations at the point of discharge:

a. Sulfur compounds calculated as sulfur dioxide (SO_2) 0.2 percent, by volume at standard conditions.

b. Combustion Contaminants: 0.1 grain per cubic foot of gas calculated to 12 percent of carbon dioxide (CO_2) at standard conditions, except during the start of an operation or change in energy source, during the time necessary to bring the combustion process up to operating level. In measuring the combustion contaminants from incinerators used to dispose of combustible refuse by burning, the CO_2 produced by combustion of any liquid or gaseous fuels shall be excluded from the calculation to 12 percent of CO_2.

Rule 2-13: Organic Solvents

The purpose of this Rule is to limit the emissions of organic solvents into the atmosphere that may result from the use of organic solvents.

Rule 2-14: Architectural Coatings

The purpose of this rule is to limit volatile organic compounds in architectural coatings.

Rule 2-21: Organic Liquid Storage and Transfer

The purpose of this rule is to limit emissions of volatile organic compounds from the storage or transfer of organic liquids.

Rule 8-1: New Source Performance Standards

The purpose of this Rule is to adopt by reference Federal New Source Performance Standards for specified sources as promulgated by the USEPA at 40 CFR 60.

County of Yolo 2030 Countywide General Plan

The *County of Yolo 2030 Countywide General Plan* (General Plan), adopted in 2009, is the guiding document for development in the unincorporated areas of the County, including the off-reservation properties in the vicinity of the Proposed Project (Yolo County, 2009a). The General Plan does not apply to the trust land on which the Proposed Project would be located or to the Proposed Project itself. Policies in the General Plan that are relevant to the off-reservation air quality condition in the vicinity of the Proposed Project are included in the following list.

Conservation and Open Space Element

Goal CO-6: Air Quality. Improve air quality to reduce the health impacts caused by harmful emissions.

Policy CO-6.1: Improve air quality through land use planning decisions.

Policy CO-6.2: Support local and regional air quality improvement efforts.

Policy CO-6.3: Encourage employers to increase telecommuting, telepresence, provide bicycle facilities and enhance access to public transit for employees.

Policy CO-6.6: Encourage implementation of YSAQMD Best Management Practices, such as those listed below, to reduce emissions and control dust during construction activities:

- Water all active construction areas at least twice daily.
- Haul trucks shall maintain at least two feet of freeboard.
- Cover all trucks hauling soil, sand, and other loose materials.
- Apply non-toxic binders (e.g., latex acrylic copolymer) to exposed areas after cut-and-fill operations and hydroseed area.
- Apply chemical soil stabilizers on inactive construction areas (disturbed lands within construction projects that are unused for at least four consecutive days).
- Plant tree windbreaks on the windward perimeter of construction projects if adjacent to open land.
- Plant vegetative ground cover in disturbed areas as soon as possible.

- Cover inactive storage piles.
- Sweep streets if visible soil material is carried out from the construction site.
- Treat accesses to a distance of 100 feet from the paved road with a 6 to 12 inch layer of wood chips or mulch.
- Treat accesses to a distance of 100 feet from the paved road with a 6-inch layer of gravel.

Town of Esparto General Plan

This Draft TEIR examines the off-reservation land use impacts of the Proposed Project in the County. Because Esparto is the nearest sizable community to the Resort and because many Resort employees currently live in Esparto, relevant air quality policies from the *Town of Esparto General Plan* are provided below (Yolo County, 2007).

Conservation Goals, Policies, and Programs

Goal 1: To protect the town's natural, cultural, visual, and historical resources.

Policy E-R.1: Policies that promote the use of alternate forms of transportation should be encouraged as a way to conserve air and energy resources. Public transit to surrounding communities, especially Woodland, shall be improved as a way to reduce dependence on the automobile and to conserve air and energy resources.

Policy E-R.2: All new construction shall incorporate standard mitigation measures recommended by the YSAQMD. In addition, any new development project that is greater in size than the "trigger levels" set by the YSAQMD and which is anticipated to generate emissions over the YSAQMD thresholds, shall be required to reduce their air quality impacts to a less than significant level to the extent feasible. The reduction in anticipated emissions shall be accomplished by incorporating trip reduction measures and specific design features into the project, and/or adopting other measures that are recommended by the YSAQMD. These measures may include: planning for a mixture of complementary uses; increasing planned residential densities; providing multiple and direct pedestrian access to adjacent, complementary land uses; providing bicycle lanes, racks, lockers and showers; requiring use of electric maintenance equipment such a lawn mowers; and others. All new residential projects shall be required to include natural gas fireplaces, or other fireplace inserts recommended by the USEPA, and energy-efficient (Energy Star) appliances.

Capay Valley Area Plan

The *Capay Valley Area Plan,* adopted in 2010 as a component of the existing General Plan, establishes the following policies relevant to off-reservation air quality (Yolo County, 2010). The *Capay Valley Area Plan* does not apply to trust land or to the Proposed Project itself.

Conservation and Natural Resources

Goal 7: Maintain or enhance air and water quality.

Policy 1: The County shall implement a plan to identify, monitor, and reduce the toxicity of each pollution factor.

Implementation Measure 1: The County shall support efforts by University, private research organizations, and Local Air Quality and Water Quality agencies to study pollutants and effects on the Environment.

Goal 8: Ensure clean air by reducing air quality impacts from traffic and construction to the extent feasible.

Policy 1: The County shall adopt policies consistent with the requirements of the YSAQMD.

Implementation Measure 1: All new construction shall incorporate standard mitigation measures recommended by the YSAQMD.

Implementation Measure 2: Any new development project that is greater in size than the "trigger levels" set by the YSAQMD and which is anticipated to generate emissions over the YSAQMD thresholds shall be required to reduce their air quality impacts to a less than significant level to the extent feasible.

CLIMATE CHANGE

Federal

In 2002, President George W. Bush established a national policy goal of reducing the greenhouse gas (GHG) emission intensity (tons of GHG emissions per million dollars of gross domestic product) of the US economy by 18 percent by 2012. No binding reductions were associated with the goal. Rather, the USEPA administers a variety of voluntary programs and partnerships with GHG emitters in which the USEPA partners with industries producing and utilizing GHGs to reduce associated emissions.

National Environmental Policy Act (NEPA)

The National Environmental Policy Act (NEPA) directs federal agencies to assess the potential environmental impacts of their proposed major actions significantly affecting the human environment and inform the public about those potential impacts. The Council on Environmental Quality (CEQ) was established as part of NEPA to coordinate federal environmental efforts. CEQ recently released a final

guidance memorandum on how climate change should be addressed in NEPA documents (CEQ, 2016). To assess impacts, the guidance states that federal agencies should quantify direct and indirect emissions of the project alternatives, with the level of effort being proportionate to the scale of the emissions relevant to the NEPA review. The CEQ guidance advises federal lead agencies to consider: (1) the potential effects of a proposed action on climate change as indicated by assessing GHG emissions, and (2) the effects of climate change on a proposed action and its environmental impacts. The guidance does not propose a specific, quantitative threshold of significance; however, it states that agencies should consider the potential for mitigation measures to reduce or mitigate GHG emissions and climate change effects when those measures are reasonable and consistent with achieving the purpose and need for the proposed action. Examples of mitigation provided for in the guidance include, but are not limited to, enhanced energy efficiency, lower GHG-emitting technology, carbon capture, carbon sequestration (e.g., restoration of forest, agricultural soils, and coastal habitat), and compensation.

Clean Air Act

In *Massachusetts et al.* v. *Environmental Protection Agency et al.* (April 2, 2007), the US Supreme Court ruled that the CAA authorizes the USEPA to regulate CO_2 emissions from new motor vehicles. The Court did not mandate that the USEPA enact regulations to reduce GHG emissions, but found that the only instances where the USEPA could avoid taking action were if it found that GHGs do not contribute to climate change or if it offered a "reasonable explanation" for not determining that GHGs contribute to climate change. On December 15, 2009, the USEPA issued a final endangerment finding (74 FR 66496), stating that high atmospheric levels of GHGs "are the unambiguous result of human emissions, and are very likely the cause of the observed increase in average temperatures and other climatic changes." The USEPA further found that "atmospheric concentrations of greenhouse gases endanger public health and welfare within the meaning of Section 202 of the Clean Air Act." The finding itself does not impose any requirements on industry or other entities.

State

California has been a leader among the states in outlining and aggressively implementing a comprehensive climate change strategy that is designed to result in a substantial reduction in total statewide GHG emissions in the future. California's climate change strategy is multifaceted and involves a number of state agencies implementing a variety of state laws and policies.

Assembly Bill [AB] 1493

Assembly Bill (AB) 1493 of 2002 requires CARB to develop and adopt the nation's first GHG emission standards for automobiles. These standards, which are also known as Pavley I, cover model years 2012 to 2016 and would raise passenger vehicle fuel economy to a fleet average of 35.5 miles per gallon by 2016.

Executive Order (EO) S-3-05

Executive Order (EO) S-3-05 was signed by Governor Arnold Schwarzenegger on June 1, 2005. EO S-3-05 established the following statewide emission reduction targets:

- Reduce GHG emissions to 2000 levels by 2010,
- Reduce GHG emissions to 1990 levels by 2020, and
- Reduce GHG emissions to 80 percent below 1990 levels by 2050.

EO S-3-05 created a "Climate Action Team" (CAT) headed by the California Environmental Protection Agency (CalEPA) and including several other state agencies. The CAT is mandated by EO S-3-05 to outline the effects of climate change on California and recommend an adaptation plan. The CAT is also mandated with creating a strategy to meet the emission reduction targets required by EO S-3-05. In April 2006, the CAT published an initial report that accomplished these two tasks. Subsequent CAT reports discussed progress and supplemental recommendations to ensure that the targets of EO S-3-05 are met. The 2010 CAT Report to the Governor and the Legislature was issued in December 2010 (CalEPA, 2010).

California Global Warming Solutions Act of 2006 (Assembly Bill 32)

Signed by Governor Schwarzenegger on September 27, 2006, AB 32 codifies a key requirement of EO S-3-05, specifically the requirement to reduce statewide GHG emissions to 1990 levels by 2020. AB 32 requires CARB to monitor state sources of GHGs and design emission reduction measures to comply with the law's emission reduction requirements. However, AB 32 also continues the CAT's efforts to meet the requirements of EO S-3-05 and states that the CAT should coordinate overall state climate policy.

To accelerate the implementation of emission reduction strategies, AB 32 requires that CARB identify a list of discrete early action measures that can be implemented relatively quickly. In October 2007, CARB published a list of early action measures that it estimated could be implemented and would serve to meet about one quarter of the required 2020 emissions reductions (CARB, 2007). They include actions such as improvements to landfill methane capture, a vehicle tire pressure program, improvements to heavy-duty truck efficiency, and a low carbon fuels standard (LCFS). On April 23, 2009, CARB adopted a LCFS. This standard requires that all fuels sold in California must have a reduced carbon content that will lower emissions by 10 percent by 2020.

AB 32 also required that CARB prepare a comprehensive "scoping plan" that identifies all strategies necessary to fully achieve the required 2020 emission reductions. Consequently, in early December 2008, CARB released its scoping plan to the public. The first update to the scoping plan was released in May 2014. The scoping plan calls for an achievable reduction in California's carbon footprint. Reduction of GHG emissions to 1990 levels are proposed, which equates to cutting approximately 30 percent of emissions estimated for 2020. The scoping plan relies on existing technologies and improving energy

efficiency to achieve the 30-percent reduction in GHG emission levels by 2020. The scoping plan provides the following key recommendation to reduce GHG emissions:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a statewide renewable energy mix of 33 percent;
- Developing a statewide cap-and-trade program that links with other Western Regional Climate Initiative (WCI) partner programs to create a regional market system;
- Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets;
- Adopting and implementing measures under existing state laws and policies, including California's clean car standards, goods movement measures, and the LCFS; and
- Creating targeted fees, including a public goods charge on water use, fees on emission of gases with high global warming potential, and a fee to fund the administrative costs of the state's long-term commitment to AB 32 implementation.

Executive Order S-01-07

EO S-01-07 was signed by Governor Schwarzenegger on January 18, 2007. It mandates a statewide goal to reduce the carbon intensity of transportation fuels by at least 10 percent by 2020. This target reduction was identified by CARB as one of the AB 32 early action measures identified in its October 2007 report.

Executive Order B-30-15

EO B-30-15 was signed by Governor Jerry Brown on April 29, 2015. It sets interim GHG targets of 40 percent below 1990 by 2030, to ensure California will meet its 2050 targets set by AB 32. It also directs CARB to update the Climate Change Scoping Plan.

Senate Bill (SB) 350

Senate Bill (SB) 350 codifies the GHG targets for 2030 set by EO B-30-15. To meet these goals, SB 350 also raises the renewable portfolio standard from 33 percent renewable generation by 2020 to 50 percent renewable generation by December 31, 2030.

COUNTY OF YOLO 2030 COUNTYWIDE GENERAL PLAN

The General Plan does not apply to the trust land on which the Proposed Project would be located or to the Proposed Project itself. Policies in the General Plan are relevant to the off-reservation emission of greenhouse gases in the vicinity of the Proposed Project and include the following.

Goal CO-8: Conservation and Open Space. Reduce greenhouse gas emissions and plan for adaptation to the future consequences of global climate change.

Policy CO-8.1: Assess current greenhouse gas emission levels and adopt strategies based on scientific analysis to reduce global climate change impacts.

Action CO-A116: Monitor State progress in the development of GHG quantification protocol and guidance for local governments that allows for statewide uniform measurement and estimation of expected jurisdiction-wide GHG emissions.

Policy CO-8.2: Use the development review process to achieve measurable reductions in greenhouse gas emissions.

Action CO-A121: Consider the provision of local housing for County employees to reduce commute travel time.

Policy CO-8.3: Prepare appropriate strategies to adapt to climate change based on sound scientific understanding of the potential impacts.

Policy CO-8.4: Encourage all businesses to take the following actions, where feasible: replace high mileage fleet vehicles with hybrid and/or alternative fuel vehicles; increase the energy efficiency of facilities; transition toward the use of renewable energy instead of non-renewable energy sources; adopt purchasing practices that promote emissions reductions and reusable materials; and increase recycling.

Action CO-A117: Require the implementation of cost-effective and innovative GHG emission reduction technologies in building components and design.

Action CO-A119: Require new development to incorporate designs and/or programs to reduce travel demand and vehicle emissions.

Action CO-A120: Require that new development incorporate alternative modes of transportation, including transit, bicycling and walking, in order to reduce vehicle emissions.

Policy CO-8.6: Undertake an integrated and comprehensive approach to planning for climate change by collaborating with international, national, State, regional, and local organizations and entities.

Policy CO-8.7: Integrate climate change planning and program implementation into County decision making.

Action CO-A122: In conjunction with, or immediately following, preparation of the Greenhouse Gas Emissions Reduction/Climate Action Plan(s) for the County, require countywide departmental analysis of how predicted effects of climate change will affect responsibilities and resources of each department. Develop strategies and actions to addresses outcomes.

Policy CO-8.8: Increase public awareness about climate change and encourage county residents and businesses to become involved in activities and lifestyle changes that will aid in reduction of greenhouse gas emissions.

Yolo County Climate Action Plan

Yolo County adopted its *Climate Action Plan* in 2011 as an implementation measure of the General Plan. The *Climate Action Plan* includes emissions inventories for 1990 and 2008, reduction goals, and implementation measures. The inventories only include unincorporated land and therefore do not include the four incorporated cities, UC Davis, special districts, state-owned or federally owned land, or tribal land such as the Proposed Project site (Yolo County, 2011). The 2008 inventory is shown in **Table 3.8-2**.

TABLE 3.8-2
YOLO COUNTY GREENHOUSE GAS INVENTORY UNINCORPORATED LAND 2008

Sector	MT CO_2e / yr
Agriculture	297,341
Transportation	105,253
Energy	181,447
Solid Waste	6,871
Wastewater	974
Stationary Source	30,583
Mining & Construction	29,271
Total	**651,740**

Note: MT CO_2e = metric tons of carbon dioxide equivalents
Source: Yolo County, 2011.

Yolo County's emission goals are to meet the state targets set forth in AB 32, as addressed in **Section 3.8.1**. The *Climate Action Plan* does not apply to trust land on which the Proposed Project would be located or to the Proposed Project itself, but it includes polices that may relate to off-reservation impacts. The only measure related to transportation and off-reservation impacts is a vehicle miles traveled (VMT) reduction. This is implemented by specific plan areas. The Proposed Project is not located within a specific plan area.

3.8.2 ENVIRONMENTAL SETTING

REGIONAL METEOROLOGY

The Proposed Project site is located approximately 24 miles west of the City of Woodland and lies within the southwestern portion of the SVAB. The geographic features giving shape to the Sacramento Valley are the Coast Ranges to the west, the Sierra Nevada mountain range to the east, and the Cascade Range to the north. These mountain ranges channel winds through the Sacramento Valley, but also inhibit dispersion of pollutants. The Sacramento Valley is subject to two main seasonal wind patterns. The

spring, summer, and fall wind pattern consists of winds that originate from the Pacific Ocean and flow through a sea-level gap in the Coast Ranges. In the winter season, northerly winds predominate.

Capay Valley

The Capay Valley has a Mediterranean climate that is temperate and rainy in the winter while hot and dry in the summer. The northern part of the valley includes elevations high enough to precipitate snow, while the southern portion near the community of Esparto has night frosts only a few times a year. Summer highs regularly rise above 110 degrees Fahrenheit (°F). Because the Capay Valley is narrow, inversion layers are common, trapping fog during the winter months and smog during the summer months. Delta breezes blow in from the ocean through the Carquinez Strait toward Sacramento, transporting pollutants into the SVAB from the San Francisco Bay Area. These pollutants can then migrate north to the Capay Valley, where the pollutants often become trapped between the eastern and western boundary elevations of the valley.

AIR POLLUTANTS OF CONCERN

Air pollutants of concern for an air basin include CAPs that are currently listed as having a nonattainment or maintenance status according to the applicable NAAQS and violation criteria. As shown in **Table 3.8-3**, the USEPA has designated the SVAB as severe nonattainment for the 8-hour ozone NAAQS in accordance with the CAA. The applicable SIP for ozone in the SVAB comprises the 2009 *Sacramento Regional 8-Hour Attainment and Reasonable Further Progress Plan* and the 2013 *Update to the 8-Hour Ozone Attainment and Reasonable Further Progress Plan*. The SVAB meets the NAAQS or is unclassified for all other pollutants. Therefore, ozone is considered an air pollutant of concern in the SVAB and, accordingly, the area surrounding the Proposed Project site.

TABLE 3.8-3
SACRAMENTO VALLEY AIR BASIN ATTAINMENT STATUS

Pollutant	NAAQS
O_3, 8-hour	Nonattainment (Severe)
PM_{10}	Unclassified
$PM_{2.5}$	Attainment[1]
CO	Attainment
N_2O	Attainment
SO_2	Attainment
Pb	Attainment

Notes: 1 - Yolo County is in partial nonattainment; however, the portion of the county where the Proposed Project site is located is in attainment.
Source: CARB, 2014; USEPA, 2016c; USEPA, 2015.

Ozone

Although ozone is a vital component of the upper atmosphere to reduce the intensity of the sun's energy, ground-level ozone (ozone located within the breathing height of the general population) is classified as a

CAP. For the purposes of this Draft TEIR, the discussion of ozone refers to ground-level ozone generated mainly from anthropogenic sources. Ozone is created in the presence of sunlight through photochemical reactions involving ROGs and NO_X. The largest source of ROGs and NO_X is the incomplete combustion of fossil fuels. Because photochemical reaction rates depend on the intensity of ultraviolet light and air temperature, ozone is primarily a summer air pollution problem. As a photochemical pollutant, ozone is formed only during daylight hours under appropriate conditions, but is destroyed throughout the day and night. Ozone is considered a regional pollutant, as its generation from ROGs and NO_X takes place over time and is often most noticeable downwind from the sources of the emissions. Ambient air quality measurements for ozone are conducted by the YSAQMD. **Table 3.8-4** provides the latest 3-year summary of monitoring data from the closest monitoring station to the Proposed Project, which is located at 41929 East Gibson Road in Woodland.

TABLE 3.8-4
AIR MONITORING RESULTS FOR THE YSAQMD

Pollutant	NAAQS	2013	2014	2015
8-Hour	0.075 ppm	0.067	0.071	0.071
Number of Days Above NAAQS		0	0	0
National 24-Hour	150 μg/m^3	22.0	14.6	29.4
Number of Days Above NAAQS		0	0	0

Notes: ppm= parts per million; μg/m^3 = micro grams per cubic meter.
Source: CARB, 2016.

Carbon Monoxide

CO is readily dispersed throughout the atmosphere once emitted and is therefore a localized air quality issue close to the emission source. CO is an acute (short-term) health threat. Although the SVAB is classified by the USEPA as being in attainment for the NAAQS, CO is a pollutant of concern at major signalized intersections that exhibit prolonged vehicle idling times.

Diesel Particulate Matter

An additional pollutant of concern in the region is DPM. DPM is defined as a TAC by the state. According to CARB, the estimated health risk from TACs can be primarily attributed to relatively few compounds, including DPM. DPM differs from many other TACs in that it is not a single substance, but rather a complex mixture of air pollutants, composed of gaseous and solid material from the combustion of diesel fuels. The visible emissions in diesel exhaust include particulate matter and carbon particles or "soot" (YSAQMD, 2007). Due to the controversy surrounding DPM, an assessment of the potential off-reservation impacts of DPM releases associated with the Proposed Project has been included in **Section 3.8.3**.

ODOR

While odors rarely cause physical harm, they can be unpleasant and can lead to considerable distress among the public. No requirements for odor control are included in federal or state air quality regulations; as a result, local air districts usually have no rules or standards related to odor emissions, other than general air quality nuisance rules.

Types of operations that are typically evaluated for odor concerns include waste processing and heavy industrial facilities such as wastewater treatment plants (WWTPs), landfills and composting facilities, chemical manufacturing operations, and confined animal facilities. Except for the WWTP, the Resort does not include any source types that have historically been associated with odor complaints. The WWTP and conveyance systems (such as the existing lift stations) contain odor scrubbing technology to reduce odors to being noticeable only within a few feet surrounding the systems.

SENSITIVE RECEPTORS

Variables that may contribute to a greater-than-average sensitivity to air pollution include pre-existing health problems, proximity to an emissions source, and duration of exposure to air pollutants. Schools, hospitals, and convalescent homes are considered to be sensitive receptors because children, elderly people, and the infirm are more susceptible to respiratory distress and other air quality-related health problems. Residential areas are also considered sensitive to poor air quality because people usually stay home for extended periods, resulting in greater exposure to ambient air quality. Recreational uses are considered sensitive because vigorous exercise associated with recreation places a high demand on the human respiratory system.

The land surrounding the Proposed Project site is primarily agricultural land. The California Department of Forestry and Fire Protection (CAL FIRE) station is adjacent to the Proposed Project site and is the closest off-reservation sensitive receptor.

The nearest off-reservation residential sensitive receptor is located approximately 350 feet from the northwest corner of the trust land property line and 1,200 feet from the nearest site of construction for the Proposed Project. The next closest residential sensitive receptor north of the trust land property line is approximately 1,500 feet north of that property line. The nearest residence to the south of the Proposed Project site is approximately 2,800 feet (greater than 0.5 mile) south of the trust land property line. The nearest off-reservation school to the Proposed Project site is in Esparto, seven miles south of the Proposed Project site.

CLIMATE CHANGE

Introduction

The extent to which human activities affect global climate change is variable depending on future emissions. It is anticipated that the average global temperature could rise 1.5 to 4.0°C (2.7 to 7.2°F) by

2100 (IPCC, 2013). The *Intergovernmental Panel on Climate [IPCC] Change Fifth Assessment Report* identifies anthropogenic GHGs as a very likely contributing factor to changes in the Earth's climate (IPCC, 2013).

The United States Supreme Court has held that CO_2 (a GHG) falls under the CAA's definition of an "air pollutant," such that the USEPA has statutory authority to regulate the emissions of this gas (CO_2). *Massachusetts v. [US] Environmental Protection Agency* concluded that GHG emissions from human activities would result in an additional warming of the Earth's surface.

The Greenhouse Effect and Climate Change

The Earth's temperature is regulated by a system known as the "greenhouse effect." GHGs are primarily water vapor (H_2O), CO_2, methane (CH_4), and nitrous oxide (N_2O), which trap the heat of the sun within the Earth's atmosphere, preventing radiation from dissipating into space. Water vapor is the most abundant GHG and CO_2 is a distant second.

IPCC modeling estimates that anthropogenic CO_2 in the lower atmosphere has increased by approximately 40 percent since 1750. Due to the challenges inherent in modeling the complexities of the Earth's climate, the proportional importance of anthropogenic activities as opposed to natural feedback systems is exceptionally difficult to establish. The IPCC concludes that since the mid-20th century, there has been an observed global mean surface warming of approximately 0.6^{o}C (1.1^{o}F) to 0.7^{o}C (1.3^{o}F), and that it is extremely likely that more than half of the increase was caused by anthropogenic increases in GHG emissions.

IPCC theorizes that a continuation of this warming trend could have profound implications for Earth's climate, including flooding, erratic weather patterns, increased sea levels, and reduced Arctic ice. The IPCC projects a number of future GHG emissions scenarios, leading to a varying severity of impacts on the environment and the global economy. The long-term effects of climate change depend on future emissions; however, the IPCC asserts that the observed frequency and intensity of daily temperature and heat waves since the mid-20th century are very likely attributed to global climate change (IPCC, 2013).

GHG Inventory

GHG sources are both anthropogenic and natural. Some examples of anthropogenic sources are combustion of fossil fuel, evaporation of synthetic chemicals, agriculture, and combustion of coal. Natural sources include water vapor and naturally occurring N_2O, CO_2, O_3, and CH_4. Because GHGs are relatively stable in the atmosphere and essentially uniformly dispersed throughout the troposphere and stratosphere, the climatic impact of GHG emissions does not depend on the location of the emissions.

To provide a comparative analysis between sources of GHGs, the carbon dioxide equivalent (CO_2e) of each GHG is assessed. CO_2e is a method by which emissions of individual GHGs are normalized in relation to heat-capturing abilities. As shown in **Table 3.8-5**, CO_2 is used as the baseline for GHG

inventories and is given a CO_2e value of 1. Other significant GHGs are assigned a CO_2e ratio based on their ability to trap heat in comparison with that of CO_2. For example, CH_4 has the ability to capture 21 times more heat than CO_2 and therefore is given a CO_2e value of 21. To calculate total GHG emissions for a source, estimated emissions for each GHG are multiplied by the corresponding CO_2e value and then the converted values are summed. Establishing a comparable total emissions rate provides a means for comparing emissions sources and presenting the relative overall effectiveness of emission reduction measures for reducing project contributions to global climate change.

TABLE 3.8-5
GREENHOUSE GAS CO_2 EQUIVALENT

Gas	CO_2e Value
CO_2	1
CH_4	21
N_2O	310
HFCs/PFCs[1]	6,500
SF_6[1]	23,900

Notes: CO_2e =Carbon dioxide equivalent;
CH_4 = methane, N2O = nitrous oxide;
HFCs/PFCs = hydrofluorocarbons/perfluorocarbons;
SF_6 = sulfur hexafluoride.
1 - High-global warming potential pollutants.
Source: UNFCCC, 2014.

Resort

The Tribe is committed to reducing the Resort's carbon footprint. The Tribe has instituted various methods of reducing GHG emissions at the Resort through increasing the occupancy of vehicles traveling to and from the site and developing alternative energy uses.

The largest source of GHG emissions attributable to the existing Resort is mobile emission from vehicles. Mobile emissions at the Resort are reduced through the use of multiple-occupancy vehicles by employees. Currently 290 employees (14.5 percent) are enrolled in the carpool program and 65-80 (3.2-4.0 percent) are enrolled in the van pool program, providing employee transportation from both small and large cities in northern California to the Resort. Additionally, 415 employees ride Yolobus Route 215 for an average 50-mile round trip per day (Vargas, 2016). These carpools, vanpools, and public transit uses remove thousands of personal vehicles from the local road system each month and significantly reduce the number of VMTs associated with worker commute trips. In addition, six percent of patrons arrive via charter bus, further reducing mobile GHG emissions.

The second largest source of GHG emissions attributable to the existing Resort is electrical energy use. The peak summer total electrical energy usage for the existing Resort is 6 megawatts (MW). Electricity is provided to the Resort primarily by Pacific Gas and Electric Company (PG&E) through power lines along

State Route (SR)-16. Currently, 35 percent of PG&E's total energy production is from zero-emission sources (USEPA, 2016d).

Additionally, the Resort augments its electricity supply from PG&E with a photovoltaic array, which is located on the hillside northeast of the casino and hotel (**Figure 2-1**). The photovoltaic array provides 0.25 MW of alternating current power at peak generation and does not emit GHGs.

3.8.3 IMPACT ANALYSIS

SIGNIFICANCE CRITERIA

The following criteria are established by Section III of the Environmental Impact Analysis Checklist in the Tribal-State Compact (Checklist) (**Appendix A**) and have been used in this section to evaluate the potential off-reservation impacts of the Proposed Project on air quality. Such an impact is considered significant if it would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- Expose off-reservation sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people off reservation.

Criteria Air Pollutants

As discussed in **Section 3.8.2**, the SVAB surrounding the Proposed Project site is classified as nonattainment for ozone and attainment or unclassified for particulate matter, CO, NO_2, SO_2, and Pb. A significant impact would occur if the Proposed Project would result in emissions of ozone precursors (ROGs and NO_X) at levels that would conflict with or obstruct an applicable air quality plan, violate an air quality standard, or contribute to an existing or projected air quality violation. Accordingly, the *de minimis* levels set forth in 40 CFR 93.153 are used to evaluate the significance of the Proposed Project's off-reservation air quality impacts. *De minimis* levels for ozone precursors ROG and NO_X are 25 tons per year each because the SVAB has recently been designated as being in severe nonattainment by the USEPA for this CAP.

Although the SVAB is classified as attainment for CO, the corresponding impacts are assessed below to determine if the increase in traffic attributable to the Proposed Project could result in the exceedance of the 1-hour NAAQS of 35 ppm. According to the protocol adopted by the California Department of Transportation (Caltrans), projects that would lead to worsening the level of service (LOS) of a signalized intersection to E or F represent a potential for a CO violation and would require further analysis; projects that do not worsen signalized intersections to LOS E or F would require no

more analysis. Projects that significantly increase the delay (increase in delay of 10 seconds or more) at an intersection operating at LOS E or LOS F under existing conditions would represent a potential for a CO violation and would require further analysis. Refer to **Section 3.2**, **Transportation/Traffic**, for the definition of LOS.

Odor

Because there are no applicable odor detection thresholds due to the subjective nature of odors and odor sensitivity, the potential for significant odor impacts is typically evaluated based on criteria such as historical complaints pertaining to similar sources.

Diesel Particulate Matter

Because there are no applicable DPM thresholds, the potential for significant DPM impacts is typically evaluated based on the duration of exposure and location and quantity of off-reservation sensitive receptors surrounding the Proposed Project site.

Climate Change

No federal significance thresholds have been established by CEQ, the USEPA, or any other federal agency for climate change and GHG emissions. The 2016 CEQ guidance does not establish any particular quantity of GHG emissions as "significantly" affecting the quality of the human environment or give greater consideration to the effects of GHG emissions and climate change over other effects on the human environment. However, the guidance does state that agencies should consider reasonable ways to reduce action-related GHG emissions or increase carbon sequestration in the same fashion as they consider alternatives and mitigation measures for any other environmental effects.

METHODOLOGY

Cumulatively Considerable Impacts

Refer to **Section 3.13**, **Growth-inducing and Cumulative Off-reservation Environmental Impacts**, regarding the analysis and corresponding methodology for long-term cumulatively considerable impacts of the Proposed Project on applicable air quality standards for CAPs (significance criterion bullet number three).

Construction

Emissions from equipment, mobile sources, and architectural coating applications were calculated using the methodology outlined in the CalEEMod User's Guide (refer to CalEEMod output in **Appendix J**). Published emissions factors from CARB were applied to project-specific estimates of equipment use, number of construction employee and vendor vehicle trips, and application rates of architectural coatings based on square footages of the components of the Proposed Project.

Operation

Operational emissions were calculated at the buildout year of 2019 by quantifying operation-related fuel combustion from building energy and stationary engines and mobile sources.

Mobile-source emissions estimates are based on miles traveled by the new vehicle trips associated with the Proposed Project and trip characteristics of the patrons and employees. The number of trips traveled by patrons was calculated with data from the Institute of Transportation Engineers Trip Generation Manual, 9th Edition, and internal capture rates based on site visits. Refer to **Appendix D** and **Section 3.2**, **Transportation/Traffic**, for a detailed discussion of trip generation. VMT and associated emissions were calculated using CalEEMod (refer to **Appendix J**).

Carbon Monoxide Screening Procedures

The *Transportation Project-Level CO Protocol* (CO Protocol; UC Davis, 1997) deals with project-level air quality analysis needed for federal conformity determinations, NEPA, and CEQA. In 1997, the USEPA approved the CO Protocol for use as an alternative "hot spot" analysis method in California. The CO Protocol provides a screening procedure for determining when a project may be of concern for CO violations and identifies a standardized method of using the CALINE4 dispersion model for detailed analysis if necessary. The CO Protocol is the standard method for project-level CO analysis by Caltrans, replacing the *Air Quality Technical Analysis Notes* (Caltrans, 2016a).

CO concentrates on the ground and does not disperse well, causing localized impacts at major congested intersections. Hotspot analysis is deemed necessary if, as a result of the Proposed Project, an intersection would operate at or below LOS E. For the purposes of this impact analysis, the mitigation recommended for impacts on transportation and traffic in **Section 3.2**, **Transportation/Traffic** (to the extent actually required to mitigate potential impacts on LOS), are reasonably foreseeable, and therefore are assumed to be in place.

Diesel Particulate Matter

DPM emissions from construction and operational emissions were quantified using the same procedures as CAP emissions estimates. DPM emissions from vendor trips during construction, which were conservatively assumed to be made entirely by heavy duty vehicles, were included in the analysis. For this analysis it is conservatively assumed that 100 percent of the exhaust PM would be DPM (**Appendix J**), although actual exhaust would not consist entirely of DPM. Construction worker commute trips were not included in the analysis due to their vehicle classes, which constitute a negligible fraction of diesel vehicles. Patron trips by private vehicle and employee commute trips to the Resort and the Proposed Project site were not considered in the analysis because these trips would be made by vehicle classes that emit negligible amounts of DPM.

CLIMATE CHANGE

Climate change is a global phenomenon attributable to the sum of all human activities and natural processes worldwide. As such, it is not analytically possible to link specific climate change phenomena to the Proposed Project. Accordingly, the Proposed Project's impact on climate change is most appropriately addressed in terms of the incremental contribution to a global cumulative impact. For a discussion and analysis of cumulative impacts related to climate change, refer to **Section 3.13**, **Growth-inducing and Cumulative Off-reservation Environmental Impacts**.

OFF-RESERVATION IMPACTS OF THE PROPOSED PROJECT

Impact 3.8.1

The Proposed Project would emit ozone precursors in the SVAB, which is designated as severe nonattainment for ozone under the NAAQS; however, these emissions would not conflict with or obstruct the implementation of the applicable ozone air quality plan, violate the ozone air quality standard, or contribute to the existing or projected air quality violation related to the emissions of ozone precursors.

Construction

Construction of the Proposed Project would generate ROGs and NO_X from the operation of heavy equipment and construction machinery, construction worker and vendor trips (mobile sources), and application of architectural coatings. Construction activities are temporary in nature and would occur intermittently.

Table 3.8-6 presents the unmitigated construction emissions associated with the Proposed Project as quantified in **Appendix J**. Unmitigated Proposed Project emissions would be less than the *de minimis* threshold of 25 tons per year for both ROG and NO_X individually. Therefore, a general conformity determination is not required. Because construction emissions of ROGs and NO_X are less than *de minimis* levels, construction of the Proposed Project would not conflict with or obstruct implementation of the applicable ozone air quality plan, violate the ozone air quality standard, or contribute to the existing or projected air quality violation related to the emissions of ozone precursors. Construction emissions under the Proposed Project would be less than significant.

Operation

Operational emissions would be primarily indirect (i.e., not associated with a point source on the Proposed Project site) and would be generated by new patron and employee vehicle trips to the Proposed Project site. Combustion of natural gas on the Proposed Project site would also contribute to total emissions associated with the operation of the Proposed Project.

Operational emissions were estimated for the buildout year of 2019. **Table 3.8-7** presents the unmitigated operational emissions associated with the Proposed Project as quantified in **Appendix J**. Unmitigated Proposed Project emissions would be less than the *de minimis* threshold of 25 tons per year for both ROG and NO_X. Because operational emissions of ROG and NO_X would be below the *de minimis* levels, implementation of the Proposed Project would not conflict with or obstruct implementation of the applicable ozone air quality plan, violate the ozone air quality standard, or contribute to the existing or projected air quality violation related to the emissions of ozone precursors.

TABLE 3.8-6
UNMITIGATED PROPOSED PROJECT CONSTRUCTION EMISSIONS

Construction Year	Pollutants of Concern	
	ROG	NO_x
	tons per year	
2017	0.61	5.51
2018	2.96	2.96
Maximum Year Emissions	**2.96**	**5.51**
de minimis thresholds	*25*	*25*
Threshold Exceeded	**No**	**No**
Source: CalEEMod, 2016; YSAQMD, 2007.		

TABLE 3.8-7
UNMITIGATED PROPOSED PROJECT OPERATIONAL EMISSIONS

Source	Pollutants of Concern	
	ROG	NO_X
	tons per year	
Stationary	1.76	0.54
Mobile	1.85	8.70
Total Emissions	**3.61**	**9.24**
de minimis thresholds	*25*	*25*
Threshold Exceeded	**No**	**No**
Source: CalEEMod, 2016; YSAQMD, 2007.		

Impact 3.8.2

The Proposed Project would not emit odors detectable in the off-reservation environment, and the off-reservation environment in the vicinity of the Proposed Project site does not include a substantial number of people; therefore, implementation of the Proposed Project would not create objectionable odors affecting a substantial number of people off reservation.

Construction of the Proposed Project would generate minor odors from heavy equipment and fugitive dust. Construction-related odors would dissipate quickly and would not extend beyond the boundaries of the Proposed Project site.

Operation of the Proposed Project would not include new facilities that would generally emit odors, such as large industrial and manufacturing facilities. The addition of new equipment at the WWTP to provide additional capacity to serve the Proposed Project would not introduce new sources of odors.

Furthermore, there are not a substantial number of people in the off-reservation vicinity of the Proposed Project site, as described above under "Sensitive Receptors." No impact would occur.

Impact 3.8.3

The Proposed Project would not cause high concentrations of CO; therefore, implementation of the Proposed Project would not expose off-reservation sensitive receptors to substantial CO concentrations.

CO disperses readily into the atmosphere once emitted. Therefore, elevated concentrations of CO, which can have adverse effects on sensitive receptors, tend to occur at intersections that experience high traffic volumes, resulting in long delays and vehicle idling times if the LOS is exceeded for the intersection. As described previously under the significance threshold for CAPs, emissions of CO generated by the Proposed Project would have the potential to cause a violation of short-term standards if implementation of the Proposed Project would result in congestion of roadways and/or intersections within the study area (refer to **Appendix D**).

The concern relating to CO is normally limited to major signalized intersections operating at LOS E or F. According to the Traffic Impact Study prepared for the Proposed Project (**Appendix D**), no major signalized intersections or roadways within the off-reservation study roadway network would experience LOS E or F after the incorporation of mitigation. Therefore, the screening procedures described in the CO Protocol (UC Davis, 1997) do not indicate that microscale CO modeling is necessary (Caltrans, 2015b). Implementation of the Proposed Project would not expose off-reservation sensitive receptors to substantial CO concentrations and would result in a less-than-significant impact on air quality in relation to traffic volumes and CO emissions.

Impact 3.8.4

The Proposed Project would not cause high concentrations of DPM; therefore, implementation of the Proposed Project would not expose off-reservation sensitive receptors to substantial DPM concentrations.

Construction

Construction of the Proposed Project would result in emissions of DPM from heavy equipment use. However, the minimal extent of grading activities (refer to **Section 2.0**, **Project Description**) and the distance to the nearest sensitive receptor (350 feet from construction activities to the CAL FIRE station), exposure of substantial levels of DPM to off-reservation sensitive receptors would not occur. Quantification of construction DPM emissions is provided in **Appendix J**. Therefore, construction of the Proposed Project would result in a less-than-significant impact on air quality in relation to DPM emissions.

Operation

Off-reservation emissions would occur only from vendor trips and charter buses; however, the levels of emissions from these types of vehicles are not sufficient to expose nearby sensitive receptors to substantial DPM concentrations. Therefore, operation of the Proposed Project would result in a less-than-significant impact on air quality in relation to DPM emissions.

3.9 NOISE

This section addresses the off-reservation noise issues associated with the Proposed Project. The existing noise characteristics of the region are addressed and regulatory policies related to off-reservation noise impacts are presented. The off-reservation impact analysis in this section presents the criteria used to evaluate the significance of noise impacts on the off-reservation environment and addresses potential effects of the Proposed Project on the off-reservation environment. Additional information about noise issues can be found in the Environmental Noise Analysis prepared for the Proposed Project (BAC, 2016; **Appendix K**).

3.9.1 REGULATORY SETTING

FEDERAL

Federal regulations establish noise limits for medium and heavy trucks (defined as a vehicle weighing more than 5 tons, gross vehicle weight rating) under 40 Code of Federal Regulations (CFR) 205 (B). The federal truck pass-by noise standard is 80 decibels (dB) at 15 meters (approximately 50 feet) from the vehicle pathway centerline. Federal regulations governing truck manufacturing implement these controls.

The United States Department of Housing and Urban Development (HUD) provides noise standards to encourage the control of noise at its source in cooperation with other federal departments and agencies, and to encourage land use patterns for housing and other noise-sensitive urban needs that will provide a suitable separation between them and major noise sources. HUD considers an acceptable noise level for residential units to be 65 dB (24 CFR Part 51).

The Federal Interagency Committee on Noise (FICON) provides guidance in how to assess noise impacts resulting from aircraft operations, shown in **Table 3.9-1** below. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, these criteria have been applied to other sources of noise similarly described in terms of cumulative noise exposure metrics (**Appendix K**).

TABLE 3.9-1
SIGNIFICANCE OF CHANGES IN NOISE EXPOSURE LEVELS

Ambient Noise Level Without Project, Ldn	Increase Required for Significant Impact
< 60 dB	+ 5.0 dB or more
60 to 65 dB	+ 3.0 dB or more
> 65 dB	+ 1.5 dB or more
Source: FICON, 1992; BAC, 2016 (**Appendix K**).	

STATE AND LOCAL

The Proposed Project is located on federal trust land and is therefore not subject to state or local controls concerning noise. However, such controls apply to off-reservation land in the vicinity of the Proposed Project.

The State of California establishes noise limits for vehicles licensed to operate on off-reservation public roads. For heavy trucks, the State pass-by noise standard is equal to the federal standard (80 dB). The State pass-by standard for light trucks and passenger cars (defined as a vehicle weighing less than 3 tons, gross vehicle weight rating) is also 80 dB at 15 meters (approximately 50 feet) from the centerline. These standards are implemented in two ways: (1) controls on vehicle manufacturers; and (2) legal sanctions from state and local law enforcement officials against off-reservation vehicle operators in violation of the standards.

The state also has established noise insulation standards for new off-reservation multi-family residential units, hotels, and motels that would be subject to relatively high levels of transportation-related noise. These requirements are collectively known as the California Noise Insulation Standards (Title 24, California Code of Regulations). The noise insulation standards set forth an off-reservation interior day-night average noise level (Ldn) standard of 45 dB in any habitable room. They require an acoustical analysis demonstrating how off-reservation dwelling units have been designed to meet this interior standard where such units are proposed in off-reservation areas subject to noise levels greater than 60 dB Ldn.

County of Yolo 2030 Countywide General Plan

The *County of Yolo 2030 Countywide General Plan* (General Plan), adopted in 2009, is the guiding document for development in the unincorporated areas of the County, including the off-reservation properties in the vicinity of the Proposed Project (Yolo County, 2009a). The General Plan does not apply to federal trust land on which the Proposed Project would be located or to the Proposed Project itself. Policies in the General Plan that are relevant to off-reservation noise in the vicinity of the Proposed Project include the following.

Health and Safety Element

Goal HS-7: Noise Compatibility. Protect people from the harmful effects of excessive noise.

Policy HS-7.1: Ensure that existing and planned land uses are compatible with the current and projected noise environment. However, urban development generally experiences greater ambient (background) noise than rural areas. Increased density, as supported by the County in this General Plan, generally results in even greater ambient noise levels. It is the County's intent to meet specified indoor noise thresholds and to create peaceful backyard living spaces where possible, but particular ambient outdoor thresholds may not always be achievable. Where residential growth is allowed pursuant to this general plan,

these greater noise levels are acknowledged and accepted, notwithstanding the guidelines in Figure HS-7 [see **Table 3.9-2**].

TABLE 3.9-2
OFF-RESERVATION LAND USE COMPATIBILITY FOR COMMUNITY NOISE ENVIRONMENT

Type of Proposed Project	Community Noise Exposure in Decibels (CNEL) Day/Night Average Noise Level in Decibels (Ldn)						
	<55	55-60	60-65	65-70	70-75	75-80	>80
Residential Low Density Single-Family, Duplex, Mobile Homes							
Residential – Multi-Family							
Transient Lodging – Motels, Hotels							
Schools, Libraries, Churches, Hospitals, Nursing Homes							
Auditoriums, Concert Halls, Amphitheaters							
Sports Arenas, Outdoor Spectacular Sports							
Playgrounds, Neighborhood Parks							
Golf Courses, Riding Stables, Water Recreation, Cemeteries							
Office Buildings, Business Commercial and Professional							
Industrial, Manufacturing, Utilities, Agriculture							

Notes:
- NORMALLY ACCEPTABLE: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
- CONDITIONALLY ACCEPTABLE: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design.
- NORMALLY UNACCEPTABLE: New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.
- CLEARLY UNACCEPTABLE: New construction or development clearly should not be undertaken.

Source: Yolo County, 2009a.

Policy HS-7.3: Protect important agricultural, commercial, industrial, and transportation uses from encroachment by land uses sensitive to noise and air quality impacts.

Policy HS-7.4: For proposed new discretionary development, where it is not possible to reduce noise levels in outdoor activity areas to 60 dB CNEL or less using practical application of the best-available noise reduction measures, greater exterior noise levels may be allowed, provided that all available reasonable and feasible exterior noise level reduction measures have been implemented.

Action HS-A63: Review proposed development projects for compatibility with surrounding and planned uses in accordance with the Noise Compatibility Guidelines and the County's Right to Farm Ordinance; however, these guidelines shall not be applied to outdoor activity areas nor shall they be used to prohibit or preclude otherwise allowed density and intensity of development.

Action HS-A65: Require the preparation of a noise analysis/acoustical study, with recommendations for attenuation, for all proposed projects within noise-impacted areas that may reasonably be expected to be exposed to levels that exceed the appropriate Noise Compatibility Guidelines standards.

Policy HS-7.5: Minimize the impact of noise from transportation sources including roads, rail lines, and airports on nearby sensitive land uses.

Town of Esparto General Plan

This Draft Tribal Environmental Impact Report (TEIR) examines the off-reservation land use impacts of the Proposed Project in the County. Because Esparto is the nearest sizable community to the Resort, and because many Resort employees currently live in Esparto, relevant noise policies from the *Town of Esparto General Plan* are provided below (Yolo County, 2007).

Noise Goals, Policies, and Programs

Goal 1: To preserve the quiet, rural setting of the town and protect residents from exposure to excessive noise.

Policy E-N.1: Areas within the town shall be considered noise impacted if exposed to existing or protected noise levels on the exterior of buildings that exceeds 60 dB. New development of commercial, industrial, or other noise generating land uses will not be permitted if resulting noise levels will exceed 60 dB in areas containing residential or other noise-sensitive land uses.

Policy E-N.2: New development will maintain an appropriate setback from major routes and agricultural operations to minimize noise impacts.

Policy E-N.3: New development shall mitigate outdoor and indoor noise levels for existing residences that would be exposed to an increase in noise level of five dBA or more and would be exposed to an Ldn in excess of 60 dB.

Policy E-N.4: Noise sensitive land uses shall not be allowed where the noise due to non-transportation noise sources will exceed an hourly Leq of 55 dB between 7:00am and 10:00pm and 50 dB between 10:00pm and 7:00am. These noise levels should be lowered by 5dB for simple tone noises or for noises consisting primarily of speech or music.

Capay Valley Area Plan

The *Capay Valley Area Plan*, adopted in 2010 as a component of the General Plan, does not establish any particular goals relevant to noise (Yolo County, 2010). However, it does state that State Route (SR)-16 is an existing fixed-point noise source and the greatest source of noise in the vicinity of the Proposed Project site. The *Capay Valley Area Plan* does not apply to trust land or to the Proposed Project itself.

Noise

Goal 1: Establish and maintain noise levels that are consistent with the rural, agricultural setting of the Capay Valley.

Policy 1: Excessive or harmful noise shall be prevented, avoided, and suppressed by controlling noises at the source, by providing barriers or buffers, by the implementation of a noise ordinance, and by means of wise land use planning and implementation.

Implementation Measure 1: Consistent with the Countywide General Plan Health and Safety Element, the County shall adopt a comprehensive Noise Ordinance with specific noise standards that provides for the prohibition and/or reduction of excessive sound levels, including those associated with motors, generators, vehicles, aircraft, fireworks, firearms, explosives, amplifiers, horns, etc. whether employed for residential, commercial, or recreational purposes.

Implementation Measure 2: The County shall require mitigation to reduce noise to acceptable levels throughout the Capay Valley Planning Area and particularly near or within home environments.

3.9.2 ENVIRONMENTAL SETTING

CHARACTERISTICS OF ENVIRONMENTAL NOISE

Acoustical Background and Terminology

Noise is often defined as unwanted sound. Pressure variations occurring frequently enough (at least 20 times per second) for the human ear to detect are called sounds. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second, called hertz (Hz).

The perceived loudness of sounds depends upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable. The decibel scale measures sound levels using the hearing threshold (20 micropascals of pressure) as the point of reference, defined as 0 dB. Other sound pressures are then compared to the reference pressure, and the logarithm is taken to keep the numbers in a practical range.

The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum (20 Hz to 20,000 Hz). As a result, when assessing potential noise impacts, sound is measured using an electronic filter that de-emphasizes the frequencies below 1,000 Hz and above 5,000 Hz to better represent the human ear's sensitivity to mid-range frequencies. This method of frequency weighting is referred to as A-weighting and is expressed in units of A-weighted decibels (dBA). Frequency A-weighting follows an international standard method of frequency de-emphasis and is typically applied to community noise measurements. In practice, the level of a sound source is measured using a sound level meter that includes an electrical filter corresponding to the A-weighting curve. All of the noise levels reported herein are A-weighted unless otherwise stated. **Table 3.9-3** shows the most commonly used noise descriptors.

TABLE 3.9-3
DEFINITION OF ACCOUSTICAL TERMS

Terms	Definitions
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure.
A-weighted Sound Level, dBA	Sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network, which de-emphasizes very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level, Leq	The average A-weighted noise level during the measurement period.
Community Noise Equivalent Level, CNEL	The average A-weighted noise level during a 24-hour day, obtained after adding 5 decibels to measurements taken in the evening (7 p.m. to 10 p.m.) and 10 decibels to measurements taken between 10 p.m. and 7 a.m.
Day/Night Noise Level, Ldn	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10 p.m. and 7 a.m.
Lmax, Lmin	The maximum and minimum A-weighted noise level during the measurement period.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content, as well as the prevailing ambient noise level.
Source: Yolo County, 2009a.	

Noise Exposure and Community Noise

An individual's noise exposure is a measure of noise over a period of time. **Table 3.9-4** shows examples of noise sources that correspond to various sound levels. The noise levels presented in **Table 3.9-4** are representative of measured noise at a given instant. These levels rarely persist consistently over a long period of time, and community noise levels vary continuously due to the contributing sound sources of the ambient noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure. The background noise level changes throughout a typical day but does so gradually, corresponding with the addition and subtraction of distant noise sources such as traffic and atmospheric conditions. What makes community noise constantly variable throughout a day, besides the slowly changing background noise, is the addition of short-duration single-event noise sources such as aircraft flyovers, moving vehicles, and sirens, which are typically readily identifiable to an individual. These successive additions of sound to the community noise environment vary the community noise level from instant to instant, requiring the measurement of noise exposure over a period of time to characterize a community noise environment and evaluate cumulative noise impacts.

TABLE 3.9-4
TYPICAL SOUND LEVELS MEASURED IN THE ENVIRONMENT

Noise Generators (at a Given Distance from Noise Source)	A-Weighted Sound Level in Decibel	Noise Environments	Subjective Impression
Near Jet Engine	140		
	130		Pain Threshold
	120	Rock Music Concert	
Auto Horn (10 feet)	100		Very Loud
	90	Noisy Urban Street	
School Cafeteria	80		Moderately Loud
Freeway Traffic	60		
	50	Department Store	
	30	Quiet Bedroom	Quiet
Whisper	20		
Rustle of Leaves in Wind	10		
	0		Threshold of Hearing

Source: Yolo County, 2009a.

Nighttime ambient noise levels are typically lower than daytime ambient noise levels. For this reason, and because of the potential for sleep disturbance, people tend to be more sensitive to increased noise levels at night than during the day, and increases in nighttime noise have a far greater impact on the community noise environment than increases in daytime noise.

EFFECTS OF NOISE ON PEOPLE

The effects of noise on people can be divided into three categories:

1. Subjective effects of annoyance, nuisance, dissatisfaction;
2. Interference with activities such as speech, sleep, and learning; and
3. Physiological effects such as hearing loss or sudden startling.

Environmental noise typically produces effects in the first two categories. Workers in industrial plants can experience noise in the third category. There is no completely satisfactory way to measure the subjective effects of noise, or the corresponding reactions of annoyance and dissatisfaction. A wide variation in individual thresholds of annoyance exists, and different tolerances to noise tend to develop based on an individual's past experiences with noise.

Generally, most noise is generated by transportation systems, primarily motor vehicles, aircraft, and railroads. Poor urban planning may also give rise to noise pollution because juxtaposing industrial and residential land uses, for example, often adversely affects the residential acoustic environment. Prominent sources of indoor noise are office equipment, factory machinery, appliances, power tools, lighting hum, and audio entertainment systems. An important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment (or ambient noise) to which one has adapted. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged to be by those hearing it. With regard to increases in A-weighted noise level, the following relationships occur (Caltrans, 2013):

- Under controlled conditions in an acoustics laboratory, the trained healthy human ear is able to discern changes in sound levels of 1 dBA;
- Outside such controlled conditions, the trained ear can detect changes of 2 dBA in normal environmental noise;
- It is widely accepted that the average healthy ear, however, can barely perceive noise level changes of 3 dBA;
- A change in level of 5 dBA is a readily perceptible increase in noise level; and
- A 10-dBA change is recognized as twice as loud as the original source.

These relationships occur in part because of the logarithmic nature of sound and the decibel system. Noise levels are measured on a logarithmic scale, instead of a linear scale. On a logarithmic scale, the sum of two noise sources of equal loudness is 3 dBA greater than the noise generated by only one of the noise sources (e.g., a noise source of 60 dBA plus another noise source of 60 dBA generates a composite noise level of 63 dBA). To apply this formula to a specific noise source, in areas where existing levels are dominated by traffic, a doubling in traffic volume will increase ambient noise levels by 3 dBA. Similarly, a doubling in heavy equipment use, such as the use of two pieces of equipment where one formerly was used, would also increase ambient noise levels by 3 dBA. A 3-dBA increase is the smallest

change in noise level detectable to the average person. A change in ambient sound of 5 dBA can begin to create concern. A change in sound of 7 to 10 dBA typically elicits extreme concern and/or anger.

NOISE ATTENUATION

Stationary "point" sources of noise, including stationary mobile sources such as idling vehicles, attenuate (lessen) at a rate of 6 to 9 dBA per doubling of distance from the source, depending upon environmental conditions (e.g., atmospheric conditions and noise barriers, either vegetative or manufactured). Widely distributed noises, such as a large industrial facility spread over many acres or a street with moving vehicles (a "line" source), would typically attenuate at a lower rate, approximately 4 to 6 dBA per doubling of distance from the source (also dependent upon environmental conditions) (Caltrans, 2013). Noise from large construction sites (with heavy equipment moving dirt and trucks entering and exiting the site daily) would have characteristics of both point and line sources, so attenuation would generally range between 4.5 and 7.5 dBA per doubling of distance.

VIBRATION

The effects of groundborne vibrations typically cause only a nuisance to people, but at extreme vibration levels, damage to buildings may occur. Although groundborne vibration can be felt outdoors, it is typically an annoyance only indoors, where the associated effects of the building shaking can be notable. Groundborne noise is an effect of groundborne vibration and only exists indoors; it is produced from noise radiated from the motion of the walls and floors of a room and may consist of the rattling of windows or dishes on shelves.

Peak particle velocity (PPV) is often used to measure vibration. PPV is the maximum instantaneous peak (inches per second) of the vibration signal. Scientific studies have shown that human responses to vibration vary by the source of vibration, which is either continuous or transient. Continuous sources of vibration include construction, while transient sources include truck movements. Generally, the thresholds of perception and annoyance are higher for transient sources than for continuous sources. Structural damage can occur when PPV values are 0.5 inches per second or greater. Annoyance can occur at levels as low as 0.1 inches per second and become strongly perceptible at approximately 0.9 inches per second (Caltrans, 2004). **Table 3.9-5** shows PPV vibration levels caused by representative pieces of construction equipment, as published by the Federal Transit Administration (FTA).

TABLE 3.9-5
VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

Equipment	PPV at 25 feet (inches/second)
Large bulldozer	0.089
Excavator	0.089
Scraper	0.089
Loaded truck	0.076
Small bulldozer	0.003
Source: FTA, 2006.	

EXISTING NOISE LEVELS AND SOURCES

The off-reservation area surrounding the Proposed Project site is primarily agricultural land with scattered residences. The Proposed Project site is located adjacent to SR-16. Traffic on SR-16 is the primary source of off-reservation noise in the area, with local stationary noise sources and distant Interstate 505 (I-505) traffic contributing to a lesser extent. The noise environment at and in the immediate vicinity of the Proposed Project site is influenced by casino activities; heating, ventilation, and air conditioning (HVAC) systems; and noise from surface roads, surface parking areas, and parking structures. To characterize existing ambient noise conditions in the vicinity of the Proposed Project site, long-term continuous noise measurements were conducted at three locations within – but near the boundaries of – the Proposed Project site from March 17 to March 20, 2016. The locations of the noise monitoring sites are shown in **Figure 3.9-1**.

Larson Davis Laboratories (LDL) Model 820 precision integrating sound level meters were used for the long-term ambient noise level measurements. These precision sound level meters were calibrated before performing the measurements to ensure the accuracy of the measurements.

A summary of the existing noise level measurement results is provided in **Table 3.9-6**, and charts of the long-term measurements are provided in **Appendix K**.

TABLE 3.9-6
EXISTING NOISE ENVIRONMENT

Site	Location	Averaged Measured L_{dn} (dB)
A	Southern parking lot, 50 feet from SR-16	71
B	Northern end of site, 50 feet from SR-16, adjacent to residence and gas station	64
C	Hilltop to the east of the site	57
Source: BAC, 2016 (**Appendix K**).		

As shown in **Table 3.9-6**, the data indicate that noise levels at the Proposed Project site vary depending on proximity to SR-16 and on which side of the Proposed Project site the noise level meters were located relative to SR-16. Overall, the noise measurement results indicate that the vicinity of the Proposed Project is dominated by noise from traffic on SR-16.

The long-term noise measurement results show average noise levels between 60 dBA Leq and 70 dBA Leq at Site A, and between 45 dBA Leq and 65 dBA Leq at Site B (see Appendix B of **Appendix K**). Sites A and B were selected to be representative of noise exposure immediately adjacent to SR-16, on both the south and north sides of the Proposed Project site. Site C is farther from the parking lots and existing buildings and closer to the Resort's water storage tanks. Noise measurements at Site C resulted in noise levels between 40 dBA Leq and 60 dBA Leq on average. Site C was selected to be generally representative of ambient conditions at locations more removed from SR-16.

SOURCE: BAC, 2016; AES, 7/13/2016

Figure 3.9-1
Noise Measurement Locations

The existing noise environment for the trust land surrounding the Resort includes a 7-foot noise wall that traverses a portion of the northern boundary of the Tribe's trust land, from the existing gas station and mini-mart near SR-16 to just east of the existing photovoltaic array. Generally, noise walls less than 9 feet high attenuate noise at a rate of 0.90 dBA per vertical foot (Caltrans, 2013). Therefore, the existing 7-foot noise wall would attenuate noise by 6.3 dBA.

SR-16 is the main road from I-505, the City of Woodland, and Interstate 5 (I-5) to the Proposed Project site. The existing traffic noise level on SR-16 at a distance of 100 feet from the roadway centerline is typically between 63 dBA and 65 dBA Ldn (Yolo County, 2009a). The traffic volumes on SR-16 are 8,400 and 6,700 vehicles per day from I-505 to CR-87 and from CR-87 to CR-78, respectively (Yolo County, 2009a).

There are no known existing sources of vibrations in the vicinity of the Proposed Project site.

Sensitive Noise Receptors

Some land uses are considered more sensitive to ambient noise levels than others, sensitivity being a function of noise exposure (in terms of both exposure duration and insulation from noise) and the types of activities involved. Residential land uses are generally more sensitive to noise than commercial and industrial land uses.

Existing off-reservation land uses consist primarily of large-lot, agricultural-residential uses and a mix of residential and commercial uses within the communities of Esparto and Capay Valley. Agricultural uses are considered to be noise generating rather than noise sensitive. However, residences constructed on agricultural properties are considered to be noise sensitive.

The nearest off-reservation residential sensitive noise receptor is located approximately 270 feet from the northwest corner of the boundary of the Tribe's trust land and 1,300 feet from the nearest site of construction for the Proposed Project (proposed parking Lot F). The nearest residence to the south of the Proposed Project site is approximately 3,000 feet (greater than 0.5 mile) of the trust land property line. Residences adjacent to and near SR-16 are also sensitive noise receptors. There are approximately 60 residences within 200 feet of SR-16 between Esparto and the Resort. The nearest off-reservation school to the Proposed Project site is in Esparto, 7 miles south of the Proposed Project located on CR-87 between SR-16 and SR-16.

3.9.3 IMPACT ANALYSIS

SIGNIFICANCE CRITERIA

The following criteria are established by Section XI of the Environmental Impact Analysis Checklist in the Tribal-State Compact (Checklist) (**Appendix A**) and have been used in this section to evaluate the

potential impacts of the Proposed Project on the off-reservation ambient noise level. Accordingly, an impact is considered significant if it would result in:

- Exposure of off-reservation persons to noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- A substantial permanent increase in ambient noise levels in the off-reservation vicinity of the Proposed Project;
- A substantial temporary or periodic increase in ambient noise levels in the off-reservation vicinity of the Proposed Project; or
- Exposure of off-reservation persons to excessive groundborne vibration or groundborne noise levels.

According to the FICON study, a noise impact from a transportation-related source is considered significant if the incremental increase in noise is greater than 5.0 dBA Leq in a noise environment of 60 dBA CNEL or less, an increase of 3.0 dBA Leq in a noise environment between 60 dBA and 65 dBA CNEL, or an increase of 1.5 dBA Leq in a noise environment greater than 65 dBA CNEL (FICON, 1992). Therefore, for this analysis, if off-reservation transportation noise attributable to the Proposed Project increases the ambient off-reservation noise level by more than 1.5 dBA, 3.0 dBA, or 5.0 dBA, depending on the baseline ambient noise level at each location analyzed, a potentially significant off-reservation impact would occur.

The HUD identifies an acceptable noise threshold as 65 dB for residential noise receptors. According to the General Plan land use compatibility table (**Table 3.9-2**), a community noise exposure less than 60 dBA CNEL or Ldn at residential land uses is considered normally acceptable. Since the County's significance threshold for residential receptors is lower than the HUD's significance threshold of 65 dBA, for this analysis an audible increase in the day/night noise level to more than 60 dBA Ldn at the nearest off-reservation sensitive residential noise receptor is considered to be potentially significant.

For this analysis, excessive groundborne vibrations are defined as those that are equal to or exceed 0.5 PPV at the nearest off-reservation non-residential structure and exceed 0.1 PPV experienced at the nearest off-reservation residence (Caltrans, 2004). Therefore, an off-reservation impact is considered potentially significant if construction or operation of the Proposed Project would result in an increase of 0.5 PPV at the nearest off-reservation non-residential structure or 0.1 PPV at the nearest off-reservation residence.

METHODOLOGY

The results of the long-term noise measurements described above were used to calculate off-reservation noise levels from construction and operation of the Proposed Project. Those off-reservation noise levels were then compared to applicable significance thresholds. Off-reservation traffic volumes related to the

Proposed Project and found in the Traffic Impact Study (**Appendix D**) were compared to existing off-reservation traffic volumes. Federal Highway Administration (FHWA) guidelines were used to determine off-reservation noise levels along roadways in the vicinity of the Proposed Project site.

OFF-RESERVATION IMPACTS OF THE PROPOSED PROJECT

Impact 3.9.1

The Proposed Project would not expose off-reservation persons to noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

On-site Operational Noise

The Proposed Project would not generate noise on the Proposed Project site that exceeds applicable federal, state, or county noise standards or ordinances for off-reservation receptors. More information about regulatory standards is provided in **Section 3.9.1**. On-site operational noise (including on-site traffic) would not exceed existing ambient noise levels at nearby sensitive receptors and would therefore not result in increases to ambient noise levels above applicable standards. This impact is less than significant.

Off-site Traffic Noise

The Proposed Project would increase traffic along area roadways that would lead to increased ambient noise levels at nearby sensitive receptors. **Table 3.9-7** presents the results of the traffic noise analysis conducted for the Proposed Project. The Proposed Project would cause no audible increases in ambient noise levels along area roadways. While the Proposed Project would cause ambient noise levels on SR-16 from CR-85B to CR-87 to increase from 60.0 dB to 60.6 dB, the 0.6-dB increase in ambient noise is not considered audible. Therefore, off-reservation traffic from the Proposed Project would not result in an audible increases in ambient noise levels above applicable standards. This impact is less than significant.

TABLE 3.9-7
BASELINE VS BASELINE PLUS PROJECT TRAFFIC NOISE LEVELS

Roadway	Segment	Baseline (dB)	Baseline Plus Project (dB)	Change (dB)	Standard (Change in dB)[1]	Substantial Increase?
SR-16	North of Cache Creek Casino	59.3	59.4	+ 0.1	+ 5.0	No
SR-16	South of Cache Creek Casino	65.3	66.0	+ 0.7	+ 1.5	No
SR-16	West of County Road 85	61.0	61.7	+ 0.7	+ 3.0	No
SR-16	County Road 85 to County Road 85B	63.3	64.0	+ 0.7	+ 3.0	No
SR-16	County Road 85B to County Road 87	60.0	60.6	+ 0.6	+ 3.0	No
SR-16	East of Yolo Avenue	61.9	62.3	+ 0.5	+ 3.0	No
SR-16	West of County Road 89	66.0	66.5	+ 0.5	+ 1.5	No
SR-16	County Road 89 to I-505	64.1	64.6	+ 0.5	+ 3.0	No
SR-16	East of I-505	64.3	64.6	+ 0.3	+ 3.0	No
County Road 85	North of SR-16	51.4	51.8	+ 0.4	+ 5.0	No
County Road 85B	South of SR-16	59.2	60.0	+ 0.7	+ 5.0	No
County Road 85B	North of County Road 21A	59.0	59.7	+ 0.8	+ 5.0	No
County Road 21A	East of County Road 85B	58.1	58.5	+ 0.4	+ 5.0	No
County Road 87	North of SR-16	55.6	55.7	+ 0.1	+ 5.0	No
County Road 87	SR-16 to SR-16	58.1	58.7	+ 0.6	+ 5.0	No

Notes: 1 – Standard based on FICON, 1992.
Source: BAC, 2016 (**Appendix K**); FICON, 1992.

Impact 3.9.2

The Proposed Project would not expose off-reservation persons to excessive groundborne vibration or groundborne noise levels.

Construction

Construction activities for the Proposed Project would consist of using earthmoving equipment shown in **Table 3.9-5**. Generally, excessive vibration is only an issue when construction requiring the use of equipment with high vibration levels (i.e., compactors, large dozers) occurs within 25 to 100 feet of an existing structure. Several medium-sized dozers, compactors, scrapers, and other equipment would be used during construction of the Proposed Project (refer to **Appendix J**). No pile-driving activities would occur during construction. The nearest off-reservation noise receptor is a rural residence located approximately 270 feet north of the California Department of Forestry and Fire Protection (CAL FIRE) fire station, approximately 1,300 feet from the location of the nearest site of construction activities for the Proposed Project. **Table 3.9-8** provides estimated construction vibration levels at these distances. The predicted PPV levels for the construction of the Proposed Project are well below the significance thresholds of 0.5 PPV for non-residential structures and 0.1 PPV for off-reservation residences. This is a less-than-significant impact.

TABLE 3.9-8
PREDICTED PPV AT 1,300 FEET FROM CONSTRUCTION

Equipment	Reference PPV (inches/second) at 25 feet	Predicted PPV (inches/second) at 1,300 feet
Large bulldozer	0.089	0.00024
Excavator	0.089	0.00024
Scraper	0.089	0.00024
Loaded truck	0.076	0.00021
Small bulldozer	0.003	0.000008

Notes: PPV was predicted using the equation $PPV_{predicted} = PPV_{ref} * (D_{ref} / D_{source})^{1.5}$.
Source: FTA, 2006.

Operation

Activities on the Proposed Project site related to the operation of the hotel expansion and ancillary facilities, ballroom, and parking areas are not considered to be substantial sources of groundborne vibration. Off-reservation loaded trucks and buses traveling to and from the Proposed Project site during operation would be the only source of off-reservation vibrations from the operation of the Proposed Project. The number of loaded trucks on the roadways surrounding the Proposed Project site would not increase substantially and therefore would not create vibrational impacts at nearby sensitive receptors. Bus usage on SR-16 generated by the Proposed Project may somewhat increase, and pass-by of buses may occur as close as 45 feet (the approximate closest distance of any residence in the vicinity of the Proposed Project to SR-16) to sensitive noise receptors along SR-16. Vibrations from buses can be 0.012 PPV at distance of 50 feet, or 0.014 PPV at the nearest off-reservation sensitive noise receptor (45 feet from SR-16), which is well below the most stringent PPV vibration significance criterion of 0.1 PPV. Therefore, the additional bus traffic serving the Proposed Project would not expose off-reservation noise receptors to excessive groundborne vibration or groundborne noise levels. This is a less-than-significant impact.

Impact 3.9.3

The Proposed Project would not result in a substantial permanent increase in ambient noise levels in the off-reservation vicinity of the Proposed Project.

Traffic Noise

The level of off-reservation traffic noise depends on three factors: (1) the volume of the off-reservation traffic, (2) the speed of the off-reservation traffic, and (3) the number of trucks in the flow of the off-reservation traffic. It is not anticipated that vehicle speed in the vicinity of the Proposed Project would change. The Proposed Project is not expected to notably increase off-reservation truck traffic, and in fact could actually decrease truck traffic because the expanded back-of-house area would permit more on-site storage, reducing the frequency of truck trips to the Resort (**Appendix D**). Therefore, it is conservative and fair to assume the Proposed Project

would cause no change in the existing traffic mix for the Resort. However, with implementation of the Proposed Project, the total off-reservation traffic volumes would increase.

As shown in **Table 3.9-7**, the maximum increase to ambient noise levels along area roadways as a result of Proposed Project traffic is 0.8 dB Ldn. This increase is below the most stringent significance threshold increase of 1.5 dB shown in **Table 3.9-1**. Therefore, the additional traffic attributable to the Proposed Project would not cause a substantial permanent increase in the off-reservation noise level. Additional traffic generated by the Proposed Project would result in a less-than-significant impact on the existing ambient off-reservation noise environment.

On-site Operational Noise

Noise generated by operation of the Proposed Project with the potential to affect off-reservation sensitive noise receptors would include noise from the operation of additional HVAC equipment and additional refrigeration (chilling) units (on-site stationary sources), additional loading/unloading activities at delivery areas, and additional vehicles operating on the Proposed Project site (on-site traffic). The main operational noise sources attributable to the Proposed Project would be increased vehicle movements from the on-site surface roads and surface parking areas.

On-site Stationary Sources

Noise from existing mechanical equipment for the Resort, including the HVAC systems and loading/unloading activities, is not audible at off-reservation locations due to the distance between the on-site stationary noise sources and the closest sensitive noise receptor. Other Resort components of the Proposed Project (i.e., dining) would have no off-reservation noise impacts because of the low noise levels associated with these uses and the considerable distance from these components to the nearest off-reservation sensitive noise receptors.

On-site Traffic

Noise from the proposed parking Lot F (which is the closest area of construction to any sensitive receptor) could potentially reach the nearest sensitive receptor: a rural residence located approximately 1,300 feet to the northwest. Based on existing measurements and observations of noise sources at the existing parking area, the noise level increase at the nearest sensitive receptor from operation of the proposed parking Lot F would be approximately 25 dB Leq and 35 dB Lmax, which is well below the ambient noise levels in the vicinity of the Proposed Project site. Therefore, on-site traffic noise at the Proposed Project site would not create a substantial increase in ambient noise levels at the nearest off-site sensitive receptors. This is a less-than-significant impact.

Proposed Ballroom

The proposed ballroom would be constructed using industry-standard noise reduction design provisions. While it is likely that amplified speech and music would be a common component of the ballroom usage, the proposed ballroom would be completely enclosed, and sound generated within the ballroom would be contained by the building envelope. As a result, sound generated during events within the ballroom is not predicted to be audible at the exterior of the Proposed Project site, and would similarly be inaudible at the nearest sensitive receptors. Therefore, this impact is less than significant.

Impact 3.9.4

During construction, the Proposed Project would not result in a substantial temporary increase in ambient noise levels in the off-reservation vicinity of the Proposed Project.

Typical construction equipment noise levels are shown in **Table 3.9-7**. The nearest off-reservation noise receptor to construction activities for the Proposed Project would be a rural residence located 1,300 feet from the nearest proposed construction site. Based on noise measurements for the Resort and noise levels listed in **Tables 3.9-9** (reference distance of 50 feet), the maximum noise level at the nearest sensitive receptor during construction of the Proposed Project would be 40 to 60 dBA Lmax. Maximum noise levels from construction would be well below the measured existing ambient noise levels at the nearest sensitive receptor. Therefore, this impact is less than significant.

TABLE 3.9-9
TYPICAL CONSTRUCTION EQUIPMENT NOISE

Equipment Description	Maximum Noise Level at 50 feet, dBA
Auger drill rig	85
Backhoe	80
Boring jack power unit	80
Chain saw	85
Compactor (ground)	80
Compressor (air)	80
Concrete mixer truck	85
Concrete pump truck	82
Concrete saw	90
Crane (mobile or stationary)	85
Dozer	85
Dump truck	84
Excavator	85
Flat bed truck	84
Front end loader	80
Generator (25 kilovolt-amperes [kVA] or less)	70
Generator (more than 25 kVA)	82
Grader	85
Hydra break ram	90
Jackhammer	85
Mounted impact hammer (hoe ram)	90
Paver	85
Pickup truck	55
Pneumatic tools	85
Pumps	77
Scraper	85
Tractor	84
Vacuum street sweeper	80
Vibratory concrete mixer	80
Welder/Torch	73
Source: BAC, 2016 (**Appendix K**).	

3.10 PUBLIC SERVICES AND UTILITIES AND SERVICE SYSTEMS

This section addresses the off-reservation environment associated with public services and utilities and service systems and discusses potential impacts of the Proposed Project on off-reservation public services and utilities and service systems. The public services discussed in this section include fire protection facilities, emergency medical services facilities, police protection and law enforcement facilities, public schools, and the other public facilities described below. Utilities and service systems discussed in this section include water and wastewater treatment facilities and stormwater drainage facilities.

3.10.1 REGULATORY SETTING

STATE AND LOCAL

The Proposed Project site is located on trust land and is not subject to state or local controls concerning off-reservation governmental facilities and utilities and service systems. However, such controls would apply to any new or physically altered off-reservation governmental facilities that are required as a result of implementation of the Proposed Project to maintain acceptable standards for items identified in the Environmental Impact Analysis Checklist in the Tribal-State Compact (Checklist; **Appendix A**).

California Integrated Waste Management Act

The management of off-reservation non-hazardous solid waste in California is mandated by state law and guided by policies at the state and local levels. In 1989, the State of California enacted Assembly Bill (AB) 939, the California Integrated Waste Management Act. As a result of AB 939, all off-reservation local jurisdictions, cities, and counties were required to divert 50 percent of their total waste stream from landfill disposal by the year 2000. Waste generated by the Resort does not affect Yolo County (County) diversion goals required by AB 939, as trust land is not included in local waste diversion statistics.

County of Yolo 2030 Countywide General Plan

The *County of Yolo 2030 Countywide General Plan* (General Plan), adopted in 2009, is the guiding document for development in the unincorporated areas of the County, including the off-reservation properties in the vicinity of the Proposed Project (Yolo County, 2009a). The General Plan does not apply to trust land or to the Proposed Project itself. Goals, policies, and actions in the General Plan that are relevant to the off-reservation governmental facilities and the off-reservation utilities and services systems described in the Checklist are as follows.

Public Facilities and Services Element

Goal PF-1: Wastewater Management. Provide efficient and sustainable solutions for wastewater collection, treatment, and disposal.

Policy PF-1.2: Promote innovative and efficient options for sewage and septic treatment that are appropriate for the type of development to be served, existing facilities available and administrative alternatives.

Action PF-A5: Require the reuse of wastewater for landscaping and other non-potable functions in treatment solutions, where feasible.

Goal PF-4: Law Enforcement. Enhance public safety to prevent crime and improve neighborhood relations.

Policy PF-4.1: Ensure the provision of appropriate law enforcement service and facilities to serve existing and planned land uses.

Action PF-A24: Establish special districts in other appropriate community areas to pay for law enforcement services.

Policy PF-4.2: Strive to maintain an average response time of 12 minutes for 90 percent of priority law enforcement calls in the rural areas.

Policy PF-4.4: Incorporate law enforcement concerns into land use planning, including the following measures:

- Identify and mitigate potential law enforcement hazards of new development during the project review and approval process.
- Work with local community groups to prevent crime.
- Promote the creation of Neighborhood Watch Groups in residential areas.
- Coordinate with Chambers of Commerce, business associations, and others to increase public safety within commercial areas.

Policy PF-4.6: Improve emergency communications technologies to provide interoperable service in rural areas.

Goal PF-5: Fire and Emergency Medical Services. Support fire and emergency service providers to enhance the protection of life and property.[1]

Policy PF-5.2: Maintain mutual aid agreements between fire districts and other emergency medical service providers to ensure efficient use of available resources.

Policy PF-5.3: Require assertive fire protection measures in all development to supplement limited rural fire district resources.

[1] The Yocha Dehe Fire Department (YDFD) reviews each automatic aid agreement yearly.

Action PF-A28: Amend the County Code to incorporate measures such as fire-safe building materials, clear spaces and fuel reduction, fire breaks, and fire suppression systems for all new development located in high fire hazard areas.

Action PF-A30: Maintain requirements that sprinklers be installed in all new residences and commercial/industrial areas where appropriate.

Goal PF-9: Solid Waste and Recycling. Provide safe, cost-efficient, and environmentally responsible solid waste management.

Policy PF-9.1: Meet or exceed State waste diversion requirements.

Action PF-A47: Develop a program to encourage local businesses and farms to: 1) expand their diversion, reuse, and recycling efforts including proper recycling or disposal of universal and hazardous wastes; 2) increase their use of recycled materials; and 3) reduce the amount of materials used to package products manufactured in the county.

Policy PF-9.2: Manage property to ensure adequate landfill space for existing and planned land uses.

Action PF-A50: Acquire sufficient land to maintain long-term landfill operations, including property for mitigation and soil cover.

Goal PF-10: Sources of Energy. Provide opportunities for the development of energy alternatives.

Policy PF-10.3: Provide financial and regulatory incentives for the installation of alternative energy and alternative energy conservation measures in all development approvals.

Goal PF-11: Utilities and Communications. Support a flexible network of utility services to sustain state-of-the-art community livability and economic growth.

Policy PF-11.1: Encourage the development of power generating and transmission facilities in appropriate alignments and locations, sufficient to serve existing and planned land uses.

Action PF-A68: Promote, and require where feasible, use of sustainable renewable energy sources to power homes, businesses, agriculture, and infrastructure.

Conservation and Open Space Element

Goal CO-7: Energy Conservation. Promote energy efficiency and conservation.

Policy CO-7.3: Require all projects to incorporate energy-conserving design, construction, and operation techniques and features into all aspects of the project including buildings, roofs, pavement, and landscaping.

Health and Safety Element

Goal HS-3: Wildland Fires. Protect the public and reduce damage to property from wildfire hazard.

Policy HS-3.2: Encourage well-organized and efficient coordination between fire agencies and the County.

Policy HS-3.3: Clearly communicate the risks, requirements, and options available to those who own and live in wildfire hazard areas.

Goal HS-6: Emergency Preparedness. Provide timely and effective emergency response to reduce the potential loss of life and property.

Policy HS-6.1: Yolo County shall respond to catastrophic emergencies by:

- Continuing and restoring critical services.
- Maintaining order.
- Supporting evacuations.
- Distributing emergency supplies.
- Ensuring search/rescue operations and medical care.
- Saving lives and protecting property.
- Repairing and restoring essential public infrastructure.
- Mobilize the necessary resources to carry out emergency response efforts.
- Coordinating operations with other jurisdictions.
- Disseminating emergency public information.
- Establishing emergency operating centers and maintaining communications.
- Notifying vulnerable populations (e.g., seniors, schoolchildren, disabled, non-English speaking households, etc.).

Policy HS-6.2: Provide continuous advanced planning to anticipate potential threats and improve emergency response effectiveness.

Policy HS-6.5: Work with Yolo Emergency Communications Agency to seek funding for emergency communications, evacuation planning, and recovery planning.

Town of Esparto General Plan

This Draft Tribal Environmental Impact Report (TEIR) examines the off-reservation land use impacts of the Proposed Project in the County. Because Esparto is the nearest sizable community to the Resort, and because many Resort employees currently live in Esparto, relevant public services and utilities policies from the *Town of Esparto General Plan* are provided below (Yolo County, 2007).

Community Development Goals, Policies, and Programs

Goal 1: To provide the level of public services desired by the residents at an equitable cost.

Goal 2: To ensure the provision of public services keeps pace with the new development.

Policy E-S.3: The expansion of school facilities should coincide with the increase in population in accordance with the General Plan so that capacity is not significantly exceeded. The County, in consultation with the Esparto Unified School District, should establish thresholds beyond which new residential development will be restricted until services and facilities deemed adequate are provided. The level of development restrictions should reflect the severity of the services and facilities needs. If a new school is constructed, it should be built in Esparto proper, and not in another outlying area of the school district.

Safety Goals, Policies, and Programs

Goal 1: To shorten emergency response times within practical limits of funding and staffing.

Policy E-PS.2: All proposed development within the jurisdiction of the Esparto Fire District should be reviewed for fire safety standards by the Fire Chief, including the provision of adequate water pressure for fire suppression, and adequate egress and ingress.

Policy E-PS.3: The installation of smoke detectors shall be encouraged in existing residences constructed prior to the requirement for mandatory installation of such detectors.

Policy E-PS.8: Fire flow and water storage shall be improved to meet Title 22 California Waterworks Standards.

Capay Valley Area Plan

The *Capay Valley Area Plan*, adopted in 2010 as a component of the General Plan, establishes the following goals and policies relevant to the off-reservation governmental facilities and the off-reservation utilities and services systems described in the Checklist. The *Capay Valley Area Plan* does not apply to trust land or to the Proposed Project itself.

Conservation and Natural Resources

Goal 10: Encourage the conservation and efficient management of energy resources.

Policy 1: The production and use of alternate fuels, especially those energy forms that are renewable, shall be encouraged.

Implementation Measure 1: Encourage the use of solar energy systems for hot water and/or space heating in all homes and businesses where practical.

Implementation Measure 2: Support the use of water, sun, wind, and biomass as energy sources.

Implementation Measure 3: Encourage Yolo County School Districts, Fire Departments, and Transportation District to utilize cleaner fuel sources, such as bio-diesel and bio-natural gas.

Public Health and Safety

Goal 1: Provide persons in Capay Valley with the best possible access to emergency medical care and establish family health care facilities.

Policy 2: The County shall support the training of residents in CPR [cardiopulmonary resuscitation] and other basic emergency care.

Implementation Measure 1: The County shall support services such as Red Cross, local schools, and fire departments that train citizens in the methods of emergency medical care.

Implementation Measure 2: Cooperate with local fire departments to centrally locate and staff an ambulance service.[2]

Goal 2: Provide community law enforcement services to meet the needs of public safety.

Policy 1: The existing level of police service shall be improved for the protection of citizens and property. A resident Sheriff's deputy and/or Sheriff's substation shall be encouraged in a central located in the Valley.

Policy 2: Organizations sponsoring events in or through the Capay Valley shall be responsible for the proper supervision of recreational and other public events. The events shall comply with all applicable laws and regulations.

Goal 8: Avoid loss of life and minimize loss of property due to flood.

Policy 2: The County shall ensure that residents of Capay Valley are prepared in case of dam failure.

Implementation Measure 1: The County shall request the Office of Emergency Services to develop a dam failure emergency preparedness plan, which will include community input.

Goal 10: Maintain or improve the levels of fire protection that exist at the time.

Policy 1: Maintain or improve the insurance rating of the Capay Valley.

[2] The nearest American Medical Response (AMR) ambulance was moved from Woodland to Esparto in 2013 to reduce the response time to the project site by 10 minutes.

Implementation Measure 1: The County shall protect the present insurance rating and service in this district by discouraging private development in areas difficult or time consuming to reach.

Policy 2: Find creative ways to improve fire protection facilities or to make the existing facilities more effective.

Implementation Measure 1: The County shall encourage cooperation between the district, the Yocha Dehe Fire Department, and the Department of Forestry and other neighboring fire departments.

Implementation Measure 2: Establish guidelines for site plan review that reduces the potential risks of fire. The County shall strive to educate new residents of their responsibilities, and the fire services available.

3.10.2 ENVIRONMENTAL SETTING

FIRE PROTECTION

The existing Resort contains elements that present a fire-fighting scenario that is unique in comparison to other structures in the Capay Valley, such as a hotel building, a high-occupancy gaming floor, and multiple mixed-use facilities. To address this scenario, the Tribe has created and operates the on-site Yocha Dehe Fire Department (YDFD), which provides immediate fire protection and emergency services at the Resort (as well as the other commercial facilities on trust land, such as the mini-mart and golf course). The YDFD, along with three local off-reservation volunteer fire departments, provide the entire Capay Valley region with fire protection and emergency services. YDFD is also the first responder to off-reservation fire, vehicular accident, and hazardous materials incidents within the area between Interstate (I)-505 to the east and the Yolo-Napa County line to the west.

Yocha Dehe Fire Department

The YDFD station is located on the trust land and has provided fire protection and emergency response services to both the Resort and its ancillary support and commercial facilities and off-reservation properties since April 2004. The YDFD station is currently equipped with two Type I engines; one Type II medium rescue engine; one Type III engine, which utilizes a compressed air foam system; one utility vehicle; one technical rescue trailer; three all-terrain vehicles; and three command vehicles (YDFD, 2016). The engines are equipped with Holmatro rescue tools, including cutters and spreaders, for extraction of victims of auto accidents. The YDFD vehicles and associated equipment are housed in a 14,000-square-foot state-of-the art station located on trust land near the northern boundary of the Proposed Project site. To provide constant service, both on the trust land and off reservation, each YDFD shift includes two fully staffed engine companies. Each shift includes one battalion chief, two captains, two engineer/paramedics, three firefighter/paramedics, and one firefighter/Emergency Medical Technician (EMT; YDFD, 2016). All YDFD firefighters obtain "Firefighter II" certification within one year of joining the department (Fredericksen, 2016a).

YDFD provides first response emergency services to the Resort and ancillary support and commercial facilities and all other tribal lands, and would continue to do so for the Proposed Project. Through existing mutual aid agreements, YDFD assists other local departments in areas outside tribal jurisdiction (YDFD, 2016). Approximately 36 percent of calls for YDFD service are located off reservation (Fredericksen, 2016a).

In 2009, the YDFD conducted various station planning analyses to determine appropriate staffing levels, training regimens, and equipment for potential future needs. The results of these analyses indicated additional staffing would be needed during each shift to meet potential future on-site fire protection needs, as well as the immediate need for increased off-reservation protection services. The YDFD now provides two staffed engine companies during each shift, including one engine maintained on site during all off-reservation service calls. This increase in staffing means that YDFD is already prepared for the increase in service demand that would be generated by the Proposed Project.

YDFD continues to conduct annual staffing analyses to ensure that its staff is properly trained and certified to provide fire protection and first-response emergency services to both the Resort and ancillary support and commercial facilities and off-reservation calls for service, and YDFD would continue to do so for the Proposed Project. An annual apparatus analysis is also performed to determine the sufficiency of existing equipment for fire protection and first-response emergency services on site and throughout the Capay Valley.

The Tribe previously adopted a tribal ordinance requiring that on-reservation construction be in accordance with fire safety standards that are equivalent to those in the California Building Code (CBC). The following components are required by the tribal ordinance: fire alarms, fire communication systems, fire suppression equipment, smoke evacuation and control systems, fire-resistant construction, fire hydrant systems, sprinkler systems, and fire-control measures. This ordinance would apply to the Proposed Project.

Search and Rescue

YDFD provides search and rescue assistance for incidents at the Resort and ancillary support and commercial facilities, on tribal lands in the Capay Valley, and off-reservation locations throughout the County. Equipment stored on the trust land includes a trench rescue trailer (one of two within all of Yolo County) to add in the rescue of victims of trench collapse, and numerous all-terrain vehicles to aid in search and rescue incidents. All YDFD staff firefighters are trained in swift water rescue, trench rescue, confined space rescue, low angle rescue, vehicle extrication rescue, and specialized search and rescue (YDFD, 2016).

Fire Station and Training Facility

The YDFD station includes an on-site emergency operations center (EOC), which includes computers and communications equipment capable of interoperability with all emergency responders (fire, medical, and

law enforcement). The YDFD EOC has audio, visual, surveillance, satellite, and video downlink capability and the ability to interface with the Yolo County EOC.

Yolo County Fire Services Mutual Aid Agreement

The Yolo County Fire Services Mutual Aid Agreement (Mutual Aid Agreement) is a signed agreement among 22 fire agencies within the County to provide personnel, equipment, materials, and supplies to aid in incidents where multiple agencies are needed (Yolo County Fire Services, 2016). A centrally established communication system, the Yolo Emergency Communications Agency (YECA), provides a system for interagency contact when warranted. The following Fire Departments (FDs) and Fire Protection Districts (FPD) are included in the Mutual Aid Agreement:

- Arbuckle/College City FPD
- Capay Valley FPD
- City of Davis FD
- City of West Sacramento FD
- City of Winters
- City of Woodland FD
- Clarksburg FPD
- Dunnigan FPD
- East Davis County FPD
- Elkhorn FPD
- Esparto FPD
- Knights Landing FPD
- Madison FPD
- No Man's Land FPD
- Robbins-Sutter Basin FPD
- Springlake FPD
- University of California Davis FD
- West Plainfield FPD
- Willow Oak FPD
- YDFD
- Yolo FPD
- Zamora FPD

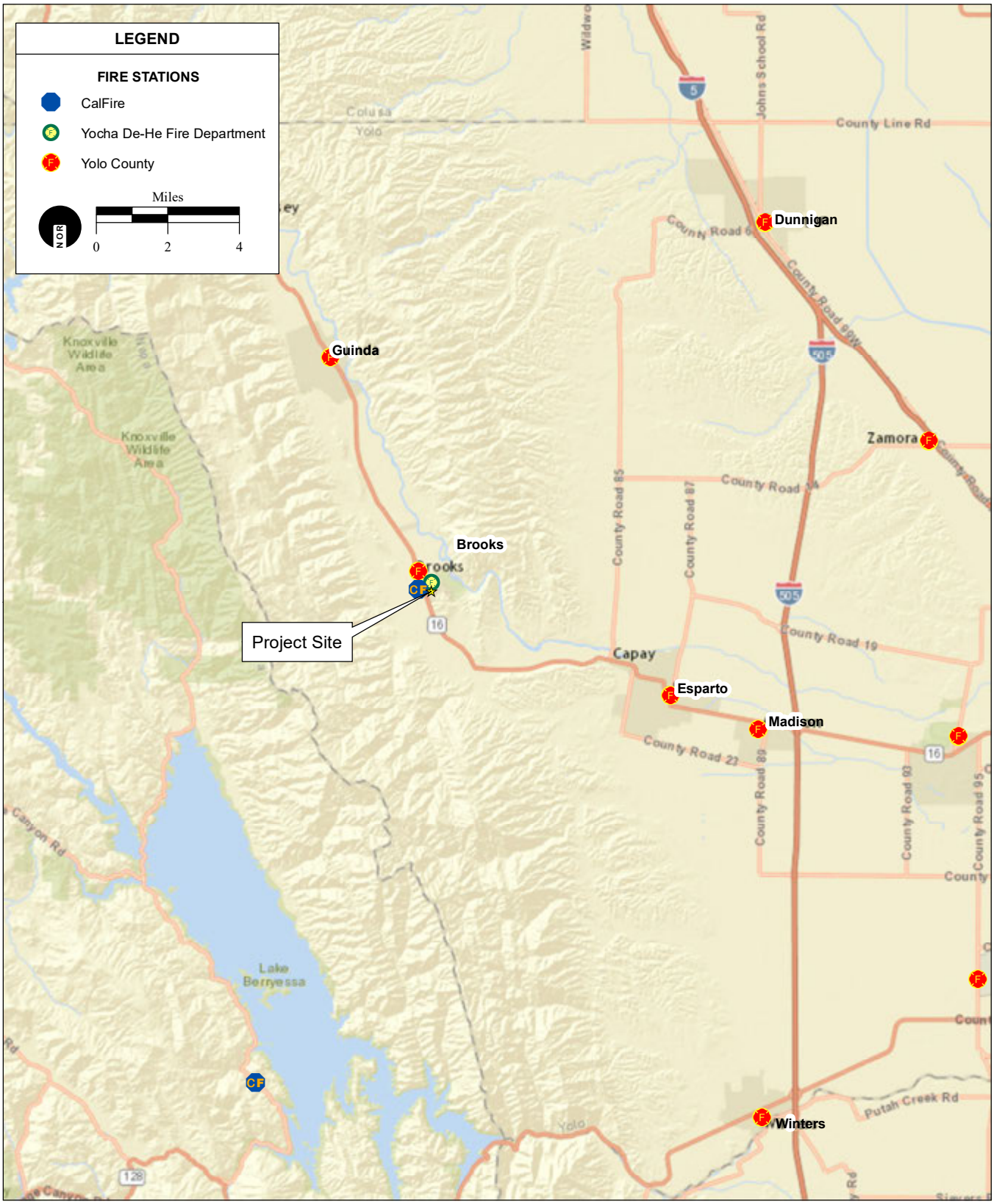
Interagency Coordination

YDFD, the Capay Valley Fire Protection District (CVFPD), the Esparto Fire Protection District (EFPD), the Madison Fire Protection District (MFPD), and the Williams Fire Protection Authority maintain an Automatic Aid Agreement that commits the five departments to aid one another when necessary, to provide sufficient coverage to the entire Capay Valley (Fredericksen, 2016b). **Figure 3.10-1** shows the location of fire stations in the Proposed Project area. YDFD, EFPD, CVFPD, and MFPD have established a multi-department training program that incorporates annual joint training sessions and emergency planning, with the intent to create a safer and more prepared Capay Valley. The YDFD is also a member of the West Valley Regional Fire Training Consortium, which also includes the University of California Davis FD, West Sacramento FD, City of Woodland FD, and City of Davis FD.

In addition, the YDFD has led the creation and coordination of a multi-jurisdictional search and rescue team that also includes the CVFPD, and the Yolo County Sheriff's Department (Kinter, 2015).

Capay Valley Fire Protection District

CVFPD is a volunteer fire department providing general fire protection and emergency medical services to the off-reservation area surrounding the Proposed Project site in the Capay Valley. From 2002 to 2004,



SOURCE: ESRI World Street Map, 2016; AES, 8/8/2016

Figure 3.10-1
Surrounding Fire Stations

the Tribe augmented the CVFPD budget by $150,000 per year for fire protection and emergency response services. The closest CVFPD station, located one mile north of the Proposed Project on State Route (SR)-16, is equipped with a Type II engine and a water tender. CVFPD also has a station in neighboring Guinda that is equipped with a Type I engine, a Type III engine, and a water tender, and a station in Rumsey that utilizes a Type II engine (Garrison, 2016). There are 19 part-time firefighters on the current CVFPD roster. (Fire Department, 2016). The CVFPD Rumsey fire station was constructed in 2005 with funding provided by the Tribe.

Esparto Fire Protection District

The EFPD station is located 11 miles southeast of the Resort on SR-16 in the community of Esparto. It is equipped with two engines (one Type I and one Type II), one grass-fire truck, two water tenders, a command vehicle, and a rescue vehicle. The EFPD currently has 20 volunteer firefighters, 7 of whom are certified EMTs (EFPD, 2016).

Madison Fire Protection District

The MFPD station is located 12 miles southeast of the Resort in the community of Madison. The station is equipped with one Type II engine, one Type III engine, and two water tenders. Volunteer staffing includes a fire chief, an assistant chief, three captains, nine firefighters, and four probational firefighters (MFPD, 2016).

Willow Oak Fire Protection District

The Willow Oak FPD operates from two stations; the closest is Station 7, located approximately 20 miles southeast of the Resort at 17535 County Road 97 in Woodland. Station 7 is equipped with one Type I engine, one Type III engine, and one water tender. The other station (Station 6) is located at 18111 County Road 94B and is similarly equipped. The district is staffed with 3 full-time paid firefighters, 1 full-time battalion chief, 8 active volunteer firefighters, and 15 active reserve firefighters. Station 7 is staffed five days a week (Monday through Friday) with three personnel and 1 battalion chief (Klinkhammer, 2016).

California Department of Forestry and Fire Protection (CAL FIRE)

The California Department of Forestry and Fire Protection (CAL FIRE) provides wildland fire protection and, under contract with the Bureau of Indian Affairs, responds to wildfires on Indian reservations in California (including the Resort and surrounding trust land). CAL FIRE also protects State Responsibility Areas, which comprise a large portion of unincorporated Yolo County, including the Proposed Project site. The Resort is located within an area designated by CAL FIRE as a Moderate Fire Hazard Severity Zone (CAL FIRE, 2007). The nearest CAL FIRE station to the Proposed Project site is the Brooks station located immediately north of the Resort along SR-16. During the fire season (May through October), the only time at which the Brooks station is staffed, the station houses one Type III

engine, with a minimum staff of three firefighters and one battalion chief. Most of the firefighter staff are certified EMTs.

EMERGENCY MEDICAL SERVICES

First Response

When an emergency medical incident occurs at the Resort, tribal security personnel trained in cardiopulmonary resuscitation (CPR) and first aid are typically the first to provide assistance. YDFD staff respond to provide additional emergency medical services within 4 minutes 96 percent of the time. YDFD provides pre-hospital treatment through its paramedic firefighters. Typically, there are 10 sworn fire emergency response personnel on duty daily with a minimum staffing of 9 personnel on duty. Six of the YDFD staff ~~members~~ on duty at any time are certified paramedics, while three are EMTs (Fredericksen, 2016a). YDFD is the only fire department in Yolo County that provides paramedics. Paramedics are extensively trained and are qualified to give shots, start intravenous lifelines, and use advanced airway management devices to support breathing. Paramedics have even more training and capabilities than EMTs. YDFD firefighters are equipped to respond and apply immediate treatment to medical emergencies until an ambulance or helicopter arrives.

Additionally, YDFD is also the first responder to off-reservation vehicular accidents within the area between I-505 to the east and the Yolo-Napa County line to the west. In 2015, approximately 36 percent of YDFD's calls for service were located off reservation (Fredericksen, 2016a).

Emergency Dispatch

By contract, YECA is the local 9-1-1 public safety dispatch provider for the Resort (and the Proposed Project site) and the surrounding off-reservation region. YECA dispatches 3 law enforcement agencies and 17 fire departments, including the YDFD. **Table 3.10-1** provides the total number of emergency service calls in Yolo County during 2015. YDFD, through a contract with YECA, receives dispatch services for incidents that occur both on the trust land and off reservation.

TABLE 3.10-1
YOLO COUNTY EMERGENCY COMMUNICATIONS AGENCY CALLS (2015)

911	Non-Emergency	Out-going	Total
63,752	195,098	78,819	338,199
Source: YECA, 2016.			

Emergency Transport

In accordance with an existing agreement with the County, American Medical Response (AMR) of Woodland is the sole provider of ground ambulance services to the Capay Valley (Davis Enterprise, 2014). AMR is privately owned and operates out of its own facility. AMR ambulances are stationed in ~~Woodland~~Esparto, with response time standards to the Resort of approximately ~~25~~ 15 minutes (90 percent

of the time) (~~Sierra Sacramento Valley EMS Agency, 2012~~Fredricksen, 2016c). **Figure 3.10-2** shows the locations of surrounding emergency medical service providers.

Emergency air transportation is provided to the Resort by California Shock Trauma Air Rescue (CALSTAR) and Redwood Empire Air Care Helicopter (REACH). CALSTAR is a non-profit organization based at the McClellan Airfield, approximately 40 miles east of the Proposed Project site, while REACH Air Medical Services is a private organization that has four helicopter bases located in Lakeport (northwest of the Resort), Santa Rosa (to the southwest), Marysville (to the northeast), and Sacramento (to the southeast) (REACH, 2015). Neither CALSTAR nor REACH uses governmental facilities to provide transport service at the Resort. Response time for either air transportation service to the Resort is approximately 30 minutes (REACH, 2015; CALSTAR, 2016). In June 2016, CALSTAR and REACH announced the merger of the two companies (REACH, 2016).

Local Medical Facilities

The Woodland Memorial Hospital, operated by a non-profit organization, is located 23 miles from the Resort (**Figure 3.10-2**) and provides emergency room medical services to the Capay Valley and western Yolo County. Woodland Memorial, with a total of 149 beds (108 licensed acute-care beds and 31 in-patient mental health beds), is an acute care facility that can accommodate both medical and trauma emergencies. The nearest major trauma center is the Kaiser Permanente Medical Center in Vacaville, approximately 33 miles from the Resort. In the case of an emergency at the Resort, the location of patient transport is determined by the responding medical personnel.

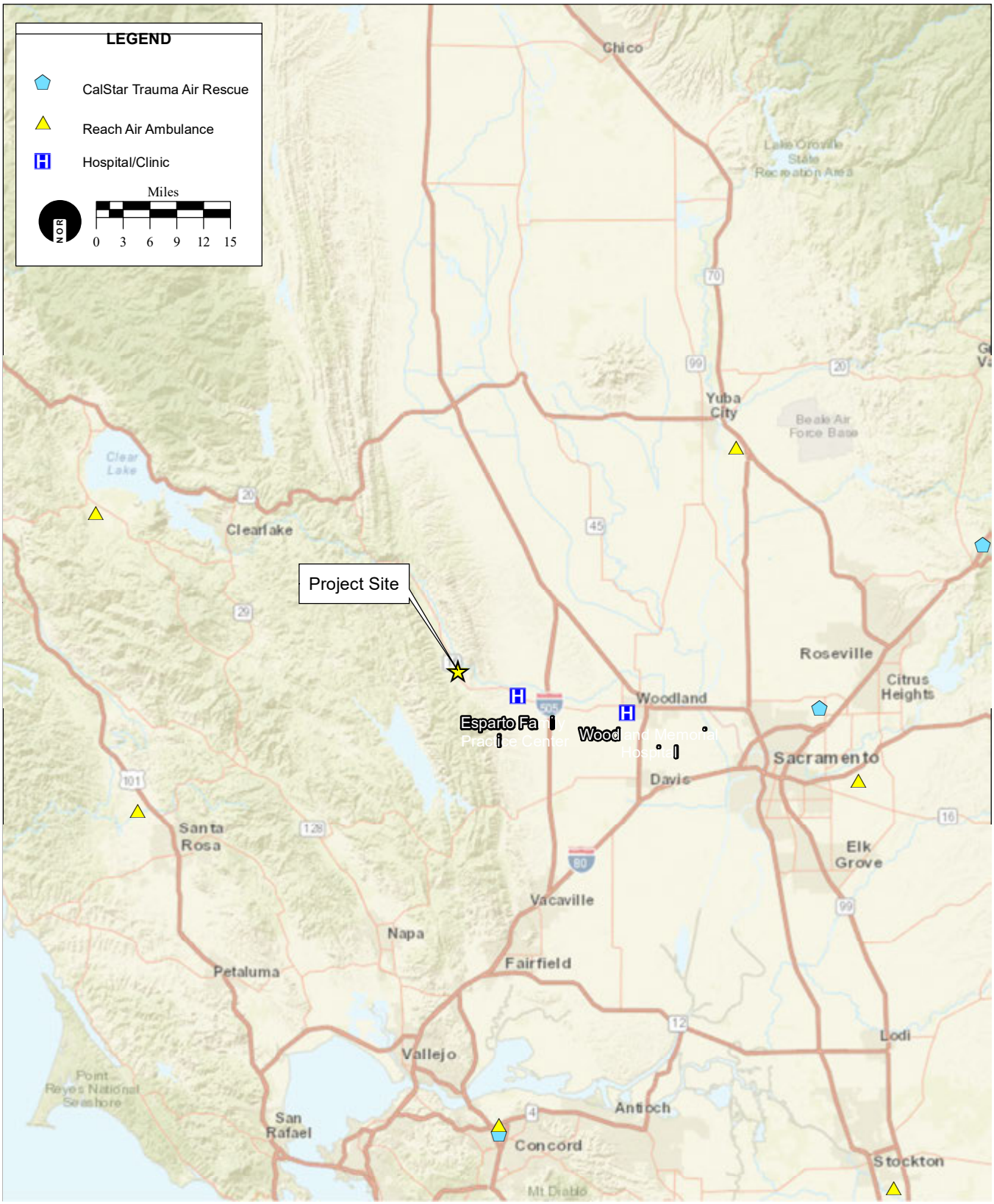
Esparto Family Practice Center is operated by Community Medical Centers, a division of Central Valley Health Network, and is located east of the Resort in the community of Esparto. This clinic is open to all persons, with limited and variable hours of operation. Services provided include general family practice, health education, nutritional counseling, and perinatal care.

Yolo County Office of Emergency Services (OES)

The Yolo County Office of Emergency Services (OES) provides multi-jurisdictional support for emergency planning, coordinated training programs, and multi-jurisdictional incident response. OES is designated as the lead response agency for Yolo County in the event of a major emergency. The Tribe has created an agreement with Yolo County to provide funding for a managerial position within the OES (YDWN, 2016).

Healthcare Services – Resort Employees

The Tribe provides access to health care insurance to almost all of the 2,180 current employees of the Resort. A large portion of the labor force at the Resort is employed within the food/beverage and hotel sector, all of whom belong to a union. A collective bargaining agreement between the Tribe and the union addresses the health care needs of employees who are union members. Additionally, the Tribal



SOURCE: ESRI Data, 2016; AES, 7/21/2016

Figure 3.10-2
Surrounding Emergency Services

Health Clinics and Casino Health Clinic provide health care to citizens of the Tribe and visitors to the Proposed Project site.

Yolo County Public Healthcare

The Yolo County Health and Human Services Agency, previously known as the Yolo County Health Department, was integrated in July 2015 from the previous departments of Alcohol, Drug, and Mental Health; Public Health; and Employment and Social Services. The Yolo County Health and Human Services Agency provides a wide range of health care services, social services, mental health services, alcohol and drug treatment services, public health services, employment services, and income assistance. The agency aims to promote health and wellness, prevent disease and injury, and protect people and the environment, and is divided into the following five branches:

- Adult and Aging Branch;
- Child, Youth, and Family Branch;
- Community Health Branch;
- Fiscal and Administrative Branch; and
- Human Resources Branch.

The Community Health Branch programs include injury prevention, nutrition and fitness, child services, immunizations, tobacco education, youth tobacco, alcohol, and drug prevention, and mental health services.

The Yolo County Environmental Health Division is responsible for identification, assessment, mitigation, and prevention of off-reservation environmental hazards, including hazardous materials and solid waste. The Yolo County Environmental Health Division is also responsible for reporting, monitoring, and preventing off-reservation foodborne illness at Yolo County restaurants. Because the Resort is on the trust land, Indian Health Services has primary jurisdiction over any such issues at the Resort.

The Yolo County Healthcare for Indigents Program (YCHIP) was created to provide medical assistance and dental care to off-reservation County residents in need, with eligibility based on residency and income. Facilities that provide off-reservation indigent care are located in Woodland, West Sacramento, and Davis (YCHIP, 2007).

POLICE AND LAW ENFORCEMENT

Under Public Law 280, the State of California and local law enforcement agencies have criminal law enforcement responsibilities on tribal lands (including at the Resort). Depending upon the type of incident, federal law enforcement agencies may also provide law enforcement to the Resort.

Resort Security

The Tribe currently maintains a staff of 117 security personnel who act as first responders to law enforcement issues at the Resort to reduce impacts on off-reservation law enforcement agencies. All Tribal security personnel are trained beyond the minimum level required to obtain a California Security Guard License (Cedano, 2016). All of the Tribe's security personnel are also trained in CPR and first aid. Security personnel carry two-way radios with direct contact to YDFD, which allows for a quick YDFD response time to on-site incidents and emergency-related calls. The Resort's security measures include closed-circuit television surveillance of the entire casino, including restaurants, bars, and the nightclub. Incorporated into the Resort's security system are alarm monitoring, a digital facial recognition system, and well-lit facilities.

Yolo County Sheriff's Department

The Yolo County Sheriff's Department currently has more than 300 full- and part-time employees and volunteers (Yolo County Sheriff's Office, 2016). The Sheriff's Department may be called to the Resort when a suspect has been detained by Tribal security, or if additional law enforcement support and assistance is deemed necessary.

The Capay Augmented Patrol program is a partnership between the Tribe and the Sheriff's Department that is funded solely by the Tribe and employs a specialized unit of designated, trained deputies, The Capay Augmented Patrol program allows the Sheriff's Department to serve the Capay Valley 24 hours a day, 7 days a week (Yolo County Sheriff's Office, 2016).

The Sheriff's Department station closest to the Resort is located in the City of Woodland, approximately 26 miles from the Resort.

Table 3.10-2 displays the number of responses for law enforcement by off-reservation agencies that were requested by the Resort's security personnel during 2015.

TABLE 3.10-2
RESPONSES FROM OFF-SITE AGENCIES (YOLO COUNTY SHERIFF, CHP)

Total Annual Responses from Off-site Agencies [1]	
Vehicle Accidents (injury/non-injury)	67
Alarm (fire)	15
Bomb Threat	0
Counterfeits	273
False Checks/Identification	27
Forgery	0
Thefts	251
Vehicle Damage	27
Arrests	89
Notes: 1 - January 2015 – December 2015 Source: CCCR, 2016b.	

Area Law Enforcement Response Team (ALERT)

The County, along with the Cities of West Sacramento, Woodland, Winters, and Davis, have formed the Area Law Enforcement Response Team (ALERT). Selected sheriff's deputies receive specialized training, weapons, and equipment as part of the Sheriff's Department's commitment to ALERT. ALERT provides service to County communities for incidents requiring specialized law enforcement response, including confrontations with armed or barricaded suspects, the rescue of hostages or injured people, dealing with snipers, riots, crowd control, or dignitary protection. ALERT additionally ensures that emergency assistance is immediately available in the instance of natural disasters, tactical events, and other incidents exceeding the capabilities of an independent agency (Yolo County Sheriff's Office, 2016). Should the need arise, this is the specialized unit that would respond to a major law enforcement incident at the Resort.

Yolo County Bomb Squad (YCBS)

The Yolo County Bomb Squad (YCBS) is a multi-agency unit, currently consisting of two officers from the West Sacramento Police Department (PD) and one officer from the Davis PD (City of Davis, 2016). YCBS responds to calls for service in Yolo County and northern Solano County, as well as calls for assistance from other locations in the greater Sacramento area. Calls for service involve improvised explosive devices, explosive hazardous materials, military explosives, and old explosives. The YCBS has never been dispatched to the Resort; however, YCBS provides training to Resort security personnel and YDFD staff.

California Highway Patrol (CHP)

The California Highway Patrol (CHP) is the chief off-reservation law enforcement agency for traffic-related issues on SR-16, which provides access to the Resort. The closest CHP substation to the Resort is located at 13739 Andrew Stevens Drive in Woodland. Currently, there is a minimum staffing requirement of three CHP officers on regular duty in the County. Additional CHP officers are employed, under Reimbursable Service Agreements between the Tribe and CHP, at periods of peak traffic along SR-16 attributable to special events at the Resort.

In 2013, unincorporated Yolo County experienced 248 traffic incidents with notable injuries, 11 of which were fatalities. Seven of these fatalities occurred along state highways (CHP, 2013). There were 42 accidents that occurred between 2007 and 2009 at intersections with and along SR-16 (**Appendix D**). As noted above, when called for service, the YDFD is the first responder to most incidents along roadway segments and intersections on SR-16. When traffic accidents occur in the Capay Valley, available CHP officers respond.

Yolo County Narcotics Enforcement Task Force

The Yolo County Narcotics Enforcement Task Force is a specialty unit intended to increase public safety by diminishing the availability and use of illicit drugs in the County. It consists of at least one member

from the following local police agencies: Woodland PD, Davis PD, West Sacramento PD, Winters PD, UC Davis PD, the Yolo County Sheriff's Department, the Yolo County District Attorney's Office, and the United States Department of Justice (Yolo County, 2016b).

CRIMINAL JUSTICE SYSTEM

The County provides a criminal justice system to enforce the state laws off reservation that control crime, maintain social order, and sanction those that violate the laws with penalties. In addition to the Sheriff's Department (discussed above), the County criminal justice system includes the County Jail, District Attorney, Public Defender, Probation Department, and other off-reservation court services. Arrests that are made at the Resort are processed through the County's criminal justice system.

SCHOOLS

The closest off-reservation public schools to the Resort are in the Esparto Unified School District, located in the community of Esparto (approximately seven miles east of the Proposed Project site) and the community of Madison (approximately 10 miles east of the Proposed Project site). Esparto High School, which is located at 17120 Yolo Avenue, has an enrollment of approximately 292 students (Ed-Data, 2016). Esparto High School has a capacity of approximately 170 students and is currently overcrowded. Esparto Middle School, located at 26058 County Road 21A, has an enrollment of approximately 219 students (Ed-Data, 2016). Also overcrowded, the middle school plans to move into the existing high school building once a new high school is constructed. Esparto Elementary School, located at 17120 Omega Street, has approximately 447 students and a capacity of approximately 525 students (Ed-Data, 2016; Yolo County, 2007). A second elementary school for Esparto may be established at the existing middle school site in the future. The *Town of Esparto General Plan* indicates the need for additional school facilities but does not provide implementation goals for these planned school expansions (Yolo County, 2007). Farther east, in the community of Madison, Madison High School is located at 17923 Stephens Street, with a current enrollment of 15 students (Ed-Data, 2016).

Woodland Joint Unified School District is located approximately 19 miles east of the Resort and consists of 12 elementary schools, 2 middle schools, 3 high schools, 1 continuation high school, and one adult school, with a total enrollment of 10,055 students (CDE, 2016a).

Winters Joint Unified School District is located approximately 17 miles south of the Resort and consists of four schools, with a total enrollment of 1,521 students (CDE, 2016b).

WATER SUPPLY AND TREATMENT

There is no off-reservation public water system that supplies or treats water for the Resort or ancillary support and commercial facilities. The Resort obtains its water from three production wells owned and operated by the Tribe. The water from those wells that is used at the Resort is treated in an on-site water desalination treatment facility (WDTF) owned and operated by the Tribe and located on trust land. The

Tribe's existing and proposed water supply and treatment facilities are addressed in detail in **Section 2.4.7** and **Section 3.7**, **Hydrology and Water Quality**, and an analysis of off-reservation groundwater impacts attributable to the Proposed Project is provided in **Section 3.7**.

WASTEWATER TREATMENT

There is no public wastewater system that serves the Resort. Wastewater generated on the trust land is treated in an on-site wastewater treatment plant (WWTP) owned and operated by the Tribe. The WWTP provides tertiary-treated effluent in compliance with California Code of Regulations (CCR) Title 22 standards for reuse by the Tribe. The Tribe's existing wastewater treatment facilities and related water balance and use issues are addressed in **Section 2.4.8** and **Section 3.7**.

The Tribe has implemented an aggressive water recycling and conservation program, which incorporates recycled water from the on-site WWTP. Recycled water is used to irrigate the Yocha Dehe Golf Course and is also used for toilet flushing at the Resort. Recycled water that is used to irrigate the golf course is governed by waste discharge requirements issued by the Central Valley Regional Water Quality Control Board (CVRWQCB).

STORMWATER FACILITIES

Runoff from the existing drainage system at the Resort and ancillary support and commercial facilities surrounding the Resort is channeled through on-site oil-water separators into underground settling/ detention basins located on trust land under the parking lots that surround the Resort facilities. Stormwater then passes beneath SR-16 and into a settling pond on the Tribe's Ponotla Piht property. Existing stormwater facilities are further addressed in **Section 3.7**, **Hydrology and Water Quality**.

SOLID WASTE MANAGEMENT

Yolo County Solid Waste

The management of off-reservation non-hazardous solid waste in Yolo County is mandated by state law, including AB 939, and is guided by policies at the state and local levels. In accordance with AB 939, the County is required to divert 50 percent of its total waste stream from landfill disposal. In 2014, the unincorporated areas of Yolo County accounted for approximately 11.6 percent of the total 170,525 tons transferred (CalRecycle, 2016a).

Through contract with the Tribe, Waste Management, Inc. (located in Woodland) transports solid waste from the Resort to the Yolo County Central Landfill (YCCL). The YCCL covers 724.5 acres and is currently permitted to receive approximately 1,800 tons of solid waste per day. YCCL currently receives a peak-day average of 750 tons per day (CalRecycle, 2016b). The landfill is expected to reach its capacity of 49,035,200 cubic yards in the year 2081 (CalRecycle, 2016c). YCCL is classified as a Class II and Class III facility, which allows it to accept municipal wastes, recycled materials, liquid wastes, wood, and green wastes for disposal (CCR Title 27, Division 2). There are two 9,000-ton bioreactor cells

at the YCCL that use circulated liquid to increase the rate of decomposition of waste and increase the utilization of landfill acreage. The methane gas that is released in the process is captured and used for energy generation (CalRecycle, 2001).

Resort Solid Waste

The Resort's current waste stream includes an average of 188 tons of municipal solid waste per month. Recyclable materials are diverted from the landfill via current on-site collection programs; cardboard and plastic bottles are baled and hauled separately, and the remaining 23 tons of recyclable materials are placed into a 40-yard compacting bin located on site. Waste Management, Inc. transports the bins of solid waste and recyclable materials from the Resort to the YCCL. The loading dock is currently being redesigned to allow for improved diversion, including the collection of food scraps and other compostable materials.

Brine extracted from the WDTF's water softening process is transported to the East Bay Municipal Utilities District's (EBMUD's) Oakland Main WWTP in the San Francisco Bay Area for disposal. Under existing conditions, brine from the Resort is hauled off site at a rate of two truck trips per day. EBMUD collects and disposes of brine from various wastewater treatment facilities in northern California.

Biosolids (classified as Class B) generated at the on-site WWTP are disposed of at the YCCL in accordance with the County Waste Acceptance Criteria. Resort-generated biosolids are tested annually for the required constituents, with permits issued annually by the County (**Appendix F**).

PUBLIC TRANSIT

Public transit service for Yolo County is provided by the Yolo County Transportation District (YCTD). YCTD operates YoloBus, with YoloBus Route 215 connecting the communities of Woodland, Madison, Esparto, and Capay directly to the Resort on SR-16. YCTD buses operate on Route 215 from approximately 5 a.m. to 10 a.m., 1 p.m. to 6 p.m., and 9 p.m. to 1 a.m.. Headways (the periods between transit arrivals at the designated stops) are roughly 50 to 60 minutes during most of the day; at around 7 a.m., 3 p.m., and 11 p.m. an additional YCTD bus is added to the schedule, with a headway of 10 minutes prior to the next scheduled bus. YoloBus also has routes providing service to Sacramento and Solano Counties. Paratransit service for Yolo County is also provided by YCTD through the YoloBus Special, which provides door-to-door service for elderly and disabled patrons (Kimley-Horn, 2016).

Separate from the YCTD bus service, the Resort arranges for daily private charter bus service between the Resort and large population areas in northern California. Charter buses originate from various areas in northern California, including Sacramento, Oakland, San Francisco, Pittsburg, San Mateo, and San Jose. According to Resort operations staff, the average number of charter bus patrons is 45 per bus, with the number of charter buses per day currently averaging as follows:

- Monday – 14
- Tuesday – 17
- Wednesday – 17
- Thursday – 19
- Friday – 16
- Saturday – 21
- Sunday – 16

These charter buses remove approximately 7,061 vehicles from the local road system each month.

The Resort also encourages its employees to drive to and from work together using car and van pools. Currently 290 employees are enrolled in the carpool program and 65 to 80 employees are enrolled in the van pool program, providing employee transportation from both small and large cities in northern California to the Resort. These ride-share commuter groups remove thousands of additional personal vehicles from the local road system each month. Additionally, 415 employees ride Yolobus Route 215 for an average 50-mile round trip per day (Vargas, 2016).

Park-and-Ride Facility

Pursuant to an Intergovernmental Agreement (IGA) with the County, the Tribe remains committed to funding an appropriate park-and-ride facility. Once an appropriate site and size have been identified, the Tribe will make funding available as required by the IGA. The appropriate site and configuration for such a park-and-ride facility has not yet been selected.

3.10.3 IMPACT ANALYSIS

SIGNIFICANCE CRITERIA

The following criteria are established by Sections XIII and XVI of the Checklist (**Appendix A**) and have therefore been used in this section to evaluate the potential off-reservation environmental impacts of the Proposed Project described in those sections of the Checklist. In addition, although not required by the Checklist, this analysis includes off-reservation emergency medical services facilities and off-reservation law enforcement facilities other than police protection facilities. Impacts on off-reservation recreation and park facilities are included in Section XIII of the Checklist; however, for the purposes of this Draft TEIR, such impacts are addressed (along with other off-reservation recreation impacts) in **Section 3.3**, **Land Use, Agricultural Resources, Population and Housing, and Recreation and Parks**.

An impact is considered significant under Sections XIII and XVI of the Checklist if it would:

- Result in substantial adverse physical off-reservation impacts associated with the provision of new or physically altered off-reservation governmental facilities, the construction of which could cause significant off-reservation environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection, police protection, schools, or other off-reservation public facilities;

- Exceed off-reservation wastewater treatment requirements of the applicable Regional Water Quality Control Board (RWQCB);
- Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant off-reservation environmental effects;
- Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant off-reservation environmental effects; or
- Result in a determination by an off-reservation wastewater treatment provider (if applicable) that serves or may serve the Proposed Project that it has inadequate capacity to serve the Proposed Project's projected demand in addition to the provider's existing commitments.

METHODOLOGY

For the purposes of this Draft TEIR, the term "other public facilities" as used in Section XIII of the Checklist is conservatively assumed to include off-reservation emergency medical services, health services, solid waste, and public transit governmental facilities. The impact analysis in this section compares the existing conditions described above to the foreseeable increase in demands on off-reservation public services attributable to the Proposed Project.

OFF-RESERVATION IMPACTS OF THE PROPOSED PROJECT

Impact 3.10.1

***Public Facilities – Fire Protection*. Although the Proposed Project could increase demands for off-reservation fire protection services, it would not result in the need for the construction of new or the alteration of existing off-reservation governmental fire protection facilities.**

Construction

Construction of the Proposed Project would introduce additional potential sources of fire to the Proposed Project site that could result in the need for fire-fighting services. During construction, equipment and vehicles may come in contact with vegetation, which could spark and ignite, leading to fires requiring responses from qualified fire protection services. Risks associated with wildland fires are addressed in **Section 3.6**, **Hazards and Hazardous Materials**.

The high-quality equipment and training and the full-time staffing levels for fire protective services provided on site by YDFD would minimize the need for off-reservation fire protection resources to address fire incidents associated with the construction of the Proposed Project. Through existing Mutual Aid Agreements, three local off-reservation fire departments (CVFPD, EFPD, and MFPD) would continue to provide assistance to YDFD if and when additional services are needed for any such incident. YDFD has already increased full-time staffing levels

and equipment on reservation and available for immediate response at the Proposed Project site as a result of internal analysis and the potential for future expansion of the Resort. Therefore, construction of the Proposed Project would not require an increase in responses from off-reservation fire protection services to the extent that any new or alteration of their existing fire protection facilities would be required. Because there would be no need to construct new or alter existing off-reservation governmental fire protection facilities as a result of the construction of the Proposed Project, there would not be any off-reservation environmental impacts associated with the construction or alteration of such facilities.

Operation

By expanding the square footage of the Resort, the Proposed Project could increase the risk of fire, the frequency of fire protection calls for service, and the complexity of fire protection responses at the Resort. The YDFD already has adequate equipment and has already increased staffing levels and provided training to accommodate the need for additional fire protection services for the Proposed Project. The YDFD has extensive experience dealing with the fire risks presented by the Resort, including those associated with the existing entertainment venue and hotel. The nature of these risks is essentially the same as those associated with the Proposed Project. This experience, and the additional staffing by the YDFD in anticipation of a potential expansion of the Resort, means that the Proposed Project would not require a significant increase in responses from off-reservation fire protection services, and no new or altered off-reservation fire protection facilities would be required. Because there would be no need to construct new or alter any existing off-reservation governmental fire protection facilities as a result of the operation of the Proposed Project, there would not be any off-reservation environmental impacts associated with the construction or alteration of such facilities.

Impact 3.10.2

***Public Facilities – Other – Emergency Medical Services*. Although the Proposed Project could increase demands for off-reservation emergency medical services, it would not result in the need for the construction of new or the alteration of existing off-reservation governmental emergency medical facilities.**

The Tribe currently pays for emergency fire and medical services for the Resort (Fredericksen, 2016a). Although the Proposed Project is not anticipated to significantly increase patronage at the Resort, but would instead accommodate existing patrons, even an incremental increase in patrons could theoretically result in a small increase in the potential for off-reservation emergency medical responses to the Resort. No such increase would be substantial enough to require additional off-reservation emergency dispatch services to the extent that the construction of new or the alteration of the existing emergency dispatch facilities would be required. Because there would be no need to construct new or alter any existing off-reservation governmental

emergency dispatch facilities as a result of the Proposed Project, there would not be any off-reservation impacts associated with the construction or alteration of such facilities.

The Proposed Project could also affect off-reservation emergency medical service providers; however, the primary first responders to all emergency medical incidents at the Resort would be from the on-site YDFD station. A fast response from the YDFD would reduce the demand on off-reservation emergency medical service providers by providing paramedic-level services within minutes of any incident at the Proposed Project. With the provision of emergency services from YDFD, operation of the Proposed Project would not require an increase in off-reservation emergency medical services to the extent that the construction of any new or the alteration of any existing governmental emergency medical facilities would be required. Ground ambulance, air ambulance, and hospital services are all provided to the Resort by non-governmental organizations, and an increase in the need for such services attributable to the Proposed Project would not affect governmental facilities. Because there would be no need to construct new or alter existing off-reservation governmental emergency medical services facilities as a result of the Proposed Project, there would not be any off-reservation impacts associated with the construction or alteration of such facilities.

Impact 3.10.3

***Public Facilities – Other- Public Health*. Although the Proposed Project could increase demands for off-reservation public health systems, it would not result in the need for the construction of new or the alteration of existing public health facilities.**

The Tribe currently offers a health insurance program to Resort employees. New employees hired as a result of the Proposed Project would be eligible to participate in the Tribe's existing health insurance program.

The Proposed Project would not significantly increase patronage at the Resort; instead, it would accommodate existing patrons. Therefore, the Proposed Project is not anticipated to result in the need for the construction of new or the alteration of any existing off-reservation public healthcare facilities. Because there would be no need to construct new or alter existing off-reservation governmental public health services facilities as a result of the Proposed Project, no off-reservation impacts associated with the construction or alteration of such facilities would be experienced.

Impact 3.10.4

***Public Facilities – Police Protection and Law Enforcement*. Although the Proposed Project could increase demands on off-reservation police protection and law enforcement services, it would not result in the need for the construction of new or the alteration of existing off-reservation governmental law enforcement facilities.**

Although the Proposed Project is not anticipated to significantly increase patronage at the Resort, but would instead accommodate existing patrons, the incremental increase in patrons could result in a proportionate increase in crime, possibly including incidents requiring response by off-reservation law enforcement agencies. The Proposed Project would also generate additional traffic on SR-16, which could result in increased traffic-related incidents. The response times and capabilities of the Sheriff's Department and CHP could be impacted by those increases. However, the Tribe would continue to fund the Capay Augmented Patrol program, which provides continuous Sheriff's Department services to the Capay Valley, as well as the scheduling of additional law enforcement services when needed at the Resort through contract with the Sherriff's Department.

The renovation and expansion of the Sheriff's Administration Building and expansion of the Monroe Jail have been planned for completion in 2018 (YCGS, 2016; Yolo County, 2014). Because the Proposed Project is not anticipated to significantly increase patronage at the Resort, the Proposed Project would not result in the need for further construction or alteration of off-reservation governmental police protection and or law enforcement facilities. Because there would be no need to construct new or alter existing off-reservation governmental police protection and or law enforcement facilities as a result of the Proposed Project, there would not be any off-reservation impacts associated with the construction or alteration of such facilities.

Impact 3.10.5

***Public Facilities – Other – Criminal Justice*. Although the Proposed Project could increase the workload of the County criminal justice system, it would not result in the need for the construction of new or the alteration of existing governmental criminal justice facilities.**

As the Proposed Project is not anticipated to significantly increase patronage at the Resort, but would instead accommodate existing patrons, it is not anticipated that the Proposed Project would result in the need for the construction of new or the alteration of existing governmental criminal justice facilities. Because there would be no need to construct new or alter existing off-reservation governmental criminal justice facilities as a result of the Proposed Project, there would not be any off-reservation impacts associated with the construction or alteration of such facilities.

Impact 3.10.6

***Public Facilities – Public Schools*. The Proposed Project would not affect performance objectives for off-reservation public schools and therefore would not result in the need for the construction of new or the alteration of existing off-reservation public school facilities.**

As noted in the discussion of population and housing in **Section 3.3**, **Land Use, Agricultural Resources, Population and Housing, and Recreation and Parks**, based on the current population and employment statistics for Yolo County, no additional people would be required or anticipated to move to Yolo County to fill the jobs generated by the Proposed Project; therefore, the Proposed Project would not result in an increase in demands for off-reservation public school services to the extent that the construction of new or the alteration of the existing off-reservation public school facilities would be required. Because there would be no need to construct new or alter existing off-reservation public school facilities as a result of the Proposed Project, there would not be any off-reservation impacts associated with the construction or alteration of such facilities.

Impact 3.10.7

***Utilities – Water and Wastewater Treatment Facilities*. The Proposed Project would not require the construction of any new water or wastewater treatment facilities or the expansion of existing facilities, the construction of which could cause significant off-reservation environmental effects.**

No off-reservation water or wastewater treatment facilities, or any expansion of off-reservation water or wastewater treatment facilities, would be required for or be a part of the Proposed Project, and therefore no off-reservation environmental impacts would occur with respect to off-reservation water and wastewater treatment facilities.

As described in **Section 2.4.7**, brine produced at the WWTP would either continue to be disposed of through contractual agreements with EBMUD (Option 1), which is the regional disposal location for WWTP brine byproduct in Northern California, or be processed into a dry cake and disposed of at a landfill or beneficially reused (Option 2).

Based on the increase in water demands and wastewater generation for the Proposed Project (**Section 2.4.7** and **Section 2.4.8**), implementation of the Proposed Project would increase brine disposal rates by one truck trip per day under Option 1, which would be consistent with existing contractual arrangements for disposal of the WWTP brine at the EBMUD facility. Because this is within the existing contract, the increase of one truck trip per day of brine disposal to the EBMUD facility would not result in the need for new or alteration of the existing EBMUD facility. The increase of one truck trip per day for WWTP brine disposal would not exceed the off-reservation waste discharge requirements for the EBMUD facility established by the San

Francisco Bay RWQCB. Under Option 2, no brine would be disposed of at the EBMUD facility. This reduction in truck trips would reduce current effects from the off-site brine disposal, resulting in an overall beneficial impact from the Proposed Project.

Currently, the biosolids produced at the WWTP meet the Yolo County Landfill Waste Acceptance Criteria are off-hauled to the YCCL for disposal. The biosolids are tested annually for the required constituents, and disposal permits are issued by Yolo County. The Proposed Project would increase the amount of biosolids for off-site disposal; however, the increase in biosolids would be within the existing capacity of the landfill. Therefore, the impact on the YCCL would be less than significant.

The Tribe operates the WDTF and the WWTP on the trust land adjacent to the Resort. Each would, as part of the Proposed Project, be modified to accommodate the additional water to be treated and the additional wastewater to be treated and disposed of as a result of the Proposed Project, as described in **Section 2.4.7** and **Section 2.4.8**. The analysis of the potential for significant off-reservation environmental effects as a result of such modifications is discussed throughout this TEIR. Based on that analysis, there would be no off-reservation environmental impacts as a result of such modifications.

Impact 3.10.8

***Utilities – RWQCB Requirements*. The Proposed Project would not exceed off-reservation wastewater treatment requirements of the CVRWQCB.**

After construction of the Proposed Project, the Resort would continue to utilize the on-reservation WWTP. Off-reservation requirements of the CVRWQCB and potential off-reservation environmental impacts of the WWTP are discussed in **Section 3.7**, **Hydrology and Water Quality**. The WWTP, as modified by the Proposed Project, would continue to be required to comply with all applicable requirements of the CVRWQCB. Therefore, impacts would be less than significant.

Impact 3.10.9

***Utilities – Stormwater Drainage Facilities*. The Proposed Project would not require the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant off-reservation environmental impacts.**

The addition of the Proposed Project at the Resort would minimally affect existing drainage patterns at the Resort because most construction for the Proposed Project would occur on areas of existing impervious surfaces, and would not increase surface water flows above the drainage capacity of existing drainage facilities and culverts. The existing off-reservation culverts and drainage system west of SR-16 are sized to meet the Proposed Project's anticipated stormwater

flows. **Impact 3.7.4** in **Section 3.7**, **Hydrology and Water Quality**, addresses this issue in greater detail.

Because stormwater generated at the Resort after implementation of the Proposed Project would be handled at nearly the same rate as under existing conditions, no new off-reservation stormwater facilities and no alteration of existing stormwater facilities would be required for the Proposed Project. Therefore, no potential off-reservation environmental impacts associated with construction or alteration of stormwater facilities for the Proposed Project would occur.

Impact 3.10.10

***Public Facilities – Other – Landfill*. The Proposed Project would not affect performance objectives for the Yolo County Landfill and therefore would not result in the need for the construction of new or the alteration of existing off-reservation governmental landfill facilities.**

Construction

The construction of the Proposed Project would result in a temporary increase in solid waste generation. Potential solid waste streams from construction are expected to include paper, wood, glass, and plastics from packing materials, waste lumber, insulation, and empty non-hazardous chemical containers; excess concrete from construction practices; and excess metal, including steel from welding/cutting operations and aluminum from packing materials and electrical wiring. Construction waste that could not be recycled on site or by Waste Management, Inc. would be disposed of at the YCCL, which accepts construction and demolition materials (YCCL, 2016). This is anticipated to result in a less-than-significant impact. Even though no significant impact requiring construction of a new or alteration of any existing landfill would occur, the Tribe will commit to ensuring that construction waste from the Proposed Project is recycled to the fullest extent practicable by diverting green waste and recyclable building materials away from the solid waste stream. This commitment provides additional assurance that the impact would be less than significant.

Operation

It is anticipated that the Proposed Project would continue to utilize the on-site recycling and solid waste management practices currently utilized by the Resort, with continued solid waste collection services provided to the Resort by Waste Management, Inc., which adheres to state and County solid waste guidelines. Waste collected during operation of the Proposed Project is anticipated to be disposed of at the YCCL, which has an estimated remaining net life capacity of 108 years, until 2124 (CalRecycle, 2016b).

The amount of solid waste generated by the Proposed Project was estimated based on generation rates provided by the California Department of Resources Recycling and Recovery (CalRecycle).

As shown in **Table 3.10-3**, the total solid waste generated by the Proposed Project is estimated to be 1,382 pounds per day (approximately 0.69 tons per day).

The YCCL is permitted to accept 1,800 tons per day, and currently accepts an average of 750 tons per day of solid waste (CalRecycle, 2016b). Without accounting for recycling, solid waste from the Proposed Project would represent approximately 0.07 percent of the YCCL's remaining available permitted daily intake capacity (1,050 tons per day). The projected solid waste generation by the Proposed Project is a small contribution to the waste stream delivered to, and would not significantly decrease the life expectancy of, the YCCL. The use of 0.07 percent of the YCCL's remaining daily intake capacity to accommodate additional solid waste generated by the Proposed Project would not result in an increase in demands for off-reservation landfill services to the extent that construction of a new or alteration of any existing off-reservation governmental landfill facilities would be required. Because there would be no need to construct new or alter existing off-reservation governmental landfill facilities as a result of the Proposed Project, there would not be any off-reservation environmental impacts associated with the construction or alteration of such facilities.

TABLE 3.10-3
SOLID WASTE GENERATION

Land Use	Generation Rate	Units of Measure	Proposed Rooms/Seats/Square Footages	Estimated Daily Generated Waste (lbs/day)
Hotel	2	lbs/room/day	459	918
Restaurant	0.005	lbs/sq ft/day	9,475	47
Other Uses [a]	3.12	lbs/100 sq ft/day	13,350	417
			Total	**1,382**
			Total (tons/day)	**0.69**

Note: a - "Other uses" consists of the ballroom.
Source: CalRecycle, 2016d.

Impact 3.10.11

***Public Facilities – Other – Electricity*. The Proposed Project would not require or result in the construction of new electrical distribution facilities or expansion of existing facilities, the construction of which could cause significant off-reservation environmental effects.**

Peak electrical demand for the Resort would increase with the Proposed Project from 6.0 megawatts (MW) to 10.5 MW, a 4.5-MW increase. As described in **Section 2.4.9**, the Tribe is considering on-site alternative energy solutions to meet the increased energy demands of the existing Resort and Proposed Project, including, but not limited to, use of a rooftop solar array. However, because detailed plans have not been developed for potential on-site alternative energy sources, this TEIR conservatively assumes that all of the energy demands resulting from the

Proposed Project would be met through a service agreement with Pacific Gas and Electric Company (PG&E).

Consultation with PG&E indicates that upgrades to its Madison substation will be required to serve future regional demand. The improvements to the Madison substation would take place entirely within the existing fenced area of the substation and would not require earth-disturbing activities (Hoogerhyde, 2016). Therefore, off-reservation impacts would be less than significant.

There is also a possibility that projected growth in the region in combination with the Proposed Project may require upgrades to the existing transmission and distribution network to which the Madison substation and the Resort are connected. PG&E has not yet completed its final evaluation of the need for transmission line upgrades to serve the needs of regional growth; however, it has indicated that any upgrades would consist of installing new conductors on existing overhead lines and not installing new lines. These transmission upgrades, if any, would not be part of the Proposed Project.

A pedestrian reconnaissance survey of potential biological and cultural resources was performed for this Draft TEIR along the PG&E right-of-way adjacent to SR-16 and leading to the Resort. The survey did not reveal the potential for significant off-reservation physical impacts as a result of potential transmission and distribution line upgrades between the Madison substation and the Resort. Therefore, there would not be any off-reservation environmental impacts associated with the construction or alteration of such facilities.

Impact 3.10.12

Public Facilities – Public Transit. **The Proposed Project would not affect availability of public transit and therefore would not result in the need for the construction of new or the alteration of existing off-reservation public transit facilities.**

If it is conservatively assumed that 3.6 percent of employees or customers of the Proposed Project would use transit during the peak hours of the day (based on total use by County residents in 2014), the Proposed Project would add five transit patrons during the typical weekday PM peak period and approximately six additional transit patrons during the Saturday PM peak period.

In accordance with the IGA between the Tribe and Yolo County, the Tribe provides funding to the YCTD for the operation and maintenance of Route 215 bus trips to the Proposed Project site. As a result of this funding agreement, additional buses have been added to Route 215 to reduce the headways for these bus routes and provide more frequent service. These buses would be sufficient to accommodate the increased ridership from the Proposed Project (Kimley-Horn, 2016; **Appendix D**).Thus, the Proposed Project's impact on off-reservation transit service would be less than significant.

3.11 AESTHETICS

This section addresses the off-reservation environment associated with aesthetics, discusses potential impacts of the Proposed Project on the off-reservation visual environment, and recommends mitigation measures to reduce any potentially significant off-reservation impacts on regulated scenic resources.

3.11.1 REGULATORY SETTING

STATE AND LOCAL

The Proposed Project site is located on federally owned trust lands and is not subject to state or local controls concerning aesthetic resources. However, such controls apply to off-reservation land in the vicinity of the Proposed Project site.

State Scenic Highways

In 1963, the California State Legislature established the California Scenic Highway Program through Senate Bills (SB) 1467 and 1468, provisions of which were added to the Streets and Highways Code. The goal of the California Scenic Highway Program is to preserve and enhance the natural beauty of California, with scenic highways being designated based upon the amount of natural landscape visible to a passing motorist (Caltrans, 2016b). Scenic highway designation does not preclude nearby development; however, the program encourages development that does not degrade the scenic value of the highway corridor (Caltrans, 2016b). Yolo County (County) has no designated state scenic highways; however, the portion of State Route (SR)-16 adjacent to the existing Cache Creek Casino Resort (Resort) between County Road (CR)-85 and the Yolo-Colusa County line is eligible for such a designation.

County of Yolo 2030 Countywide General Plan

The *County of Yolo 2030 Countywide General Plan* (General Plan), updated in 2009, is the guiding document for development in the unincorporated areas of the County, including the off-reservation properties in the vicinity of the Proposed Project (Yolo County, 2009a). The General Plan does not apply to the trust land on which the Proposed Project would be located or to the Proposed Project itself. Policies and actions in the General Plan that are relevant to the off-reservation aesthetic resources in the vicinity of the Proposed Project are included as follows.

Land Use and Community Character Element

Goal CC-1: Preservation of Rural Character. Ensure that the rural character of the County is protected and enhanced, including the unique and distinct character of the unincorporated communities.

Policy CC-1.1: Encourage private landowners of both residential and commercial properties to maintain their property in a way that contributes to the attractive appearance of Yolo County, while recognizing that many of the land uses in the County, including agriculture

and light industry, require a variety of on-site structures, equipment, machinery, and vehicles in order to operate effectively.

Action CC-A34: The discretionary review of development proposals [by the County] shall evaluate and address impacts on the rural landscapes and views. This review shall also evaluate the potential for land use incompatibilities and require incorporation of design features to reduce potential impacts to the greatest extent feasible.

Policy CC-1.3: Protect the rural night sky as an important scenic feature to the greatest feasible extent where lighting is needed.

Policy CC-1.12: Preserve and enhance the scenic quality of the County's rural roadway system. Prohibit projects and activities that would obscure, detract from, or negatively affect the quality of views from designated scenic roadways or scenic highways.

Policy CC-1.13: The following routes within the study area roadway network [which is described within **Section 3.2**, **Transportation/Traffic**] are designated as local scenic roadways:

- SR-16 (Colusa County line to Capay)

Action CC-A36: Pursue designation of the state of SR-16 as a scenic highway.

Policy CC-1.15: The following features shall be protected and preserved along designated scenic roadways and routes, except where there are health and safety concerns:

- Trees and other natural or unique vegetation
- Landforms and natural or unique features
- Views and vistas
- Historic structures (where feasible), including buildings, bridges and signs

Policy CC-1.17: Existing trees and vegetation and natural landforms along scenic roadways and routes shall be retained to the greatest feasible extent. Landscaping shall be required to enhance scenic qualities and/or screen unsightly views and shall emphasize the use of native plants and habitat restoration to the extent possible. Removal of trees, particularly those with scenic and/or historic value, shall be generally prohibited along the roadway or route.

Conservation and Open Space Element

Goal CO-1: Natural Open Space. Provide a diverse, connected, and accessible network of open space to enhance natural resources and their appropriate use.

Policy CO-1.14: Support the preservation of open space consistent with this General Plan, via acquisition of fee title or easement interest by land trusts, government agencies, and conservancies from willing landowners.

Town of Esparto General Plan

This Draft Tribal Environmental Impact Report (TEIR) examines the off-reservation land use impacts of the Proposed Project in the County. Because Esparto is the nearest sizable community to the Resort, and because many Resort employees currently live in Esparto, relevant aesthetic policies from the *Town of Esparto General Plan* are provided below (Yolo County, 2007).

Conservation Goals, Policies, and Programs

Goal 1: To protect the town's natural, cultural, visual, and historical resources.

Policy E-R.9: New development shall preserve and enhance existing riparian and wetland habitat along Lamb Valley Slough and other small canals in the planning area, unless the need for flood protection and maintenance prevents such preservation and enhancement.

Capay Valley Area Plan

The *Capay Valley Area Plan* was adopted in 2010 as a component of the General Plan. The *Capay Valley Area Plan* does not apply to trust land or to the Proposed Project itself. The Plan establishes the following policies relevant to off-reservation aesthetic resources.

Conservation and Natural Resources

Goal 1: Maintain the open, agrarian character of the landscape as seen from the highway and principal roadways in the area.

Policy 1: Support the effort to secure state Scenic Highway status for SR-16.

Implementation Measure 1: The County has adopted official County scenic designation for SR-16 within the Capay Valley Study Area.

Policy 2: Ensure architectural quality and design consistency within existing communities of the Capay Valley along SR-16.

Implementation Measure 1: In consultation with local businesses and residences, and citizen advisory committees, the County has developed design guidelines for new commercial structures proposed to be constructed within the existing communities.

Implementation Measure 2: The County shall review building permits to ensure consistency with the Design Guidelines.

Implementation Measure 3: New structures or landscaping proposed within Rumsey, Guinda, Capay, or Brooks must be consistent with certain historical or unique design features specific to those communities, in particular those features which influence access, parking, signage, view, drainage, privacy, safety, lighting, and security.

3.11.2 ENVIRONMENTAL SETTING

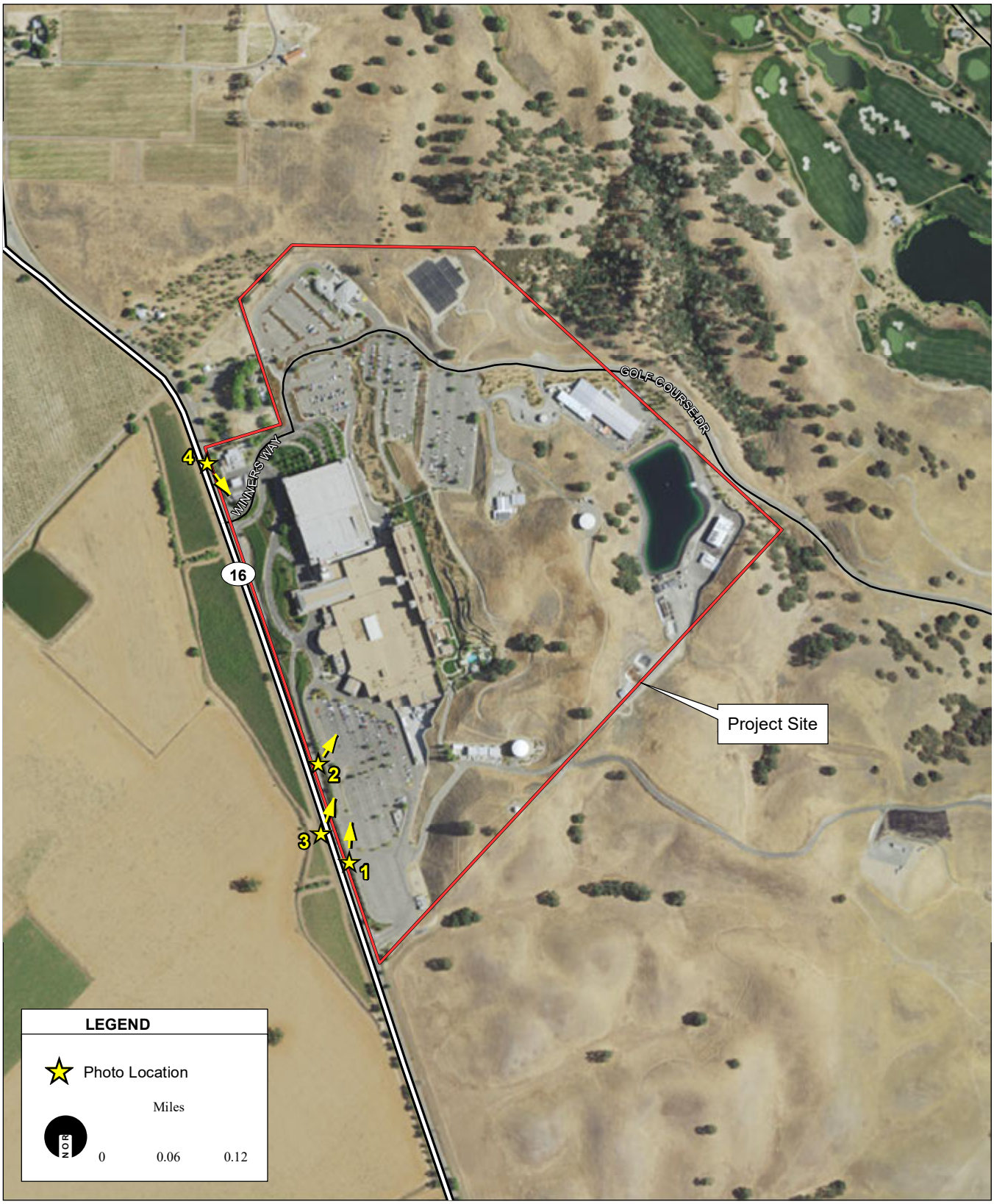
VISUAL CHARACTER OF THE REGION

The County is predominantly rural, having an agricultural character throughout most of the eastern portion and a foothill/mountain natural environmental character in the western portion. The Proposed Project would be located within a portion of the County commonly known as the Capay Valley, which extends in a general north-south direction near the western border of the County. The Proposed Project would be approximately 13 miles south of the northern terminus of the Capay Valley and 8 miles from the southern valley entrance at the community of Esparto. Areas within the Capay Valley have extensive scenic views of the surrounding foothills and mountains. A majority of views from the Resort are to the west, which include tribally owned agricultural lands and the foothills. **Figure 3.11-1** shows the locations at which the viewshed photographs of the Proposed Project site in **Figure 3.11-2** were taken.

The stretch of SR-16 next to the Proposed Project was designated a Local Scenic Highway by the General Plan for its views of scenic vistas. For the purposes of this analysis, the definition of a scenic vista is based on the existing visual character, condition, and quality of a scenic landscape or other visual resource, and the overall perception of scenic value. Rolling foothills, grasslands, scattered oak woodlands, open agricultural fields, orchards, and a lack of major development in the area contribute to the local scenic designation of this portion of SR-16. The County and Caltrans do not provide concrete guidelines regarding designation of scenic vistas within their planning documents, and the Proposed Project site is not located within any designated scenic vista. The closest designated Caltrans vista point is located on SR-20, approximately 23 miles north of the Proposed Project site.

VISUAL CHARACTER OF THE PROPOSED PROJECT SITE

The existing Resort is located on federal trust land along the east side of SR-16. Low hills rise east of the Resort through the middle of the trust land and toward Cache Creek, which is located approximately 0.75 mile east of the Proposed Project. Prefabricated construction trailers (used as office space, a medical center, and training centers) are currently located on the hillside to the east of the main Resort building, as is a parking lot, and a 1.1 million gallon (MG) potable water storage tank. The Resort is clearly visible from SR-16 in the immediate vicinity of the Proposed Project site and from adjacent agricultural properties to the west, many of which are owned in fee by the Tribe. The Resort enters the viewshed of



SOURCE: USDA aerial photograph, 6/4/2014; ESRI Data, 2016; AES, 8/8/2016

Figure 3.11-1
Site Photograph Locations

PHOTO 1: Photo of the proposed hotel location from the south corner of the Proposed Project site facing north.

PHOTO 2: Photo of the proposed hotel location from the west edge of the southern parking lot facing east.

PHOTO 3: Photo of the Cache Creek Casino Resort heading north on SR-16.

PHOTO 4: Photo of the Cache Creek Casino Resort heading south on SR-16.

SOURCE: AES, 8/8/2016

Figure 3.11-2
Site Photographs

travelers proceeding north on SR-16 immediately south of the southern Resort boundary, due to the topography of the Thlo Ranch, a tribally-owned parcel located immediately south of the trust land, and existing vegetation along the roadway. The Resort comes into clear view of travelers proceeding south on SR-16 at Old Toll Road (Road 78), located northwest of the Resort. The southern half of the Proposed Project site is shielded by development on the northern half of the Proposed Project site when viewed from Road 78. Photographs of the visual characteristics of the Proposed Project site are shown in **Figure 3.11-2**, including views of the existing parking lot where the proposed hotel expansion would be located. The visual impact of the Resort is somewhat subdued by its neutral color palette and the lack of extended views of the Resort due to existing vegetation and the curvature of SR-16.

The Resort is a source of nighttime lighting in the area. However, external lighting consists primarily of downcast lamps and is minimized to that required for public safety and security. Glare from Resort lighting has been minimized by landscaping along SR-16, in the ground-level parking areas, and around the Resort buildings. An existing retaining wall along the Resort's northern boundary with the California Department of Forestry and Fire Protection (CAL FIRE) station and an adjacent residence provides a barrier to both light and noise impacts from the Resort.

3.11.3 IMPACT ANALYSIS

SIGNIFICANCE CRITERIA

The following criteria are established by Section I of the Checklist (**Appendix A**) and have therefore been used in this section to evaluate the potential off-reservation impacts of the Proposed Project with respect to off-reservation aesthetics. An impact is considered significant if it would:

- Have a substantial adverse effect on a scenic vista;
- Substantially damage off-reservation scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway; or
- Create a new source of substantial light or glare, which would adversely affect day or nighttime views of historic buildings or views in the area.

METHODOLOGY

The evaluation of potential impacts of the Proposed Project to off-reservation aesthetics distinguishes between impacts related to construction and operation of the Proposed Project. Construction impacts would be temporary while operation impacts could be permanent.

The evaluation of potential impacts on off-reservation aesthetics consisted of the following:

- Field observation;
- Photographic documentation;
- Review of site plans and renderings; and

- Analysis of regulations that apply to off-reservation aesthetic resources.

OFF-RESERVATION IMPACTS OF THE PROPOSED PROJECT

Impact 3.11.1

The Proposed Project would not affect any off-reservation scenic vista.

Construction

Construction of the Proposed Project would temporarily alter views of the Proposed Project site from off-reservation locations. Heavy machinery and construction activities would be visible from off-reservation locations and to passing motorists on SR-16. Visibility of construction activities from the off-reservation locations would be temporary in nature and would not permanently degrade existing visual characteristics. No construction would occur off reservation; construction would take place in areas that were previously disturbed and would consist primarily of structures and parking and driveway areas. Construction activities would not physically obstruct any off-reservation scenic vista. No impact on any off-reservation scenic vista would occur.

Operation

The Proposed Project would increase the square footage of the existing main Resort building through additional land coverage, and convert a portion of an existing surface parking area to additional hotel rooms and related facilities. An architectural rendering of the Proposed Project is shown in **Figure 2-2**. The highest point of the hotel expansion would be 27.5 feet higher in elevation than the existing hotel. As the proposed hotel expansion would be located closer to SR-16 than the existing hotel, the difference in height between the two would be noticeable from some off-reservation viewpoints along SR-16. However, the hotel expansion would continue the aesthetic concept and palette of the existing Resort and would not impede views of natural scenic resources. Additionally, integrated landscaping is part of the Proposed Project design and would be consistent with existing landscaping on the Proposed Project site, which buffers views of the Resort from SR-16. In addition, it is worth noting that travelers along SR-16 – particularly drivers – do not have constant, direct views of the Resort from the road. Overall, views experienced by travelers on SR-16 and from areas not within the reservation would not change substantially. The horizontal exposure of the Resort and the duration of views of the Resort would continue to be short term in nature, due to relatively high travel speeds of motorists, vegetative screening, and road geometry.

The existing aesthetics of the hillside behind the main Resort building would be altered by the construction of the potential additional potable water storage tank. This new tank would be located near the existing storage tank, would be similar in size to the existing tank, and would not substantially change any off-reservation scenic vista. The new storage tank would be painted a

neutral color to blend into the landscape, similar to the existing tank. Existing landscaping on the hillside above the main Resort building would buffer the existing off-reservation visual impact of the proposed storage tank.

The operation of the Proposed Project would create a lateral expansion to an existing visual component of the Resort and would not alter any designated off-reservation scenic vistas. The Proposed Project would blend with the existing Resort through the use of similar architectural styles, colors, and materials as well as landscaping; therefore, potential impacts on off-reservation scenic vista would be less than significant.

Impact 3.11.2

The Proposed Project would not substantially damage any off-reservation scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings adjacent to a state scenic highway.

Construction

As discussed above, construction of the Proposed Project would temporarily alter views of the Proposed Project site from SR-16. SR-16 in the vicinity of the Resort has been designated by the County as a local scenic highway. It is also eligible for listing as a state scenic highway; however, it is not currently designated as such. With construction of the Proposed Project site contained within the trust land in previously disturbed areas, no off-reservation scenic resources would be damaged during construction activities. No off-reservation trees, outcroppings, or historical buildings would be altered or otherwise physically changed by the construction of the Proposed Project. Therefore, potential impacts on any off-reservation scenic resources would be less than significant.

Operation

Completion of the Proposed Project would result in a lateral expansion of existing structures (the main Resort building and hotel) and would not substantially alter any existing off-reservation scenic resources. The design of the Proposed Project would be similar to, and compatible with, the existing Resort facilities. Building designs and colors would match to ensure a smooth visual transition from the existing Resort facilities to the components added by the Proposed Project (refer to **Section 2.4.12**). The Proposed Project would not adversely impact scenic resources, including the viewshed from SR-16.

Additionally, landscaping (including trees) would be added throughout the Resort parking areas, which would further buffer the view of the Proposed Project from SR-16. The landscaping for the Proposed Project would be consistent with the existing viticulture-themed landscaping of the Resort and adjacent lands (refer to **Section 2.4.12**). With the confinement of the Proposed Project to the trust lands and incorporation of design and landscaping features into the Proposed Project

to ensure consistency with existing Resort facilities and buffer the view of the Proposed Project from SR-16, impacts on off-reservation scenic resources would be less than significant.

Impact 3.11.3

The Proposed Project would add additional sources of lighting and glare at the Resort, which could affect off-reservation day or nighttime views in the area.

Construction

Construction of the Proposed Project is anticipated to occur during daylight hours. If unanticipated circumstances were to require on-site activity during dusk and nighttime periods, temporary lighting would be used. Temporary lighting could adversely impact off-reservation sensitive receptors (nearby residences) unless properly sited and controlled, resulting in a potentially significant off-reservation impact on these structures. Implementation of **Mitigation Measure 3.11.3** would minimize off-reservation light and glare impacts of the Proposed Project during construction by limiting construction hours and through the design and installation of appropriate lighting. After mitigation, potential impacts would be less than significant.

Operation

Because the Proposed Project would be developed within an existing parking lot that is currently lighted, a reduction of light poles would occur in the south parking lot. Lot F would introduce light poles to the northeastern portion of the Proposed Project site, but as this lot will be smaller than the reduction to the south parking lot, a net reduction in light or glare would occur compared to existing conditions. The proposed hotel expansion would have an appearance similar to the existing Resort and would contain similar lighting features. External lighting would consist of downcast lamps and would be designed for public safety and security. Operation of the Proposed Project would create a potentially significant impact on off-reservation sensitive receptors from lighting and glare from the Proposed Project. Implementation of **Mitigation Measure 3.11.3** would minimize off-reservation light and glare impacts through the installation of lighting designed to prevent off-site light cast and limiting the use of exterior lighting times appropriate to meet safety and security concerns. After mitigation, potential impacts due to lighting and glare from the Proposed Project would be less than significant.

Mitigation

3.11.3 Lighting Restrictions

The Tribe shall ensure that the following measures are implemented (through contractual requirements if and as needed) to minimize the effects of lighting and glare from the construction and operation of the Proposed Project:

a. The Tribe shall limit construction activities for the Proposed Project to between 7:00 a.m. and 7:00 p.m. to the extent feasible and reasonable. If dusk or nighttime

activities are necessary at the Proposed Project site, lighting for those activities shall be strictly limited to the minimum locations necessary for safety and security and shall be downcast onto the worksite to prevent lighting and glare impacts on off-reservation residential structures.

b. Permanent exterior lighting for the Proposed Project shall be designed so as not to cast light off of the trust lands. To minimize off-reservation impacts of light and glare from the Proposed Project, exterior lighting of the Proposed Project shall adhere to the "full cutoff" standard developed by the Illuminating Engineering Society of North America (IES, 2001).

c. Shielding, such as with a horizontal shroud, shall be used for all exterior lighting for the Proposed Project to ensure light is downcast.

d. Timers for exterior lighting for the Proposed Project shall be utilized to limit such exterior lighting use to times appropriate to meet safety and security concerns.

3.12 GEOLOGY, SOILS, AND MINERAL RESOURCES

This section discusses the off-reservation environment associated with geological features; and discusses potential impacts of the Proposed Project on off-reservation geology, soils, and mineral resources.

3.12.1 REGULATORY SETTING

FEDERAL

National Earthquake Hazards Reduction Program

The Earthquake Hazards Reduction Act of 1977 (Public Law 95-124, 42 United States Code 7701 et seq.), as amended in 2004 (Public Laws 101-614, 105-47, 106-503, and 108-360), established the National Earthquake Hazards Reduction Program. This program was designed to "develop effective measures for earthquake hazards reduction" and "improve the understanding of earthquakes and their effects on communities, buildings, structures, and lifelines" (FEMA, 2004).

STATE AND LOCAL

The Proposed Project is located on trust lands and is not subject to state or local controls concerning geology, soils, and mineral resources. However, such controls apply to off-reservation land in the vicinity of the Proposed Project.

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act (formerly the Alquist-Priolo Special Studies Zone Act), signed into law December 1972, requires the delineation of zones along active and potentially active faults in California. The California Geological Survey (CGS) defines an "active" fault as one that exhibits evidence of activity during the last 11,000 years. Faults that exhibit evidence of Quaternary activity (within the last 1.6 million years) are considered to be "potentially active." The purpose of the Alquist-Priolo Act is to regulate off-reservation development on or near fault traces to reduce the hazard of fault rupture and to prohibit the location of most off-reservation structures for human occupancy across these traces. Fault zones defined by the Alquist-Priolo Act are areas around active faults, averaging approximately 0.25 miles wide, within which cities and counties having jurisdiction must regulate certain development projects (CGS, 2007).

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act was enacted in 1991 to protect the public from the effects of strong ground shaking, liquefaction, landslides, or other ground failure and from other hazards caused by earthquakes. This act requires the State Geologist to delineate various seismic hazard zones and requires cities, counties, and other local permitting agencies to regulate certain development projects within the portions of these zones over which they have jurisdiction. Before a development permit is granted by a city, county, or other local permitting agency for a site within a seismic hazard zone, a geotechnical

investigation of the site must be conducted and appropriate mitigation measures must be incorporated into the project design. Ground shaking probability maps have been developed in conjunction with the United States Geological Survey (USGS) for all of California.

California Building Code (CBC)

The California Building Standards Commission, an independent commission within the State of California, produces the California Building Code (CBC) as part of Title 24, Part 2 of the California Code of Regulations. These building codes serve as the basis for the design and construction of off-reservation buildings in California. The CBC incorporates by reference the International Building Code with necessary California amendments. The CBC includes minimum standards for designing structures to withstand earthquakes. It also requires that project proponents identify soil and geologic conditions at the site. If conditions are identified that may interfere with the stability of the building, the CBC includes specific building requirements for accommodating those conditions. The Compact requires the Tribe to adopt, and the Tribe has adopted, a tribal ordinance that requires that the construction of the Proposed Project meet or exceed the requirements of the CBC, including those relating to earthquake design features and soil and geologic conditions.

Surface Mining and Reclamation Act (SMARA)

Off-reservation mineral resources in California are regulated by the Surface Mining and Reclamation Act (SMARA) of 1975, the purpose of which is to identify the presence and significance of mineral resource deposits and govern the excavation and reclamation of these areas. SMARA requires comprehensive management plans for active mining areas. The state uses Mineral Resource Zones (MRZs) to define areas containing valuable deposits. **Table 3.12-1** contains definitions of each of the four MRZs.

TABLE 3.12-1
SMARA MINERAL RESOURCE ZONE CATEGORIES

Zone	Description
MRZ-1	Areas where adequate geologic information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.
MRZ-2	Areas underlain by mineral deposits where geologic data show that significant measured or indicated resources are present. Such areas contain discovered mineral deposits that are either measured or indicated reserves as determined by such evidence as drilling records, sample analysis, surface exposure, and mine information; or such areas may be inferred reserves or deposits that are presently sub-economic as determined by limited sample analysis, exposure, and past mining history.
MRZ-3	Areas containing known mineral deposits that may qualify as mineral resources. Further exploration work within these areas could result in the reclassification of specific localities into the MRZ-2 category.
MRZ-4	Areas where geologic information does not rule out either the presence or absence of mineral resources. The distinction between the MRZ-1 and MRZ-4 categories is important for land-use considerations. It must be emphasized that MRZ-4 classification does not imply that there is little likelihood for the presence of mineral resources, but rather there is a lack of knowledge regarding mineral occurrence. Further exploration work could well result in the reclassification of land in MRZ-4 areas to MRZ-3 or MRZ-2 categories.
Source: Yolo County, 2009a.	

County of Yolo 2030 Countywide General Plan

The *County of Yolo 2030 Countywide General Plan* (General Plan), adopted in 2009, is the guiding document for development in the unincorporated areas of the County, including the off-reservation properties in the vicinity of the Proposed Project (Yolo County, 2009a). The General Plan does not apply to trust land on which the Proposed Project would be located or to the Proposed Project itself. Relevant goals, policies, and actions in the General Plan that are related to the off-reservation geologic and soils conditions and mineral resources in the vicinity of the Proposed Project are included in the following list.

Conservation and Open Space Element

Goal CO-3: Mineral Resources. Protect mineral and natural gas resources to allow for their continued use in the economy.

Policy CO-3.1: Encourage the production and conservation of mineral resources, balanced by the consideration of important social values, including recreation, water, wildlife, agriculture, aesthetics, flood control, and other environmental factors.

Action CO-A37: Designate and zone lands containing identified mineral deposits to protect them from the encroachment of incompatible land uses so that aggregate resources remain available for the future.

Action CO-A42: Implement the Cache Creek Area Plan to ensure the carefully managed use and conservation of sand and gravel resources, riparian habitat, ground and surface water, and recreational opportunities.

Policy CO-3.5: Preserve and protect the County's unique geologic and physical features, which include geologic or soil "type localities", and formations or outcrops of special interest.

Action CO-A53: The County's unique geologic or physical features, which include geologic or soil "type localities" and formations or outcrops of special interest, shall be researched, inventoried, mapped, and data added to the County Geographic Information Systems database.

Health and Safety Element

Goal HS-1: Geologic Hazards. Protect the public and reduce damage to property from earthquakes and other geologic hazards.

Policy HS-1.1: Regulate land development to avoid unreasonable exposure to geologic hazards.

Action HS-A1: Require a geotechnical analysis for construction in areas with potential geological hazards and/or for purposes of environmental analysis. Recommendations of the geotechnical analysis shall be implemented.

Policy HS-1.2: All development and construction proposals shall be reviewed by the County to ensure conformance to applicable building standards.

Town of Esparto General Plan

This Draft Tribal Environmental Impact Report (TEIR) examines the off-reservation land use impacts of the Proposed Project in the County. Because Esparto is the nearest sizable community to the Resort and because many Resort employees currently live in Esparto, relevant geology and soils policies from the *Town of Esparto General Plan* are provided below (Yolo County, 2007).

Conservation Goals, Policies, and Programs

Goal 1: To protect the town's natural, cultural, visual, and historical resources.

Policy E-R.3: Development projects involving drainage modifications should be constructed so as to minimize soil erosion and silt transport.

Capay Valley Area Plan

The *Capay Valley Area Plan* was adopted in 2010 as a component of the General Plan. The *Capay Valley Area Plan* does not apply to trust land or to the Proposed Project itself. The Plan establishes the following policies and implementation measures relevant to off-reservation geology and soils and mineral resources in the vicinity of the Proposed Project (Yolo County, 2010).

Agriculture

Goal 2: Adequate soil and water resources to support agricultural lands in the Capay Valley.

Policy 1: The County shall preserve agricultural lands outside existing communities when considering land use changes.

Implementation Measure 1: Yolo County shall continue to maintain Zoning Ordinance regulations and standards that are compatible with the practice of agriculture and are consistent with policies for preservation of agricultural lands and soil and water resources, including the Williamson Act and the Farmland Security Zone programs.

Policy 8: The County shall preserve land with characteristics potentially useful for agricultural uses, such as soils, vegetation, water supply, and promote land uses that preserve soils, vegetation, wildlife, and water resources compatible with agricultural use.

Implementation Measure 1: Yolo County shall encourage specialty farming areas that contain sufficient restrictions to assure that such areas do not become rural residential or ranchette developments.

Implementation Measure 2: Yolo County shall recognize the potential for commercial agriculture, such as direct sales, processing, agritourism, and other ancillary activities that are compatible with the rural quality of life and unique community character of the Capay Valley.

Conservation and Natural Resources Element

Goal 4: Enhance the quality and conserve the quantity of groundwater, creek water, and runoff waters in the Cache Creek watershed.

Policy 4: Agricultural soils must be recognized as a waning resource; therefore, any change in land use from agriculture to any other purpose shall be discouraged.

Public Health and Safety Element

Goal 9: Avoid loss of life and property by earthquake or landslide.

Policy 1: All new structures shall conform to the Uniform Building Code[1] as it relates to earthquake resistant construction.

Implementation Measure 1: Buildings and roadways shall be properly engineered after appropriate identification of ground and soils conditions to control potential landslides in areas of unstable soils. No development will be allowed in identified and potential landslide or erosion prone areas unless certified by a registered California Geologist or Geological Engineer as safe.

Policy 2: Conduct a survey to include a specific delineation of active earthquake faults and identification of landslide areas where development would be hazardous.

Implementation Measure 1: The County shall request the State Geologist Office to conduct a detailed survey charting all fault areas, unstable or potentially unstable slopes, and other geologically sensitive areas.

Implementation Measure 2: The County shall require Preliminary Geotechnical Surveys to be submitted for any new development proposals where appropriate.

Policy 3: Structures shall be prevented in areas where natural conditions are likely to pose threats to public safety or produce excessive, emergency, or long-term maintenance costs.

3.12.2 ENVIRONMENTAL SETTING

REGIONAL GEOLOGY

The Resort and surrounding off-reservation lands are located in the southeastern section of the Northern Coast Range geomorphic province (CSUN, 2016). The eastern portion of the Coast Range is characterized by parallel ridges and valleys that trend approximately west of north, creating terrain consisting of moderate to very steep uplands and terraces. Quaternary and Cretaceous geologic formations make up the majority of rocks in the Coast Range, including sandstone, mudstone, and conglomerates, with some volcaniclastic rocks (CGS, 2006; USGS 2016a).

[1] The Uniform Building Code has been replaced by the International Building Code.

TOPOGRAPHY

The Resort is located within the Cache Creek watershed in the Capay Valley. The Capay Valley is long, relatively flat, and bordered by low, steep mountains and sharp, deep canyons. The valley floor tips downward to the east, confining Cache Creek primarily to the eastern side of the valley.

The Proposed Project site consists of a previously graded and developed parcel containing the Resort. Most of the Proposed Project site is sloped slightly to the west, with hills rising up behind the existing Resort buildings on the eastern portion of the site. The site ranges in elevation from 350 to 560 feet above mean sea level.

Topography surrounding the Resort includes the graded developed areas associated with State Route (SR)-16 to the west with flat agricultural developments beyond, hilly open areas to the south, hilly areas on which a golf course has been developed to the east with Cache Creek and its embankment and riparian areas beyond, and rural residential and agricultural areas to the north.

SOILS

The Capay Valley contains valuable soil resources, supporting a variety of agricultural uses that are a vital part of the Yolo County economy. Protection of the County's off-reservation soil resources is an important aspect of the General Plan (Yolo County, 2009a). Soil survey reports for the Proposed Project site and surrounding off-reservation areas are available online through the Natural Resource Conservation Service (NRCS), a sub-unit of the United States Department of Agriculture. Each NRCS survey maps soil units and provides a summary of major physical characteristics with recommendations based on the soil characteristics.

Soils mapped on the Proposed Project site and surrounding off-reservation lands consist of almost entirely of well-drained Balcom silty clay loam and Tehama loam, which are associated with the hilly topography that characterizes much of this area. A soil map is provided in **Figure 3.12-1**, and soil descriptions are discussed below.

As shown in **Figure 3.12-1**, the eastern portion of the Proposed Project site and the areas east of the site consist of *BaF2: Balcom silty clay loam, 30 to 50 percent slopes, eroded*. This type of soil occurs on hills and is formed from a parent material of residuum weathered from calcareous sandstone. It has a depth to water table of greater than 80 inches and is not subject to flooding or ponding.

The northern portion of the Proposed Project site and the areas north of the site consist of *BaD3: Balcom silty clay loam, 5 to 15 percent slopes, severely eroded*. Like BaF2, this type of soil occurs on hills and is formed from a parent material of residuum weathered from calcareous sandstone. It also has a depth to water table of greater than 80 inches and is not subject to flooding or ponding.

SOURCE: USDA NAIP Aerial Photograph, 6/2014;
Natural Resources Conservation Service,
Yolo County GIS, 2015; AES, 4/22/2016

Figure 3.12-1
Project Area Soil Types

The western portion of the Proposed Project site and the areas west of the site consist of *TaB*: *Tehama loam, 2 to 5 percent slopes*. This type of soil occurs at the base of hill slopes and is formed from a parent material of mixed alluvium. It also has a depth to water table of greater than 80 inches and is not subject to flooding or ponding.

Off-reservation areas west of SR-16 consist of small patches of Brentwood silty clay loam, Marvin silty clay loam, Sehorn clay, and Yolo silt loam soils. All of these soils are associated with alluvial fans, which constitute the major landform west of the Proposed Project and support the extensive agriculture uses located west of SR-16 (NRCS, 2016).

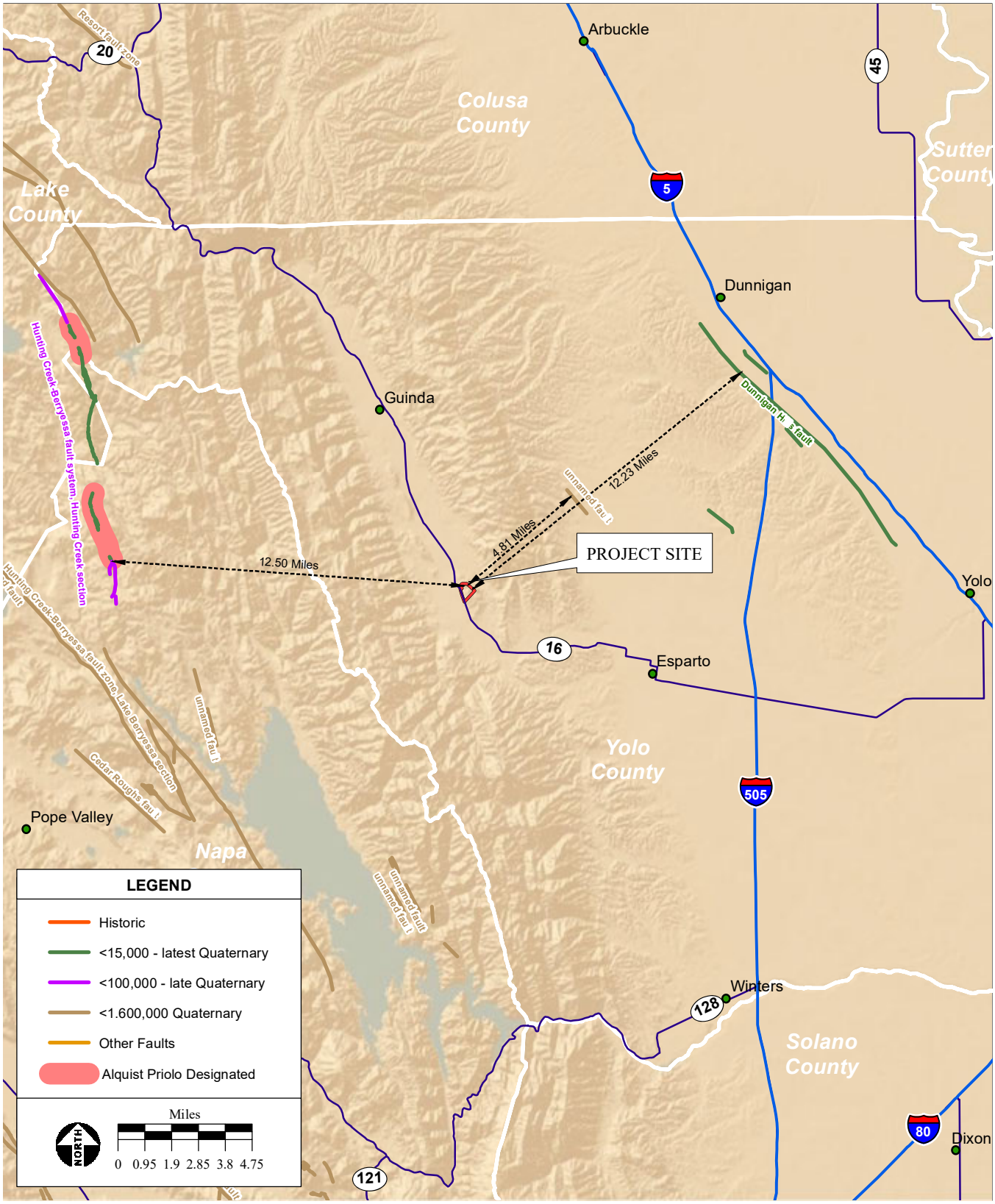
Soil Erosion

Soil erosion is the removal of soil materials from the ground surface and the transportation of those soil materials to a remote location where they are deposited. Mechanisms of soil erosion include natural phenomena, such as stormwater runoff and wind, and human activities, such as changes in drainage patterns, removal of vegetation, and physical disturbance from construction. Factors that influence soil erosion include physical properties of the soil, topography (slope), and the quantity and intensity of rainfall. Erosion is discussed more thoroughly in **Section 3.7**, **Hydrology and Water Quality**.

SEISMICITY

The closest fault zone to the Resort is the potentially active Great Valley fault zone (known activity within the last 1.6 million years), located approximately five miles east (**Figure 3.12-2**). The Great Valley fault zone is a system of northwest-trending, concealed, thrust faults that typically do not reach the ground surface. The closest active fault zone (known activity within the last 10,000 years) designated by the Alquist-Priolo Act is the Hunting Creek–Berryessa fault system (Hunting Creek section), located approximately 12.5 miles west of the Proposed Project site (**Figure 3.12-2**). The two closest faults without an Alquist-Priolo designation are located approximately 4.8 miles and 12.2 miles east of the Proposed Project site. The Hunting Creek section, which is associated with the larger San Andreas fault system, extends from Wilson Valley south-southeast to the area west of Lake Berryessa, and consists of discontinuous fault traces as much as 3.5 kilometers (2.2 miles) wide (USGS, 2000).

The most recent seismic activity in the area was the Vacaville-Winters earthquake of 1892, which affected the southern parts of Yolo County. CGS professionals believe this earthquake was the result of activity in a complex zone of faults on the western side of the lower Sacramento Valley called the Coast Range Sierran Block Boundary (CRSBB). The CRSBB represents the tectonic boundary between the Coast Range Block and the Sierran Block and is a potential source of moderate earthquakes. However, tectonic motion at this boundary produces “blind thrusts” that do not typically propagate to the surface, causing rupture (DWR, 2016).



SOURCE: USGS Earthquake Hazards Program, 2010; AES 7/14/2016

Figure 3.12-2
Regional Fault Map

GEOLOGIC HAZARDS

Shaking Intensity

The CGS creates models of seismic hazard based on the physical and mechanical properties of the Earth's crust. Based on these models, the CGS determines the peak horizontal ground acceleration, which is the fastest measured change in speed for a particle at ground level. When an earthquake occurs, the forces caused by the shaking are measured as percent *g*, where *g* is the acceleration due to gravity, or 9.8 meters per second squared (CGS, 2015; USGS, 1996). Shaking intensity at a particular site can vary depending on the overall magnitude of the earthquake, the distance from the epicenter, and the type of geologic material.

The Modified Mercalli Intensity (MMI) scale is commonly used to measure earthquake effects due to ground shaking. MMI values range from I (earthquake not felt) to XII (damage nearly total) (**Table 3.12-2**). MMI values ranging from IV to X could cause moderate to significant structural damage. **Table 3.12-2** represents the estimated overall level of damage that would occur for various MMI levels (CGS, 2002). The Resort and surrounding off-reservation areas are located within an area of moderate potential shaking intensity of 25 to 30 percent of gravity, with an MMI level of VIII. This corresponds to moderate damage in rigid structures and considerable damage in weak structures (USGS, 1996; USGS, 2011).

Surface Rupture

Surface rupture occurs when movement along both sides of a fault located deep underground produces enough energy to cause a fracture on the surface. The Resort and surrounding off-reservation lands are not located within an Alquist-Priolo Earthquake Fault Zone or in a Seismic Hazard Zone as defined by the Seismic Hazards Mapping Act, discussed in **Section 3.12.1**. Therefore, surface rupture is not likely to occur on the Proposed Project site.

Landslides

The primary cause of a landslide is a steep slope that becomes overburdened by weight; the point at which instability is reached is based on various factors, including saturation (by snowmelt or heavy rains) and seismic activity (USGS, 2016b). Landslides can cause fatalities, damage highways, and affect structures that support fisheries, tourism, timber harvesting, mining, and energy production.

Cretaceous rocks covered by steep slopes near Cache Creek are prone to landslides (Yolo County, 2009a). The eastern portion of the Proposed Project site is comprised of hills with elevations of up to 210 feet above the area's lowest surfaces. Further east off reservation, a landscape of hilly slopes continues toward Cache Creek. The USGS National Landslides Hazards Map includes the Proposed Project site and the immediate vicinity in an area of low to moderate landslide incidence, where less than 15 percent of the land is active or historic landslide area (USGS, 1982).

TABLE 3.12-2
MODIFIED MERCALLI INTENSITY SCALE

Intensity Value	Intensity Description	Average Peak Acceleration
I.	Not felt except by a very few persons under especially favorable circumstances.	< 0.0015*g*
II.	Felt only by a few persons at rest, especially on upper floors on buildings. Delicately suspended objects may swing.	< 0.0015*g*
III.	Felt quite noticeably indoors, especially on upper floors of buildings, but many persons do not recognize it as an earthquake. Standing cars may rock slightly. Vibration similar to the passing of a truck. Duration estimated.	< 0.0015*g*
IV.	During the day felt indoors by many, outdoors by few. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motorcars rocked noticeably.	0.015*g*-0.02*g*
V.	Felt by nearly everyone, many awakened. Some dishes, windows, etc., broken; a few instances of cracked plaster; unstable objects overturned. Disturbances of trees, poles, and other tall objects sometimes noticed. Pendulum clocks may stop.	0.03*g*-0.04*g*
VI.	Felt by all, many frightened and run outdoors. Some heavy furniture moved; a few instances of fallen plaster or damaged chimneys. Damage slight.	0.06*g*-0.07*g*
VII.	Everybody runs outdoors. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving cars.	0.10*g*-0.15*g*
VIII.	Damage slight in specially designed structures; considerable in ordinary substantial buildings, with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, and walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Persons driving cars disturbed.	0.25*g*-0.30*g*
IX.	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb; great in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken.	0.50*g*-0.55*g*
X.	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Rails bent. Landslides considerable from riverbanks and steep slopes. Shifted sand and mud. Water splashed (slopped) over banks.	> 0.60*g*
XI.	Few, if any, masonry structures remain standing. Bridges destroyed. Broad fissures in ground. Underground pipelines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly.	> 0.60*g*
XII.	Damage total. Practically all works of construction are damaged greatly or destroyed. Waves seen on ground surface. Lines of sight and level are distorted. Objects are thrown upward into the air.	> 0.60*g*

Notes: *g* = gravity = 9.8 meters per second squared.
Source: Bolt, 1988.

Liquefaction

When saturated with water and subjected to energy associated with the shaking intensity of a considerable-sized earthquake (MMI VIII and above), certain soils may lose their solid structure and act as liquids. Ground subject to liquefaction may sink or pull apart. Soils comprised of sand and sandy

loams, in areas with high groundwater tables or rainfall, are subject to liquefaction during intense seismic shaking events. Soils on the Proposed Project site and surrounding lands are well drained, with a depth to water table of greater than 80 inches, and do not contain high quantities of sand (NRCS, 2016). Therefore, the Proposed Project site is not subject to liquefaction.

MINERAL RESOURCES

Mineral resources are cataloged by the California Division of Mines and Geology in accordance with SMARA. Natural gas and mined aggregate are the primary mineral resources in Yolo County. There are 6 aggregate mines and 25 natural gas fields currently in operation within the County. Cache Creek is an MRZ-2 area with significant known aggregate resources (Yolo County, 2009a).

There are no identified MRZs on the Proposed Project site. The closest MRZ is the Granite Construction Company's Capay Facility aggregate mine located at 15560 County Road (CR)-87 in Esparto, approximately 5.5 miles southeast of the Proposed Project. This mine abuts the Cache Creek watershed downstream of the Proposed Project, approximately 500 feet from the creek itself, and within one mile north of SR-16 (Yolo County, 2012a; Granite Construction, 2016).

3.12.3 IMPACT ANALYSIS

SIGNIFICANCE CRITERIA

The following criteria are established by Section VI and Section X of the Environmental Impact Analysis Checklist in the Tribal-State Compact (Checklist; **Appendix A**) and have been used in this section to evaluate the potential off-reservation impacts of the Proposed Project on geology, soils, and mineral resources. An impact is considered significant if it would:

- Expose off-reservation people or structures to substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault;
- Expose off-reservation people or structures to substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking;
- Expose off-reservation people or structures to substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction;
- Expose off-reservation people or structures to substantial adverse effects, including the risk of loss, injury, or death involving landslides;
- Result in substantial off-reservation soil erosion or the loss of topsoil;
- Result in the loss of availability of a known off-reservation mineral resource classified MRZ-2 by the State Geologist that would be of value to the region and residents of the state; or

- Result in the loss of availability of an off-reservation locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

METHODOLOGY

Off-reservation impacts of the Proposed Project with respect to geology, soils, and mineral resources were analyzed based on existing soil types and topography of the Proposed Project site and its vicinity, proximity of the Proposed Project to known faults, proposed changes to the Proposed Project site and any changes to its vicinity, and estimates of how the Proposed Project would affect existing off-reservation geologic, soils, and mineral conditions and resources.

OFF-RESERVATION IMPACTS OF THE PROPOSED PROJECT

Impact 3.12.1

The Proposed Project would not expose off-reservation people or structures to substantial adverse effects caused by rupture of a known earthquake fault or other strong seismic ground shaking.

The Proposed Project is located approximately 12 miles from the Hunting Creek section of the Hunting Creek–Berryessa fault, portions of which are delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map; and approximately 5 miles from the Great Valley fault zone. Because the Proposed Project would be confined to the trust lands and because it would be built in accordance with the Tribe's ordinance requiring that the construction of the Proposed Project meet or exceed the requirements of the CBC, including those relating to earthquake design features and soil and geological conditions (refer to **Section 3.12.1**), implementation of the Proposed Project would not increase the exposure of off-reservation people or structures to adverse effects in the event of fault rupture or ground shaking. Any impact on off-reservation people or structures attributable to rupture of a known earthquake fault or other strong seismic ground shaking that would occur as a result of the Proposed Project would be less than significant.

Impact 3.12.2

The Proposed Project would not expose off-reservation people or structures to substantial adverse effects involving seismic-related ground failure, including liquefaction.

The soils on the Proposed Project site are not subject to liquefaction. The Proposed Project does not involve any off-reservation construction or activities that would be affected by seismic-related ground failure. No impact on off-reservation people or structures attributable to seismic-related ground failure, including liquefaction, would occur as a result of the Proposed Project.

Impact 3.12.3

The Proposed Project would not expose off-reservation people or structures to substantial adverse effects involving landslides.

The proposed hotel expansion would be constructed on generally flat ground with stable slopes, while Lot F and the proposed water tank would require some grading of hillsides on the trust land. As described in **Section 2.4.6**, grading activities during the construction of the Proposed Project would primarily consist of excavation of approximately 30,000 cubic yards of earth fill to construct the hotel building pad, 5,000 cubic yards of earth fill to construct Lot F, and 1,000 cubic yards of earth cut to expand the existing hilltop water storage tank yard. Earth excavated from the hilltop water storage tank yard (1,000 cubic yards) would be used for fill at Lot F. Soil needed for the balance of Lot F fill and for hotel building pad construction (approximately 34,000 total cubic yards) would be excavated from the area east of the existing south parking lot, on the Proposed Project site. The excavated area would be contoured to blend into the adjoining land, and the sloped areas would be constructed with protective erosion control features. All earthwork, including excavation, fill, and earth building pad construction, would be performed in accordance with the project geotechnical engineering study, and earthwork activities would be monitored and inspected by the project geotechnical engineer. Therefore, it is highly unlikely that a landslide would result from the limited grading activities associated with construction of the Proposed Project. No impact on off-reservation people or structures attributable to landslides would occur as a result of the Proposed Project.

Impact 3.12.4

The Proposed Project could result in substantial off-reservation soil erosion or the loss of topsoil.

Construction of the Proposed Project would involve earth-moving activities such as grading, excavation, stockpiling of soil, installation of new facilities, and the use of heavy machinery and equipment. As discussed in **Section 2.4.6** and in the Grading and Drainage Study (**Appendix G**), the Proposed Project would mainly be constructed over existing paved areas, and any excavated soil would be disposed of on the trust lands through balanced cut and fill. These activities would create the potential for off-reservation impacts related to erosion by exposing soils stockpiled on the trust lands to erosion by stormwater. Erosion could result in soils being carried off reservation. Refer to **Impact 3.7.1** in **Section 3.7**, **Hydrology and Water Quality**, for a detailed discussion of potential erosion impacts during construction. With implementation of **Mitigation Measure 3.7.3**, this impact would be less than significant.

Impact 3.12.5

The Proposed Project would not result in the loss of availability of a known off-reservation mineral resource or locally important resource recovery site.

All Proposed Project features would be developed on the trust lands and, therefore, would not inhibit the recovery of identified off-reservation mineral resources. Additionally, the closest identified off-reservation mineral resource is more than 5 miles from the Proposed Project site and would not be affected by development of off-reservation roadway improvements (Yolo County, 2012b; Granite Construction, 2016). No impact would occur.

3.13 GROWTH-INDUCING AND CUMULATIVE OFF-RESERVATION ENVIRONMENTAL IMPACTS

In accordance with the Tribal-State Gaming Compact (Compact), this section addresses the off-reservation population growth-inducing and cumulative off-reservation environmental impacts of the Proposed Project. This section analyzes the potential for the Proposed Project to result in substantial off-reservation population growth attributable to the Proposed Project. For cumulative environmental impacts, this section defines the environment in which cumulative impacts might occur and describes the methodologies utilized to assess whether or not the impacts of the Proposed Project, when combined with other past, present, and probable future projects, would be cumulatively considerable. Where off-reservation environmental impacts of the Proposed Project are determined to be cumulatively considerable and potentially significant, mitigation is recommended.

3.13.1 POPULATION GROWTH-INDUCING OFF-RESERVATION IMPACTS OF THE PROPOSED PROJECT

A population growth-inducing impact is an impact that fosters population growth, either directly or indirectly, leading to the construction of housing, commercial development, or infrastructure to support that growth. The local region may be affected by population growth in other areas as a result of other development within Yolo County (County). Population growth may cause an increase in housing costs, additional housing construction, effects on the labor pool, and/or a reduction in unemployment in the region. Growth inducement may constitute an adverse impact on the off-reservation environment if the growth is not consistent with or accommodated by the land use plans and growth management plans and policies for the area affected. Local land use plans are typically intended to lead to orderly urban development supported by adequate urban public services, such as water supply, roadway infrastructure, sewer services, and solid waste services. A project that would induce "disorderly" growth (i.e., growth that conflicts with the local land use plans) could cause significant environmental impacts.

YOLO COUNTY EMPLOYMENT

Historical labor data for Yolo County obtained from the United States Census Bureau was analyzed to assess the existing off-reservation labor force compared to the number of new jobs that would be generated by the Proposed Project. In 2014, Yolo County had a labor force of 99,585, 6.4 percent of whom were unemployed. Unemployment spiked from 2009 to 2013 following the downturn of the economy but has decreased to pre-2009 levels in recent years. Yolo County is predicted to experience an unemployment rate of 5.8 percent in 2019 (Caltrans, 2016a). Yolo County employment data, including the compound annual growth rate (CAGR), are presented in **Table 3.13-1**.

TABLE 3.13-1
YOLO COUNTY EMPLOYMENT

Year	Total Population	Labor Force	Employed	Unemployed	Unemployment Rate
2014	168,218	99,585	93,025	6,373	6.4%
2013	165,318	100,513	90,760	9,147	9.1%
2012	165,976	103,237	91,785	11,253	10.9%
2011	163,033	101,407	88,853	12,169	12.0%
2010	161,161	100,403	86,866	13,052	13.0%
2009	158,230	101,900	90,824	11,005	10.8%
2008	158,202	103,464	95,554	7,863	7.6%
2007	157,068	101,623	94,555	7,012	6.9%
2006	149,690	93,706	87,120	6,466	6.9%
2005	137,154	91,207	84,350	6,841	7.5%
2005-2015 CAGR[1]		**1.01%**	**1.01%**	**0.993%**	

Notes:
1 - The compound annual growth rate (CAGR) is the mean annual growth rate over a specified period of time, in this case 10 years.
Source: US Census, 2016d; AES, 2016.

Using the projected unemployment rate of 5.8 percent for the County, the number of unemployed workers in the County labor force is estimated to be 5,835 in 2019 (**Table 3.13-2**). The natural unemployment rate of five percent was applied to the estimated County 2019 unemployed labor force to calculate an estimated total labor force available for hiring in Yolo County of 5,543 (**Table 3.13-3**). This total available labor force was then reduced by an additional five percent to account for members of the labor force who are unqualified for employment (local retirees and members of the labor force who are incapable of performing the tasks associated with employment). These assumptions are based on typical rates in labor markets across the nation. The net available workforce, after such reduction, in the County for the planned buildout year of the Proposed Project would be 5,266 County residents.

TABLE 3.13-2
YOLO COUNTY PROJECTED LABOR DATA

Year	Labor Force	Unemployed	Unemployment Rate
2014	99,585	6,373	6.4%
2019	100,599	5,835	5.8%

Source: Caltrans, 2016a; US Census, 2014d; Center for Business and Policy Research, 2016; AES, 2016.

According to current employment data for the Resort and projected employment data for the Proposed Project supplied by the Tribe (**Section 3.3**, **Land Use, Agricultural Resources, Population and Housing, and Recreation and Parks**), approximately 54.4 percent of those currently employed at the Resort live in Yolo County (CCCR, 2016a). Of those employees who live in the County, approximately

69.5 percent live in Woodland, 16.6 percent live in Esparto, and 13.9 percent live in another part of the County. On average, approximately 1.3 income earners occupy each household in Yolo County (US Census, 2012; AES, 2016).

TABLE 3.13-3
YOLO COUNTY PROJECTED NET AVAILABLE LABOR FORCE 2019

Employment Category	Yolo County Residents
Unemployed	5,835
Less Natural Unemployment	292
Less Unqualified	277
Net Available Labor Force	**5,266**
Source: AES, 2016.	

To calculate potential growth-inducing off-reservation impacts of the Proposed Project, the amount of "In-market Labor" was calculated (**Table 3.13-4**). This analysis includes the approximately 200 new employment positions anticipated at the Proposed Project once operations commence. For a few positions requiring very specific experience or qualifications, it is possible that recruiting may be necessary from outside of the region A 7.5-percent reduction rate was conservatively applied to the 200 new positions at the Proposed Project to account for new out-of-region employees. A 45.6-percent rate was then applied to the result after such reduction to calculate the amount of labor that would be commuting into the County for jobs resulting from the Proposed Project. Given the current distribution of the residences of Resort employees and the availability and proposed expansion of regional transportation, this estimate of 45.6 percent out-of-County commuters is appropriate.

TABLE 3.13-4
PROPOSED PROJECT OFF-RESERVATION IMPACT ON YOLO COUNTY EMPLOYMENT

Labor	Jobs
Total New Jobs from Proposed Project	200
Jobs that May Require Out-of- Region Recruitment	15
Jobs for which Employees May Commute from Outside Yolo County (45.6%)	84
Projected Potential Jobs from Yolo County Labor Force	**101**
Source: AES, 2016; CCCR, 2016a.	

Based on the anticipated unemployment rate for the County in 2019, the Yolo County labor force would have more than enough unemployed residents to fill all of the new positions generated by the Proposed Project.

Because the Proposed Project would employ residents either within Yolo County or within the region of the Proposed Project site, the demand on public or private child care facilities would not be affected.

YOLO COUNTY HOUSING MARKET

Yolo County housing market data was obtained from California Department of Finance (DOF) information for 2010-2016. Based on these data, it was determined that the total number of housing units in the County has been increasing annually by 0.44 percent, while the number of vacant units in the County has been decreasing annually by 1.5 percent. The current County housing stock information is discussed in **Section 3.3**, **Land Use, Agricultural Resources, Population and Housing, and Recreation and Parks**. The projected County housing stock for 2019 was calculated and is presented in **Table 3.13-5**.

TABLE 3.13-5
2019 YOLO COUNTY HOUSING STOCK PROJECTION

	2019
Units	76,880
Occupied Units	73,203
Vacant Units	3,677
% Vacant	4.8%
Source: DOF, 2016; AES, 2016.	

Based on the anticipated income categories for potential new Proposed Project employees, the Proposed Project would not substantially affect the availability or affordability of housing units in the County. New Proposed Project employees that already live within the region are assumed to continue to occupy their existing housing. New employees recruited from outside the region are too few in number to affect the Yolo County housing market as a whole. Accordingly, the Proposed Project would not have a significant impact on either the off-reservation Yolo County housing market or affordable housing in Yolo County.

OFF-RESERVATION POPULATION GROWTH ATTRIBUTABLE TO PROPOSED PROJECT INFRASTRUCTURE

As discussed in **Section 3.7**, **Hydrology and Water Quality**, potable water would be supplied to the Proposed Project by means of the three existing supply wells that serve the Resort and are located on property owned by the Tribe. Use of these wells would not induce growth because the wells would only serve the Resort and the Proposed Project. As discussed in **Section 3.7**, **Hydrology and Water Quality**, the Tribe's existing wastewater infrastructure (including the wastewater treatment plant [WWTP]) would be modified to meet the needs of the Proposed Project. Changes to the WWTP would not induce off-reservation population growth because the upgraded facility would only serve the Resort and the Proposed Project. No other off-reservation increases in infrastructure capacity are required for the Proposed Project. Therefore, due to the relatively small scale of the additional operations for the Proposed Project compared with the existing Resort operations, the Proposed Project would not create significant off-reservation population growth-inducing impacts.

3.13.2 CUMULATIVE OFF-RESERVATION ENVIRONMENTAL IMPACTS OF THE PROPOSED PROJECT

Cumulative off-reservation environmental impacts are those which result from the incremental off-reservation environmental impacts of a proposed project when added to other past, present, and probable future projects. The purpose of a cumulative effects analysis is to ensure that the full range of off-reservation consequences of a proposed project, as defined in the Compact, is acknowledged.

The issue of cumulative effects is included in the *Environmental Impact Analysis Checklist in the Tribal-State Compact* (Checklist; **Appendix A**). When assessing cumulative off-reservation environmental impacts, a Tribal Environmental Impact Report (TEIR) must identify whether the proposed project would make a "cumulatively considerable" contribution to the cumulative off-reservation environmental impacts of the proposed project and other past, present, and probable future projects. Even if the proposed project's individual off-reservation environmental impact is less than significant, the proposed project may have a cumulatively considerable impact once the proposed project's impact is added to the impacts of other past, present, and probable future projects. Cumulative off-reservation environmental impact discussions on the following pages include an analysis of the severity and likelihood of occurrence of any potential cumulative impacts of the Proposed Project.

POTENTIALLY CUMULATIVE PROJECTS

The cumulative setting for the Proposed Project is based on the buildout of the *County of Yolo 2030 Countywide General Plan* (General Plan; Yolo County, 2009a) and the *Capay Valley Area Plan* (Yolo County, 2010), as well as growth projections contained within the Sacramento Council of Governments (SACOG) Metropolitan Transportation Plan / Sustainable Communities Strategy (MTP/SCS) travel forecast model. The MTP/SCS traffic forecasts were based on employment projected based on US and California job growth in the region, population projections based on projected job growth, and household projections based on projected population growth (SACOG, 2016). Additionally, known proposed, commenced, and completed development projects in the vicinity of the Proposed Project site were considered. These include various residential development projects being processed by the County, the California Department of Transportation (Caltrans) Yolo County SR-16 Safety Improvement Project (Y-16 SIP) along State Route 16, and the Yocha Dehe Wintun Nation (YDWN) Tribal Housing Project located north of the Proposed Project site. The environmental impacts of these projects, which are described in more detail below, were considered when determining the cumulative off-reservation environmental impacts of the Proposed Project. It is worth noting that most of the projects contemplated by the General Plan and that have not yet been proposed, may or may not actually be built.

Caltrans Safety Improvement Project

Caltrans proposed the Y-16 SIP to address highway safety issues on State Route (SR)-16 between the community of Brooks and Interstate (I)-505. Implementation of the Y-16 SIP will bring the SR-16 roadway to current Caltrans standards, excluding the main street areas of the communities of Capay and

Esparto. The environmental review process for the Y-16 SIP has been completed and the project is funded. The Draft Initial Study (IS)/Mitigated Negative Declaration (MND) was published in February 2015, followed by the Final IS/MND in June 2015. Caltrans anticipates that construction of the Y-16 SIP will be completed in November 2016 for one segment of the improvements and in November 2019 for the remaining two segments (Caltrans, 2016b).

Improvements under the Y-16 SIP include:

- 8-foot standard shoulders and provisions for a 20-foot clear recovery zone,
- Shoulder rumble strips,
- Left-turn pockets and right-turn lanes at various intersections of SR-16 with public roads,
- Horizontal and vertical curve improvements at several locations,
- Culvert replacement or extension, and
- Additional access to the Madison Migrant Center.

Yocha Dehe Wintun Nation Tribal Housing Project

This project would provide additional Tribal government facilities as well as 25 new homes for tribal ~~members~~citizens. The project includes water and wastewater infrastructure and would be constructed in phases over the next 20 years.

Esparto Family Apartments – Mercy Housing

In the Town of Esparto, the Mercy Housing project consists of 40 affordable housing units planned to be built out in addition to the existing 40 units, for a total of 80 affordable housing units. This housing complex is located approximately 7.3 miles southeast of the Proposed Project site.

OFF-RESERVATION IMPACT ANALYSIS

Significance Criterion

The criterion used in this section to evaluate the potential for cumulative off-reservation environmental impacts to result from the Proposed Project is whether the Proposed Project would have off-reservation impacts that are individually limited, but cumulatively considerable by 2030 (the planning horizon in the General Plan) or 2035 (the cumulative year analyzed in the Traffic Impact Study [TIS] included as **Appendix D**). "Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in combination with past, current, or probable future projects.

Methodology

There are two basic methods for determining the cumulative environment in which the Proposed Project is to be considered. The first approach includes the use of adopted projections from an approved regional planning document (i.e., a county general plan or a certified Environmental Impact Report [EIR] of an approved planning document), while the second method involves considering past, present, and probable

(future) projects. The cumulative off-reservation effects analysis in this section combines both methods to create an extremely conservative analysis of cumulative off-reservation impacts for the Proposed Project. The criterion discussed above, which was adopted from the Compact and Checklist (**Appendix A**), has been applied to each of the resource areas addressed in **Sections 3.2** through **3.12**.

TRANSPORTATION/TRAFFIC

2035 Baseline Condition

Additional development projects in the study area are expected to be completed by the year 2035 and would contribute to a cumulative increase in off-reservation traffic. The cumulative forecast for this analysis is based on the year 2035 directional link off-reservation volumes from the SACOG MTP/SCS travel forecast model. Information from the SACOG model was also used for the two study area intersections located within the City of Woodland. Approach volumes were converted to turning movement volumes, and some turning movements were adjusted manually to balance traffic between intersections or to correct for forecast model inconsistencies.

Intersection Operations

Level of service (LOS) operations of the study area intersections under the 2035 Baseline Condition were calculated using the same methodology as the 2019 Baseline Condition discussed in **Section 3.2**, **Transportation/Traffic**, and are identified in **Table 3.13-6**. Turning movements and traffic volumes for the 2035 Baseline Condition are provided in the TIS (**Appendix D**). All of the study area intersections would continue to operate at an acceptable LOS under the 2035 Baseline Condition with the exception of the SR-16/County Road (CR)-94B intersection.

Roadway Segment Operations

LOS operations of the study area roadway segments under the 2035 Baseline Condition were calculated using the same methodology as the 2019 Baseline Condition and are identified in **Table 3.13-7**.

All of the study area roadway segments would continue to operate at an acceptable LOS under the 2035 Baseline Condition with the exception of the following roadway segments:

- SR-16 (westbound [WB] and eastbound [EB]) between the Resort and CR-85 (Saturday PM peak);
- SR-16 (WB and EB) between the Town of Esparto limits and CR-89 (Friday and Saturday PM peak);
- SR-16 (WB and EB) between CR-89 and I-505 (Friday and Saturday PM peak); and
- SR-16 (WB and EB) between I-505 and CR-98 (Friday and Saturday PM peaks).

Roadway segment traffic volumes for the 2035 Baseline are provided in the TIS (**Appendix D**).

TABLE 3.13-6
STUDY AREA INTERSECTIONS – 2035 BASELINE CONDITION LEVEL-OF-SERVICE FORECAST

	Intersection	Traffic Control	Criteria	Friday		Saturday	
				LOS	Delay	LOS	Delay
1	SR-16 / North Casino Entrance	Signalized	D	B	11.9	A	9.0
2	SR-16 / Central Casino Entrance	Uncontrolled	D	A	0.0	A	0.0
3	SR-16 / South Casino Entrance	TWSC	D	C	17.3	D	26.1
4	SR-16 / CR-85	TWSC	D	B	13.0	C	21.4
5	SR-16 / CR-85B	TWSC	D	A	9.3	C	16.6
6	SR-16 / Woodland Avenue	AWSC	E	A	4.5	A	5.8
7	SR-16 / Capay Street	TWSC	E	C	17.4	D	25.5
8	SR-16 / Madison Street	TWSC	E	C	17.0	C	22.9
9	SR-16 / Plainfield Street	TWSC	E	C	20.3	D	31.9
10	SR-16 / CR-21A	AWSC	D	C	16.7	C	23.6
11	CR-85B / CR-21A	TWSC	C	A	9.3	A	9.0
12	County Villa Estates / CR-21A	TWSC	C	A	9.9	A	10.0
13	Fremont Street / CR- 21A	TWSC	C	A	9.8	B	10.1
14	SR-16 / CR-89	AWSC[1]	D	A	7.4	A	8.4
15	SR-16 / I-505 SB Ramp	TWSC	D	C	20.2	D	27.2
16	SR-16 / I-505 NB Ramp	Signalized	D	B	10.1	B	16.5
17	SR-16 / Wildwing Drive	TWSC	D	D	27.9	C	23.9
18	SR-16 / CR-94B	TWSC	D	**F**	**253.9**	**F**	**59.9**
19	SR-16 / CR-95	TWSC	D	C	24.4	C	20.7
20	SR-16 / CR-98	Signalized	D	C	25.7	C	24.6
21	SR-16 / West Kentucky Avenue	Signalized	D	C	20.2	B	19.0

Notes: 1 - Becomes a roundabout in the Near-Term (2019).
TWSC = two-way stop control; AWSC = all-way stop control; **Bold** = unacceptable traffic operations under 2035 Baseline Conditions
Source: Kimley-Horn, 2016 (**Appendix D**).

TABLE 3.13-7
STUDY AREA ROADWAY SEGMENTS - 2035 BASELINE CONDITION LEVEL-OF-SERVICE FORECAST

Roadway Segment	Highway Class	Criteria	Friday				Saturday			
			NB/WB		SB/EB		NB/WB		SB/EB	
			LOS	% TSF	LOS	% TSF	LOS	% TSF	LOS	% TSF
SR-16 from the Resort to CR-85	I	D	D	64.1	D	73.0	**E**	**79.0**	**E**	**72.3**
SR-16 from CR-85 to Esparto	II	D	C	56.4	D	73.4	D	80.2	C	67.9
SR-16 through Esparto	II	E	D	78.1	D	70.3	E	88.8	C	69.6
SR-16 from Esparto to CR-89	I	D	**E**	**81.9**	**E**	**77.5**	**E**	**90.2**	**E**	**77.0**
SR-16 from CR-89 to I-505	I	D	**E**	**76.0**	**E**	**82.0**	**E**	**84.5**	**E**	**78.6**
SR-16 from I-505 to CR-98	I	D	**E**	**74.2**	**E**	**77.8**	**E**	**79.9**	**E**	**62.1**
CR-21A from CR-85B to SR-16	II	C	A	39.1	A	27.6	A	37.0	B	40.5
CR-85B from SR-16 to CR-21A	II	C	A	28.3	B	50.0	B	43.0	B	45.3

Notes: % TSF = percentage of time spent following; NB/WB = northbound/westbound; SB/EB = southbound/eastbound.
Bold = unacceptable traffic operations under existing conditions
Average travel speed calculation for Class I roadways are shown in **Appendix D**.
Source: Kimley-Horn, 2016 (**Appendix D**).

Methodology

Study area roadway intersection and segment operations for the 2035 Plus Proposed Project Condition were analyzed using the same methodology (LOS assessment), trip generation rate, and trip distribution as the 2019 Plus Proposed Project Condition. Significance criteria for the 2035 cumulative analysis of traffic impacts are the same as the significance criteria for the 2019 traffic analysis (refer to **Section 3.2**, **Transportation/Traffic**).

2035 Plus Proposed Project Condition

This section addresses the Proposed Project's potential impacts on off-reservation transportation and traffic in the cumulative year 2035 considering cumulative impacts. As discussed in **Section 3.2**, **Transportation/Traffic**, all of the mitigation measures described below are predicated upon the corresponding impacts actually occurring because potentially significant cumulative impacts of the Proposed Project on the off-reservation study area roadway network are based on forecasts of potential future traffic growth not attributable to the Proposed Project. For each such recommended mitigation measure for cumulative traffic impacts, the Tribe's proportionate share of the cost of implementing that mitigation measure is identified. However, the actual payment of that fair share would be made if and when the actual off-reservation impact occurs, in accordance with the funding mechanisms the County has in place at that time.

Intersection Operations

As shown in **Table 3.13-8**, all study area intersections would continue to operate at an acceptable LOS under the 2035 Plus Proposed Project Condition except for the SR-16/CR-94B intersection.

SR-16/CR-94B

The SR-16/CR-94B intersection would operate at LOS F on the side street during the Friday PM and Saturday PM peak hours under the 2035 Baseline Condition and would experience an increase in delay attributable to Proposed Project traffic under the 2035 Plus Proposed Project Condition. Because Proposed Project traffic would result in an increase in delay at an intersection that would already operate at an unacceptable LOS, this is a potentially significant off-reservation impact.

With the implementation of **Mitigation Measure 3.13.1**, any off-reservation impact at the intersection of SR-16/CR-94B would be reduced to a less-than-significant level.

Mitigation

3.13.1 Install a ~~two-way left-turn~~refuge lane along SR-16.

To mitigate impacts of the Proposed Project expected to occur in the 2035 Plus Proposed Project Condition, a ~~two-way left-turn~~refuge lane shall be installed along SR-16 for northbound and southbound left turn users. This improvement would create a receiving lane for the side-street approach traffic to use, thereby reducing the delay to cross SR-16.

Because the Proposed Project itself would not trigger the impact but would add to the unacceptable operation, the Proposed Project would be responsible for a proportionate share of the mitigation costs if and when the impact occurs. The results of the TIS indicate that the Proposed Project's fair share contribution would be 14 percent. Modifying the intersection as recommended in this mitigation measure would reduce the impact to a less-than-significant level and improve the intersection to an acceptable LOS D and LOS C on the side street during the Friday PM and Saturday PM peak hours, respectively (see Table 15 of **Appendix D**).

TABLE 3.13-8
STUDY INTERSECTIONS – 2035 PLUS PROPOSED PROJECT CONDITION LEVELS OF SERVICE

	Intersection	Traffic Control	Criteria	Friday		Saturday	
				LOS	Delay	LOS	Delay
1	SR-16 / North Casino Entrance	Signalized	D	B	10.8	A	8.4
2	SR-16 / Central Casino Entrance	TWSC	D	A	0.0	A	0.0
3	SR-16 / South Casino Entrance	TWSC	D	D	21.4	E	35.5
4	SR-16 / CR-85	TWSC	D	C	14.4	D	25.3
5	SR-16 / CR-85B	TWSC	D	B	10.3	D	25.2
6	SR-16 / Woodland Avenue	AWSC	E	B	4.6	A	8.0
7	SR-16 / Capay Street	TWSC	E	A	19.3	D	29.1
8	SR-16 / Madison Street	TWSC	E	C	18.6	D	25.5
9	SR-16 / Plainfield Street	TWSC	E	C	22.7	E	37.8
10	SR-16 / CR-21A	AWSC	D	C	19.0	D	29.6
11	CR-85B / CR-21A	TWSC	C	C	9.3	A	9.2
12	County Villa Estates / CR-21A	TWSC	C	A	10.1	B	10.2
13	Fremont Street / CR- 21A	TWSC	C	B	10.0	B	10.3
14	SR-16 / CR-89	Roundabout	D	A	8.3	A	9.7
15	SR-16 / I-505 SB Ramp	TWSC	D	C	22.6	D	30.8
16	SR-16 / I-505 NB Ramp	Signalized	D	B	11.3	C	21.9
17	SR-16 / Wildwing Drive	TWSC	D	D	30.2	D	26.2
18	SR-16 / CR-94B	TWSC	D	**F**	**309.3**	**F**	**73.8**
19	SR-16 / CR-95	TWSC	D	D	25.7	C	21.8
20	SR-16 / CR-98	Signalized	D	C	25.9	C	24.8
21	SR-16 / West Kentucky Avenue	Signalized	D	C	20.0	B	18.6

Notes: AWSC = all-way stop controledl; TWSC = two-way stop controlled
Bold = unacceptable operation conditions
Source: Kimley-Horn, 2016 (**Appendix D**).

Roadway Segment Operations

The LOS ratings for roadway segments under the 2035 Plus Proposed Project Condition are summarized in **Table 3.13-9**. The following study area roadway segments would operate under unacceptable conditions with the addition of vehicle trips attributed to the Proposed Project:

- SR-16 (WB and EB) between the Resort and CR-85 (Saturday PM peak);
- SR-16 (WB and EB) between the Town of Esparto limits and CR-89 (Friday and Saturday PM peak);
- SR-16 (WB and EB) between CR-89 and I-505 (Friday and Saturday PM peak); and
- SR-16 (WB and EB) between I-505 and CR-98 (Friday and Saturday PM peaks).

TABLE 3.13-9
STUDY ROADWAY SEGMENTS – 2035 PLUS PROPOSED PROJECT LEVELS OF SERVICE

Roadway Segment	Highway Class	Criteria	Friday				Saturday			
			NB/WB		SB/EB		NB/WB		SB/EB	
			LOS	% TSF	LOS	% TSF	LOS	% TSF	LOS	% TSF
SR-16 from the Resort to CR-85	I	D	D	69.6	D	75.0	**E**	**82.9**	**E**	**73.1**
SR-16 from CR-85 to Esparto	II	D	C	66.4	D	71.7	D	83.7	C	69.7
SR-16 through Esparto	II	E	D	81.1	D	70.8	E	89.4	D	71.3
SR-16 from Esparto to CR-89	I	D	**E**	**84.5**	**E**	**79.2**	**E**	**91.7**	**E**	**79.2**
SR-16 from CR-89 to I-505	I	D	**E**	**80.2**	**E**	**82.9**	**E**	**86.5**	**E**	**79.8**
SR-16 from I-505 to CR-98	I	D	**E**	**75.9**	**E**	**78.2**	**E**	**80.0**	**E**	**63.7**
CR-21A from CR-85B to SR-16	II	C	A	31.1	B	40.6	B	40.6	B	42.8
CR-85B from SR-16 to CR-21A	II	C	A	34.5	B	50.8	B	48.4	B	47.5

Notes: % TSF = percentage of time spent following; NB/WB = northbound/westbound; SB/EB = southbound/eastbound
Bold = unacceptable traffic operations under existing conditions
Average travel speed calculation for Class I roadways are shown in **Appendix D**.
Source: Kimely-Horn, 2016 (**Appendix D**).

As described below, the impacts to the above-listed roadway segments are considered cumulatively considerable and thereby are potentially significant off-reservation environmental impacts. The off-reservation impacts and corresponding mitigation measures are described below.

SR-16 between the Resort and CR-85

The roadway segment of SR-16 between the Resort and CR-85 would operate at LOS E during the Saturday PM peak hours under the 2035 Baseline Condition, and would experience an increase in the percentage of time spent following (% TSF) and a decrease in average travel speed with the addition of the Proposed Project traffic under the 2035 Plus Proposed Project Condition. Because the Proposed Project traffic would result in an increase in % TSF on a roadway segment that would already operate at an unacceptable LOS, this is a potentially significant off-reservation impact.

Implementation of **Mitigation Measure 3.13.2** would result in an improvement to % TSF along the roadway segment of SR-16 between CR-85 and the Resort and would result in a less-than-significant off-reservation impact.

Mitigation

3.13.2 Install slow vehicle turnouts in each direction on SR-16 between the Resort and CR-85.

To mitigate the Proposed Project impacts expected to occur in 2035, **Mitigation Measure 3.2.3~~2~~** shall be implemented. **Mitigation Measure 3.2.2** is to install a slow-vehicle turnout shall be installed in each direction on SR-16 between the Resort and CR-85. The Proposed Project's proportionate share of the impact would be 91 percent, but the Proposed Project's percentage of the mitigation costs shall be determined in consultation with Caltrans.

SR-16 between Esparto town limits and CR-89

The roadway segment of SR-16 between the Esparto town limits and CR-89 would operate at LOS E during the Friday PM and Saturday PM peak hours under the 2035 Baseline Condition, and would experience an increase in the % TSF and a decrease in average travel speed with the addition of the Proposed Project traffic under the 2035 Plus Proposed Project Condition. Because Proposed Project traffic would result in an increase in % TSF on a roadway segment that would already operate at an unacceptable LOS, this is a potentially significant off-reservation impact.

Implementation of **Mitigation Measure 3.13.3** would result in an improvement in % TSF along the roadway segment of SR-16 between the Esparto town limits and CR-89 and would result in a less-than-significant off-reservation impact.

Mitigation

3.13.3 Install slow vehicle turnouts in each direction on SR-16 between the Esparto town limits and CR-89.

To mitigate the Proposed Project impacts expected to occur in 2035, a slow vehicle turnout shall be installed in both directions on SR-16 between the Esparto town limits and CR-89. The Proposed Project's proportionate share of the impact would be 29 percent, but the Proposed Project's percentage of the mitigation costs shall be determined in consultation with Caltrans.

SR-16 between CR-89 and I-505

The roadway segment of SR-16 between CR-89 and I-505 would operate at LOS E during the Friday PM and Saturday PM peak hours under the 2035 Baseline Condition. With the addition of the Proposed Project traffic under the 2035 Plus Proposed Project Condition, this segment would experience an increase in the % TSF and a decrease in average travel speed. Because the Proposed Project traffic would result in an increase in % TSF on a roadway segment that would already operate at an unacceptable LOS, this is a potentially significant off-reservation impact.

Implementation of **Mitigation Measure 3.13.4** would result in an acceptable LOS along the roadway segment of SR-16 between the CR-89 and I-505 and would result in a less-than-significant off-reservation impact.

Mitigation

3.13.4 Install slow vehicle turnouts in each direction on SR-16 between CR-89 and I-105 ramps.

To mitigate the Proposed Project impacts expected to occur in 2035, a slow vehicle turnout shall be installed in both directions on SR-16 between CR-89 and the I-505 ramps. The Proposed Project's proportionate share is 60 percent, but the Proposed Project's percentage of the mitigation costs shall be determined in consultation with Caltrans.

SR-16 between I-505 and CR-98

The roadway segment of SR-16 between I-505 and CR-98 would operate at LOS E during the Friday PM and Saturday PM peak hours under the 2035 Baseline Condition and would experience an increase in the % TSF and a decrease in average travel speed with the addition of the Proposed Project traffic under the 2035 Plus Proposed Project Condition. Because the Proposed Project traffic would result in an increase in % TSF on a roadway segment that would already operate at an unacceptable LOS, this is a potentially significant off-reservation impact.

Implementation of **Mitigation Measure 3.13.5** would result in an improved % TSF along the roadway segment of SR-16 between I-505 and CR-98 and would result in a less-than-significant off-reservation impact.

Mitigation

3.13.5 Install slow vehicle turnouts in each direction on SR-16 between I-505 and CR-98 ramps.

To mitigate the Proposed Project impacts expected to occur in 2035, **Mitigation Measure 3.2.3~~5~~** shall be implemented. **Mitigation Measure 3.2.5~~3~~** is to install a slow-vehicle turnout shall be installed in each direction on SR-16 between the I-505 ramps and CR-98. The Proposed Project's proportionate share of the impact would be 29 percent, but the Proposed Project's percentage of the mitigation costs shall be determined in consultation with Caltrans.

Other Transportation Off-reservation Impacts

The Proposed Project in the cumulative scenario for the year 2035 would not affect bicycle or pedestrian transportation patterns. Bicycle and pedestrian trips related to the Proposed Project would not increase by 2035 over the buildout year 2019 and, with the completion of the Y-16 SIP improvements, pedestrians

and bicyclists would be able to more safely travel SR-16. With the implementation of the Proposed Project and Y-16 SIP, SR-16 would have wider shoulders, improved sight distances, and other improvements that would reduce the conflict between traffic on SR-16 and farm vehicle movement. As stated in the 2019 Plus Proposed Project Condition, the Proposed Project is not expected to degrade study area roadways due to Proposed Project-related traffic. After the implementation of the Proposed Project traffic mitigation measures and Y-16 SIP, safety on SR-16 would also be improved in 2035.

LAND USE, AGRICULTURAL RESOURCES, POPULATION AND HOUSING, AND RECREATION AND PARKS

Consistency with Off-reservation Land Use Plans

The Proposed Project would not include any off-reservation land use or land use change. It would be consistent with existing off-reservation land uses and zoning designations. Other proposed off-reservation development projects in the vicinity of the Proposed Project would be required to adhere to the General Plan and applicable zoning requirements. Therefore, the Proposed Project would not result in any cumulatively considerable impact with respect to off-reservation land use.

Population Growth

As discussed above, the Proposed Project would not induce substantial population growth in the County. As discussed in **Section 3.3** and **Section 3.13.1**, most of the new employees for the Proposed Project would likely be current residents of the County. These new employees would constitute a small percentage of the overall projected population growth in the Capay Valley, and an even smaller percentage of the overall projected population growth in the County as a whole. No other reasonably foreseeable future projects would meaningfully affect growth in the Capay Valley, the County, or the region. Any population growth attributable to the Proposed Project would not be cumulatively considerable. The Proposed Project would not result in a significant cumulative impact with respect to off-reservation population growth.

Housing Availability

As discussed in **Section 3.3**, **Land Use, Agricultural Resources, Population and Housing, and Recreation and Parks**, and **Section 3.13.1** above, the County has sufficient housing units to accommodate new employees for the Proposed Project. Therefore, under cumulative conditions, the Proposed Project would not contribute to cumulative considerable impacts with respect to off-reservation housing availability.

Agricultural Resources

As discussed in **Section 3.3**, the Proposed Project would not directly or indirectly affect off-reservation agricultural resources. Therefore, the Proposed Project's off-reservation impacts on agricultural resources would not be cumulatively considerable.

Parks and Recreation

As discussed in **Section 2.0**, **Project Description,** the Proposed Project would provide additional hotel rooms, renovated restaurants, and a ballroom for entertainment purposes within the County. The hotel expansion would draw patrons for longer durations to the Proposed Project site. Longer stays generated by the Proposed Project in combination with cumulative growth in the region could lead to increased use of nearby public parks and recreational facilities, which could cause an increase in the demand for facility maintenance. However, an increased number of visitors would also generate increased revenue, as most parks in the area charge entrance fees. Therefore, the off-reservation impact of the Proposed Project related to parks and recreation would not be cumulatively considerable.

BIOLOGICAL RESOURCES

As discussed in **Section 3.4**, **Biological Resources**, construction of the Proposed Project and off-reservation traffic mitigation measures has the potential to indirectly affect special-status species by disturbing off-reservation nesting sites and habitats. No other probable future projects would affect the same biological resources as the Proposed Project. Moreover, the abundance of available habitat in the Capay Valley and the County as a whole – even under cumulative conditions – indicates that the off-reservation impact of the Proposed Project (if any) would not be cumulatively considerable. Moreover, other regional development projects would implement site-specific mitigation measures in accordance with the requirements of the California Environmental Quality Act (CEQA) and other land use and environmental laws protecting biological resources. Therefore, the Proposed Project would not contribute to cumulatively considerable impacts on off-reservation biological resources.

CULTURAL AND PALEONTOLOGICAL RESOURCES

As discussed in **Section 3.5**, **Cultural and Paleontological Resources**, the Proposed Project would occur entirely on tribal trust lands that have been previously analyzed for archaeological and historical resources, and it would not have a significant impact on off-reservation cultural or paleontological resources. No other projects are anticipated to have a cumulative relationship with the Proposed Project. Moreover, other regional development projects would implement site-specific mitigation measures in accordance with the requirements of CEQA. Therefore, there would be no significant cumulative impacts on cultural or paleontological resources.

It is also worth noting that the Tribe will provide full consultation on all projects in the area to avoid or minimize off-reservation impacts, direct or indirect, from this or any other project in the area. This will help to ensure that the Proposed Project would not contribute to any cumulatively considerable impact on off-reservation cultural resources.

HAZARDS AND HAZARDOUS MATERIALS

The Proposed Project would involve use and storage of hazardous materials. As described in **Section 3.7**, **Hydrology and Water Quality**, the Proposed Project, like all development projects over one acre in size,

would obtain coverage under and comply with a Stormwater General National Pollutant Discharge Elimination System (NPDES) Permit for Construction Activities. As part of that permit, the Proposed Project would be subject to best management practices (BMPs) that reduce the likelihood of a hazardous material release. Overall, with the implementation of **Mitigation Measure 3.6.1** and **Mitigation Measure 3.7.3**, the Proposed Project's incremental contribution to creating a risk to human health and the environment would not be cumulatively considerable. Therefore, the Proposed Project would not result in significant cumulative off-reservation impacts with respect to hazardous materials. Additionally, because impacts on fire-fighting services would be less than significant (see **Section 3.10**, **Public Services and Utilities and Service Systems**) and because no other project is anticipated to affect service capabilities, the Proposed Project would not contribute to cumulatively considerable impacts concerning wildland fires.

HYDROLOGY AND WATER QUALITY

Drainage and Flooding

As indicated in **Section 3.7**, **Hydrology and Water Quality**, construction and operation of the Proposed Project would cause a minimal increase in additional stormwater flows generated on site, which would be accommodated by the available capacity of the existing off-reservation stormwater drainage system. No modifications to the existing off-reservation drainage system are required for the Proposed Project. Because there are no other foreseeable projects whose off-reservation drainage and flooding impacts could interact cumulatively with those of the Proposed Project, no significant cumulative off-reservation impact would occur. Moreover, the contribution of the Proposed Project to countywide cumulative drainage and flooding issues (if any) would not be cumulatively considerable. Overall, the Proposed Project would not contribute to cumulatively considerable impacts with respect to off-reservation drainage and flooding.

Surface Water Quality

Construction

Construction of the Proposed Project has the potential to create off-reservation erosion, siltation, and runoff, which could affect surface water quality. However, with implementation of **Mitigation Measure 3.7.3**, these potential off-reservation impacts would be less than significant. There are no other foreseeable projects whose off-reservation drainage and flooding off-reservation impacts could interact cumulatively with those of the Proposed Project. Moreover, other projects elsewhere in the County would be required under the Clean Water Act (CWA) to obtain NPDES permits and implement BMPs as mitigation to protect water quality.

Operation

Under the Proposed Project, treated wastewater disposal operations would be the same as under existing conditions and therefore would not be cumulatively considerable. Operation of the Proposed Project would not contribute to cumulatively considerable impacts on off-reservation water quality.

Groundwater Usage

Given its location in the Capay Valley Groundwater Subbasin, the YDWN Tribal Housing Project is the only reasonably foreseeable development that could have a cumulative relationship with the Proposed Project. Consequently, the groundwater analysis (**Appendix E**) included the YDWN Tribal Housing Project in its assumptions when evaluating the potential impacts of the Proposed Project. As discussed in **Section 3.7**, **Hydrology and Water Quality**, implementation of the Proposed Project could result in a maximum drawdown of the groundwater table of up to 2.2 feet at the nearest off-reservation private (non-tribally owned) groundwater well, which is not considered a significant off-reservation impact given the historical fluctuations in the groundwater table of as much as 20 feet. Therefore, the Proposed Project would not contribute to a significant cumulative impact on off-reservation groundwater in the region.

Groundwater Quality

As discussed in **Section 3.7**, **Hydrology and Water Quality**, continued on-site disposal of treated wastewater would not result in significant adverse impacts on off-site groundwater quality. There are no other foreseeable projects in the vicinity of the Proposed Project site that would have a cumulative relationship with respect to groundwater quality. Moreover, even if such projects are proposed in the future, they would be required to follow state and federal regulations. The Proposed Project would not contribute to cumulatively considerable impacts with respect to off-reservation groundwater quality.

AIR QUALITY

Criteria Air Pollutants (CAPs)

The Yolo Solano Air Quality Management District (YSAQMD) does not project emissions for Yolo County beyond the year 2025; therefore, 2035 Proposed Project emissions were compared to 2025 countywide emissions. This is considered a conservative comparison, as emissions of criteria air pollutants (CAPs) have decreased over the last 10 years and are anticipated to continue to decrease over time due to more stringent mobile emission laws and a trend toward fuels with lower emissions. **Table 3.13-10** presents the 2025 Yolo County emissions inventory for pollutants of concern.

TABLE 3.13-10
2025 EMISSIONS INVENTORY FOR YOLO COUNTY

Sources	Pollutant of Concern	
	ROG	NOx
	tons per year	
Stationary	2,383	1,226
Area wide	2,471	398
Mobile	756	2,106
Total Emissions	5,610	3,730
Source: YSAQMD, 2012.		

The Proposed Project would result in the generation of ozone precursors (ROG and NO_X). **Table 3.13-11** shows the projected mobile and building use emissions of the Proposed Project in the year 2035 and Proposed Project emissions as a percentage of the Yolo County emissions inventory. As shown in **Table 3.13-11**, 2035 Proposed Project-related emissions would not exceed *de minimis* levels or result in emissions greater than 10 percent of the Yolo County's emissions inventory. Therefore, operational emissions of the Proposed Project in the cumulative year 2035 would not contribute to cumulatively considerable impacts on off-reservation air quality.

TABLE 3.13-11
2035 PROPOSED PROJECT UNMITIGATED OPERATIONAL EMISSIONS

Pollutants of Concern	Building Use	Mobile	Total	Percent of County Emissions	*De Minimis* Levels	Exceeds Levels
	tons per year					
ROG	1.76	4.62	6.38	0.11%	10%	No
NO_X	0.54	18.08	18.62	0.50%	10%	No
Source: CalEEMod, 2016 (**Appendix J**).						

Carbon Monoxide (CO)

Under 2035 cumulative conditions, the study area roadway intersections (refer to **Section 3.2**, **Transportation/Traffic**) would operate at an acceptable LOS or better than 2035 Baseline Condition after implementation of the recommended mitigation measures. Thus, no intersections would meet the carbon monoxide (CO) evaluation criteria discussed in **Section 3.2**, **Transportation/Traffic**, that suggests modeling to assess impacts. The Proposed Project would not contribute to cumulatively considerable impacts with respect to off-reservation CO emissions.

Climate Change

Methodology

Greenhouse gas (GHG) emissions that are a direct result of the Proposed Project were estimated using the same California Emissions Estimator Model (CalEEMod) used in the quantification of CAP emissions. Equipment use, energy use, and mobile sources (taking into consideration the decrease in trips from internal capture consistent with existing conditions [**Appendix D**]) were estimated for the Proposed Project. The resulting GHG emissions estimates are presented below in **Table 3.13-12**.

Emission Estimates

As shown in **Table 3.13-12**, the Proposed Project would emit 1,202 metric tons (MT) of carbon dioxide equivalent (CO_2e) from construction activity over a 2-year period, and operation of the Proposed Project would result in annual emissions of 23,420 MT CO_2e per year.

TABLE 3.13-12
PROPOSED PROJECT GHG EMISSIONS

Source	CO_2e
Construction	
2017	673.95
2018	527.59
Total	1201.54
Operational[1]	
Energy	1,484.77
Area	0.01
Mobile	21,758.06
Waste	118.42
Water	59.05
Total	23,420.31

Notes: 1 – 2035 Unmitigated Emissions
Source: CalEEMod, 2016 (**Appendix J**).

As discussed in **Section 3.8.3**, the 2016 Council on Environmental Quality (CEQ) guidance does not establish any particular quantity of GHG emissions as "significantly" affecting the quality of the human environment or give greater consideration to the effects of GHG emissions and climate change over other effects on the human environment. However, the guidance does state that agencies should consider reasonable alternatives and mitigation measures to reduce action-related GHG emissions or increase carbon sequestration in the same fashion as they consider alternatives and mitigation measures for any other environmental effects.

To minimize mobile emissions and vehicle miles traveled (VMT) (which make up more than 65 percent of projected GHG emissions), the Tribe would continue to implement existing programs that result in the use of multiple-occupancy vehicles by employees, including carpools, vanpools, and public transit incentives. Currently there are 290 employees (14.5 percent) enrolled in the carpool program and 65 to 80 employees (3.2-4.0 percent) in the Marysville/Yuba City area enrolled in the van pool program, providing employee transportation from both small and large cities in northern California to the Resort. Additionally, 415 employees ride Yolobus Route 215 per month for an average 50-mile round trip per day (Vargas, 2016). The ride-share commuter groups and bus service remove thousands of personal employee vehicles from the local road system each month and are estimated to reduce employee-related VMT by 10.2 million miles per year (Vargas, 2016). Additionally, 6 percent of patrons arrive via charter bus, further reducing mobile GHG emissions. Furthermore, the Tribe is implementing a number of on-site measures to reduce the energy demands of the Resort and Proposed Project, including the use of recycled water and energy efficient equipment, ~~and participation in Pacific Gas and Electric Company's (PG&E's) Savings by Design Program,~~ with the goal of achieving a 10-percent reduction in energy usage below Title 24 energy efficiency standards.

The County does not have jurisdiction over the Proposed Project site or the Proposed Project itself, and therefore the Yolo County Climate Action Plan does not apply. The GHG inventory and associated goals guiding the Climate Action Plan do not include the Tribe's lands; therefore, any development on tribal land would not adversely affect Yolo County's ability to meet the objectives of the Climate Action Plan. Furthermore, the General Plan assumes a larger expansion of the Resort than the expansion that would take place as a result of the Proposed Project. Therefore, because the vehicle trips attributable to the Proposed Project (the largest source of GHG emissions attributable to the Proposed Project) are fewer than anticipated in the General Plan, the GHG emissions are also less than those addressed in the plan. With the implementation of the GHG-reducing project components discussed above, including VMT reduction programs, ~~participation in PG&E's Savings by Design Program~~measures to minimize on-site energy demands, and the use of recycled water, the Proposed Project's contribution to cumulative GHG emissions and associated climate change effects would be reduced to a less-than-significant level.

NOISE

The methodology used to determine off-reservation noise impacts from the Proposed Project under a cumulative scenario in the year 2035 is the same as that used to determine off-reservation noise impacts in opening year 2019 (**Section 3.9**, **Noise**). On-site operational noise would be the same in year 2035 as in 2019 and would not exceed predicted 2035 ambient noise levels at nearby sensitive receptors. Therefore, cumulative impacts from operational noise generated on the Proposed Project site would be less than significant.

The Proposed Project would increase traffic along study area roadways, which, in turn, could lead to increased ambient noise levels at nearby sensitive receptors in the cumulative scenario. **Table 3.13-13** presents the results of traffic noise analysis conducted for the Proposed Project under 2035 cumulative conditions. As shown in the table, the Proposed Project would cause no audible increases in ambient noise levels along study area roadways. While the Proposed Project would cause cumulative ambient noise levels on SR-16 north of the Resort and CR-85B south of SR-16 to increase from just below 60.0 decibels (dB) day-night sound level (Ldn) to slightly above 60.0 dB Ldn, the increases of 1.2 dB and 0.7 dB, respectively, are not considered audible and fall well below the relevant thresholds of significance. Cumulative noise impacts on the off-reservation environment would be less than significant.

TABLE 3.13-13
CUMULATIVE VS. CUMULATIVE PLUS PROJECT TRAFFIC NOISE LEVELS

Roadway	Segment	Cumulative (dB)	Cumulative Plus Project (dB)	Change (dB)	Standard (Change in dB)[1]	Substantial Increase?
SR-16	North of Cache Creek Casino	59.3	60.5	+ 1.2	+ 5.0	No
SR-16	South of Cache Creek Casino	65.8	66.4	+ 0.6	+ 1.5	No
SR-16	West of County Road 85	61.5	62.1	+ 0.6	+ 3.0	No
SR-16	County Road 85 to County Road 85B	63.8	64.4	+ 0.6	+ 3.0	No
SR-16	County Road 85B to County Road 87	60.8	61.3	+ 0.5	+ 3.0	No
SR-16	East of Yolo Avenue	63.5	63.8	+ 0.3	+ 3.0	No
SR-16	West of County Road 89	66.6	67.1	+ 0.5	+ 1.5	No
SR-16	County Road 89 to I-505	65.2	65.6	+ 0.4	+ 3.0	No
SR-16	East of I-505	66.0	66.2	+ 0.2	+ 3.0	No
County Road 85	North of SR-16	53.4	53.6	+ 0.2	+ 5.0	No
County Road 85B	South of SR-16	59.5	60.2	+ 0.7	+ 5.0	No
County Road 85B	North of County Road 21A	59.3	60.0	+ 0.7	+ 5.0	No
County Road 21A	East of County Road 85B	58.2	58.9	+ 0.7	+ 5.0	No
County Road 87	North of SR-16	57.1	57.2	+ 0.1	+ 5.0	No
County Road 87	SR-16 to SR-16	58.9	59.4	+ 0.5	+ 5.0	No

Notes: 1 – Standard based on FICON, 1992.
Source: BAC, 2016 (**Appendix K**); FICON, 1992.

PUBLIC SERVICES, UTILITIES, AND SERVICE SYSTEMS

Fire Protection and Emergency Services

Under the Proposed Project, the Tribe would continue to provide fire protection services to the Proposed Project site and surrounding areas through mutual aid agreements with surrounding fire protection jurisdictions (**Section 3.10**, **Public Services and Utilities and Service Systems**). As stated in **Section 3.10**, implementation of the Proposed Project would not result in the need for the construction or renovation of governmental facilities (the action of which could adversely affect the environment). The Proposed Project would not contribute to cumulatively considerable impacts on fire protection and emergency services.

Law Enforcement

Under the Proposed Project, the Tribe would continue to compensate local law enforcement service providers for the demands created by the Proposed Project. As stated in **Section 3.10**, **Public Services and Utilities and Service Systems**, implementation of the Proposed Project would not result in the need for the construction or renovation of governmental facilities (the action of which could adversely affect the environment). The Capay Augmented Patrol program, a division of the Yolo County Sheriff's Department that is funded by the Tribe, would continue to provide law enforcement services to the Capay Valley. The Proposed Project would not contribute to cumulatively considerable impacts on law enforcement.

Public Water Facilities

As discussed in **Section 2.4.7**, the Proposed Project would not require service from any off-reservation public water facility. Therefore, the Proposed Project would not contribute to a cumulatively considerable impact on any off-reservation public water facility.

Public Wastewater Treatment

As discussed in **Sections 2.4.8** and **3.10**, the Proposed Project would only require service from East Bay Municipal Utilities District's (EBMUD's) Oakland Main WWTP if the Tribe decides not to replace the Vibratory Shear Enhanced Process (VSEP) brine concentrator with a Brine Crystallization System in its own WWTP. Based on the increase in water demands and wastewater generation for the Proposed Project (**Section 2.4.7** and **Section 2.4.8**), implementation of the Proposed Project would increase brine disposal rates by one truck trip per day under this scenario, which would be consistent with existing contractual arrangements for disposal of the WWTP brine at the EBMUD facility. Because this is within the existing contract, the increase of one truck trip per day of brine disposal to the EBMUD facility would not result in the need for new or alteration of the existing EBMUD facility. Therefore, the Proposed Project would not contribute to a cumulatively considerable impact on any off-reservation public wastewater treatment facility.

Solid Waste Disposal

When considered cumulatively with waste from other past, current, and probable projects, the amount of waste from the Proposed Project would not substantially decrease the life expectancy of the Yolo County Central Landfill (YCCL; **Section 3.10**, **Public Services and Utilities and Service Systems**). The Proposed Project would not contribute to a cumulatively considerable impact with respect to solid waste disposal.

AESTHETICS

The Proposed Project has the potential to result in effects on aesthetics. However, with the implementation of **Mitigation Measure 3.11.3**, this off-reservation impact would be less than significant because the Proposed Project would be developed to be consistent with the existing aesthetics of the off-reservation environment in the vicinity of the Proposed Project. There are no other foreseeable projects in the same viewshed as the Proposed Project. Therefore, the Proposed Project would not contribute to a cumulatively considerable impact with respect to off-reservation aesthetics.

GEOLOGY, SOILS, AND MINERAL RESOURCES

The Proposed Project has the potential to result in impacts related to soil erosion. However, with the implementation of **Mitigation Measure 3.7.3**, these impacts would be contained to trust lands and would be less than significant. There are no other foreseeable off-reservation projects in the immediate vicinity that would cause impacts that would combine with the impacts of the Proposed Project to create cumulatively considerable off-reservation impacts related to geology, soils, or mineral resources.

Therefore, the Proposed Project would not contribute to a cumulatively considerable impact with respect to geology, soils, and mineral resources.

CONCLUSION

Overall, with the implementation of recommended mitigation measures described in this Draft TEIR, the Proposed Project would not contribute to a cumulatively considerable impact on the off-reservation environment.

SECTION 4.0

ALTERNATIVES

SECTION 4.0
ALTERNATIVES

4.1 INTRODUCTION

The purpose of this section is to describe a range of reasonable alternatives to the Proposed Project and to evaluate the off-reservation environmental impacts of each alternative, in comparison to the Proposed Project. In accordance with the requirements of the Compact that a Tribal Environmental Impact Report (TEIR) include an analysis of the environmental impacts of such alternatives, this section analyzes two alternatives to the Proposed Project. The alternatives are:

- Reduced Intensity Alternative (RIA); and
- No Action Alternative.

A comparison of the No Action Alternative and the RIA to the Proposed Project is included in **Table 4-1**. The comparative impacts of the three alternatives on the off-reservation environment are summarized in **Section 4.5** of this section.

TABLE 4-1
COMPARISON OF ALTERNATIVES

Element	No Project (existing)	Proposed Project (net gain)	Reduced Intensity (net gain)
Hotel	137,320 sf 200 rooms	346,801 sf 459 rooms	296,780 sf 399 rooms
Spa	11,800 sf	—	—
Ballroom	0 sf 0 seats	13,350 sf (1,325 seats)	13,350 sf (1,325 seats)
Gaming Floor	94,505 sf	—	—
Restaurants	32,353 sf	9,475 sf	9,475 sf
Miscellaneous Public Spaces	40,857 sf	27,165 sf	27,165 sf
Back of House/Warehouse	97,275 sf	102,956 sf	102,956 sf
Total Area	414,110 sf	498,747 sf	449,726 sf
Potable Water Demand	300,000 gpd	160,000 gpd	150,000 gpd
Wastewater Generation	238,000 gpd	128,000 gpd	117,000 gpd

Notes: sf = square feet; gpd=gallons per day.
Source: Hydroscience, 2016; AES, 2016.

4.2 REDUCED INTENSITY ALTERNATIVE

4.2.1 DESCRIPTION OF ALTERNATIVE

The RIA would expand the amenities at the Resort, although to a lesser extent than the Proposed Project. Under this alternative, the square footage of the ballroom and restaurants would be the same as under the Proposed Project. However, the hotel expansion would be smaller, accommodating only 399 rooms compared to 459 rooms under the Proposed Project. Other components of the RIA would be the same as under the Proposed Project. The RIA would occupy the same development footprint as the Proposed Project. Refer to **Figure 2-1** in **Section 2.0**, **Project Description**, for details of the site plan. The water supply and wastewater treatment and disposal for the RIA would be the same as under the Proposed Project. Landscaping would be developed to be consistent with the current landscaping of the Proposed Project site.

The RIA would offer a facility that accommodates fewer overnight patrons than the Proposed Project. It could have marginally fewer impacts on the off-reservation environment. However, many of the environmental impacts of the RIA would be similar to those of the Proposed Project, and the developments other than the RIA in the project region would have a similar cumulative impact on the off-reservation environment under the RIA scenario as under the Proposed Project.

In addition, the RIA would not meet the objectives of the Tribe for an expansion of the Resort to the same extent that the Proposed Project would. The RIA would provide fewer hotel rooms to meet the existing demand for on-site hotel rooms. This would reduce the ability of the RIA to meet the objective of maintaining the Resort's competitiveness in the northern California market, which is essential to the Resort's continued economic viability. The reduced number of rooms at the hotel would also limit the ability of the Tribe to provide an extended-stay option for its patrons. Overall, the RIA would meet the project objective of providing a competitive premier casino/resort in northern California to a lesser extent than the Proposed Project.

Potential off-reservation environmental impacts of the RIA are discussed below.

4.2.2 ENVIRONMENTAL ANALYSIS

TRANSPORTATION/TRAFFIC

Construction

Methodology

The construction phase of the RIA would include potential off-reservation traffic impacts related to construction worker trips to and from the Proposed Project site and importation and exportation of construction material and equipment. The traffic trips generated by construction of the RIA would be similar to those generated by the Proposed Project (**Appendix D**). It is estimated that it would take 24 months to complete construction of the RIA.

Impacts

The RIA would generate additional traffic along State Route (SR)-16, as trips would be necessary for construction worker trips and delivery of construction material and equipment. The impacts of the RIA on the off-reservation roadway network would be similar to those of the Proposed Project. Although the RIA would involve fewer rooms at the proposed hotel, the impacts of building the structure would be similar to construction impacts of the Proposed Project. Therefore, these impacts would be potentially significant and mitigation would be required. With implementation of the same provisions as outlined within **Mitigation Measure 3.2.1**, construction impacts of the RIA would be reduced to less-than-significant levels.

Operation

Methodology

To determine the potential off-reservation impacts of operation of the RIA, the same methodology was used as that described in **Section 3.2**, **Transportation/Traffic**. The number of vehicle trips that would be generated by the RIA was estimated using the background traffic counts taken at the Resort and adding projections based on new development. These estimated trips for the RIA were then added to traffic counts under the 2019 Baseline Condition (see **Section 3.2**, **Transportation/Traffic**) at study area roadway intersection and roadway segment . The number of new vehicle trips generated by the RIA and the distribution of those trips on the off-reservation roadway network were estimated using the same methodologies outlined in **Section 3.2**. Refer to **Section 3.2**, **Transportation/Traffic**, and **Appendix D** for further discussion of the analysis methodology. The level of service (LOS) operations of the study area roadway intersections and roadway segments after implementation of the RIA were then assessed and compared to the corresponding jurisdictional agencies' significance thresholds for off-reservation traffic impacts. Refer to **Section 3.2**, **Transportation/Traffic**, for a definition and description of LOS conditions at study area roadway intersections and along study area roadway segments.

Trip Generation

The same trip generation rates were utilized for the RIA as for the Proposed Project (refer to **Appendix D**). As with the Proposed Project, the Friday and Saturday PM peak periods represent the appropriate periods to assess the off-reservation traffic impacts attributable to the RIA. During these peak periods, the combination of background traffic and RIA traffic would be at the highest levels. The RIA would have fewer hotel rooms compared to the Proposed Project, but would include the same number of restaurant and ballroom seats. The new trips generated by the RIA are provided in **Table 4-2**.

Trip Distribution and Assignment

The same trip distribution that was used for the Proposed Project (**Section 3.2.3**) was utilized to assign new trips attributed to the RIA to the existing off-reservation roadway network.

TABLE 4-2
NEW TRIPS GENERATED BY THE REDUCED INTENSITY ALTERNATIVE

Land Use	ITE Code	Quantity	Units	Trips					
				Weekday PM Peak Hour			Saturday PM Peak Hour		
				In	Out	Total	In	Out	Total
Restaurant	931	178	# Seats	8	4	12	9	6	15
Ballroom	n/a	596	# New Seats	58	6	64	58	6	64
Hotel	310	399	# Rooms	31	29	60	40	32	72
Net New Vehicle Trips:				**97**	**38**	**135**	**107**	**43**	**150**

Source: Kimley-Horn, 2016 (**Appendix D**).

Mitigation Measures

Mitigation measures are recommended in this section when an off-reservation impact attributable to the RIA is found to be potentially significant by comparing the appropriate LOS definition with the corresponding jurisdictional agencies' significance threshold (refer to **Table 3.2-1** in **Section 3.2**). Refer to **Section 3.2**, **Transportation/Traffic**, for further discussion of mitigation measures for off-reservation impacts on transportation and traffic (the same mitigation methodology applies to the RIA as that discussed in **Section 3.2** for the Proposed Project). Because the off-reservation traffic impacts associated with the RIA are similar to those of the Proposed Project, the mitigation measures for the Proposed Project would also be effective in reducing off-reservation traffic impacts of the RIA.

It should be noted that the potential for significant off-reservation traffic impacts of the RIA, as with the potential off-reservation traffic impacts of the Proposed Project, conservatively assumes a specified level of background future traffic growth and the completion of certain off-reservation development in the vicinity of the RIA, either of which may or may not actually occur. This section provides that the Tribe shall be responsible for implementing (by either fair share payments or full funding) the mitigation improvements described in this section if the significant off-reservation traffic impact actually occurs.

Impacts

Operation of the RIA would increase vehicle trips along the study area roadway network compared to the 2019 Baseline Condition (refer to **Section 3.2**, **Transportation/Traffic**), but to a lesser extent than the Proposed Project. **Table 4-3** presents the projected LOS for intersections within the study area if the RIA is implemented. As shown in **Table 4-3**, no intersections would operate at an unacceptable LOS, which was also the case under the Proposed Project.

Table 4-4 presents the LOS after implementation of the RIA for roadway segments within the study area. As shown in **Table 4-4**, the following roadway segments would operate at an unacceptable LOS:

- SR-16 (westbound [WB] and eastbound [EB]) between the Resort and County Road (CR)-85 (Saturday peak hour);

- SR-16 (WB) between Esparto and CR-89 (Saturday peak hour);
- SR-16 (WB) between CR-89 and I-505 (Saturday peak hour); and
- SR-16 (WB and EB) between I-505 and CR-98 (Friday and Saturday peak hours).

TABLE 4-3
STUDY AREA INTERSECTIONS – 2019 PLUS REDUCED INTENSITY ALTERNATIVE CONDITION
LEVELS OF SERVICE

	Intersection	Traffic Control	Criteria	2019 Baseline Conditions				2019 Conditions Plus RIA			
				Friday		Saturday		Friday		Saturday	
				LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1	SR-16/North Casino Entrance	Signalized	D	B	11.3	A	6.9	B	10.2	A	6.5
2	SR-16/Central Casino Entrance	Uncontrolled	D	A	0	A	0.0	A	0.0	A	0.0
3	SR-16/South Casino Entrance	TWSC	D	C	16.8	C	20.1	C	20.3	D	25.2
4	SR-16/CR-85	TWSC	D	B	11.5	C	15.5	B	12.5	C	17.4
5	SR-16//CR-85B	TWSC	D	A	9.3	B	13.6	B	10.2	C	16.4
6	SR-16/Woodland Avenue	AWSC	E	A	4.4	A	3.9	A	4.3	A	3.9
7	SR-16/Capay Street	TWSC	E	C	15.1	C	17.9	C	16.6	C	19.2
8	SR-16/Madison Street	TWSC	E	C	16.0	B	12.1	C	17.5	B	13.7
9	SR-16/Plainfield Street	TWSC	E	C	17.1	C	19.9	C	18.9	C	22.4
10	SR-16/CR-21A	AWSC	D	B	11.6	B	11.1	B	12.3	B	11.9
11	CR-85B/CR-21A	TWSC	C	A	9.3	A	8.9	A	9.3	A	9.1
12	County Villa Estates/CR-21A	TWSC	C	A	9.8	A	9.9	B	10.0	B	10.1
13	Fremont Street/CR- 21A	TWSC	C	A	9.7	A	9.9	A	9.9	B	10.2
14	SR-16/CR-89	Roundabout	D	A	6.7	A	6.9	A	7.4	A	7.8
15	SR-16/I-505 SB Ramp	TWSC	D	B	15.0	C	17.3	C	16.2	C	18.9
16	SR-16/ I-505 NB Ramp	Signalized	D	A	9.3	B	12.2	B	10.2	B	13.7
17	SR-16/Wildwing Drive	TWSC	D	C	17.5	C	15.1	C	18.5	C	16.0
18	SR-16/CR-94B	TWSC	D	C	20.9	B	14.4	C	22.2	C	15.1
19	SR-16/CR-95	TWSC	D	C	18.8	C	16.4	C	19.7	C	17.2
20	SR-16/CR-98	Signalized	D	C	25.5	C	24.7	C	25.6	C	24.9
21	SR-16/W Kentucky Avenue	Signalized	D	B	19.4	B	19.2	B	19.2	B	18.7

Notes: AWSC = all-way stop controlled; TWSC = two-way stop controlled
Bold = unacceptable traffic operations.
Source: Kimley-Horn, 2016 (**Appendix D**).

These roadway segments would also be adversely affected by the Proposed Project. The results of the roadway segment analysis indicate that impacts would not be avoided with the implementation of the RIA rather than the Proposed Project. If the RIA were to be developed, the Tribe would implement **Mitigation**

Measure 3.2.3 (refer to **Section 3.2**, **Transportation/Traffic**), which would improve operating conditions to acceptable levels along these study area roadway segments.

TABLE 4-4
2019 PLUS REDUCED INTENSITY ALTERNATIVE LEVELS OF SERVICE – STUDY AREA ROADWAY SEGMENTS

Roadway Segment	Class	Criteria	2019 Baseline Conditions								2019 Baseline Plus RIA							
			Friday				Saturday				Friday				Saturday			
			NB/WB		SB/EB		NB/WB		SB/EB		NB/WB		SB/EB		NB/WB		SB/EB	
			LOS	% TSF	LOS	% TSF	LOS	% TSF	LOS	% TSF	LOS	% TSF	LOS	% TSF	LOS	% TSF	LOS	% TSF
SR-16 from Cache Creek Casino to CR-85	I	D	D	63.6	D	73.1	**E**	**79.2**	D	65.3	D	69.6	D	73.6	**E**	**81.4**	**E**	**66.8**
SR-16 from CR-85 to Esparto	II	D	C	56.4	C	69.4	D	78.3	C	59.3	C	65.4	D	70.3	D	81.7	C	62.4
SR-16 through Esparto	II	E	C	68.8	C	64.9	D	79.6	B	54.0	D	72.4	C	64.4	D	81.9	C	56.4
SR-16 from Esparto to CR-89	I	D	D	73.4	D	71.9	**E**	**83.0**	D	64.1	D	76.9	D	73.1	**E**	**85.5**	D	65.3
SR-16 from CR-89 to I-505	I	D	D	75.1	D	73.8	**E**	**82.4**	D	63.4	D	78.5	D	73.8	**E**	**85.1**	D	65.5
SR-16 from I-505 to CR-98	I	D	**E**	**61.6**	**E**	**77.9**	**E**	**68.6**	**E**	**64.5**	**E**	**64.7**	**E**	**78.8**	**E**	**69.8**	**E**	**64.7**
County Road 21A from CR-85B to SR-16	II	C	A	25.1	A	36.1	A	36.0	A	32.9	A	28.5	A	37.0	A	36.6	A	37.9
CR-85B from SR-16 to CR-21A	II	C	A	25.5	B	50.4	A	39.2	B	44.8	A	31.9	B	50.7	B	44.5	B	46.5

Notes: %TSF = percentage of time spent following; NB/WB = northbound/Westbound; SB/EB = southbound/Eastbound
Bold = unacceptable LOS
Average travel speed calculation for Class I roadways are shown in **Appendix D**.
Source: Kimley-Horn, 2016 (**Appendix D**).

LAND USE, AGRICULTURAL RESOURCES, POPULATION AND HOUSING, AND RECREATION AND PARKS

The RIA would have the same footprint as the Proposed Project, and like the Proposed Project, no off-reservation impacts related to land use, agricultural resources, population and housing, and recreation and parks would result from development of the RIA. The RIA would not conflict with any off-reservation land use plans, policies, or regulations. There are no applicable Habitat Conservation Plans (HCPs) or Natural Communities Conservation Plans (NCCPs) that include the site on which the RIA would be developed, which is located on land held in trust for the Tribe. The RIA and the Proposed Project would introduce a similar number of new employees to the Proposed Project site and nearby communities; therefore, there would be a similar potential for impacts associated with off-reservation population growth compared to the Proposed Project, for which off-reservation population growth impacts were identified to be less than significant under the Proposed Project. Therefore, impacts from the RIA would be less than significant with respect to off-reservation land use, agricultural resources, population and housing, and recreation and parks.

BIOLOGICAL RESOURCES

The RIA's off-reservation impacts on biological resources would be similar to those of the Proposed Project. The RIA would not result in adverse effects to off-reservation riparian habitats identified by state agencies or local regulatory plans, regulations, or policies. Construction and operation activities for the RIA would not affect any off-site jurisdictional wetlands or waters of the US. The RIA would not include any design elements that would interfere with the movement of native resident or migratory fish or wildlife species in the off-reservation vicinity of the RIA, nor would the RIA conflict with the provisions of existing HCPs or NCCPs, as none are applicable to the Proposed Project site. No nesting birds were observed during field surveys of the Proposed Project site and nearby properties conducted for this TEIR. However, RIA construction activities could adversely affect nesting birds should conditions on such nearby properties change by the time construction commences. The potential impacts on nesting birds attributable to construction of the RIA would be reduced to a less-than-significant level by implementing **Mitigation Measure 3.4.1**, which requires conducting preconstruction surveys.

Because off-reservation traffic mitigation measures recommended for the RIA would be identical to those recommended for the Proposed Project, the physical impacts on biological resources associated with construction of the potential off-reservation traffic mitigation for the RIA would be identical to that associated with construction of the recommended mitigation for the Proposed Project. **Mitigation Measure M-3.4.1** could feasibly be implemented in connection with the construction of with the RIA or the Proposed Project to reduce potential impacts on nesting and migratory birds to less-than-significant levels. Refer to **Section 3.4.3** for the discussion of impacts and recommended mitigation measures for migratory and nesting birds surrounding off-reservation mitigation areas.

CULTURAL AND PALEONTOLOGICAL RESOURCES

Off-reservation impacts of the RIA on cultural and paleontological resources would be identical to those of the Proposed Project. Under the RIA, the project elements would be located on previously developed

tribal land that has been thoroughly investigated for the presence of cultural and paleontological resources. No off-reservation ground disturbance would occur under the RIA; therefore, there would be no off-reservation impacts on cultural and paleontological resources.

Because the off-reservation traffic mitigation is identical for the Proposed Project and the RIA, the physical impacts on cultural and paleontological resources associated with construction of the potential traffic mitigation would also be identical. Refer to **Section 3.5.3** for the discussion of impacts and recommended mitigation measures for cultural and paleontological resources surrounding off-reservation mitigation areas.

HAZARDS AND HAZARDOUS MATERIALS

Construction

Under the RIA, the off-reservation impacts associated with hazards and hazardous materials would be similar to those of the Proposed Project. Construction of the RIA would utilize the same types of hazardous materials as those described for the Proposed Project, although these materials could be used to a slightly lesser extent for the RIA (refer to **Section 3.6.3**). Typical hazardous materials used during construction of the RIA would include substances such as fuels, solvents, oils, and paint. As with the Proposed Project, the RIA could involve the dripping of fuels, oil, and grease from construction equipment, the releases of which would be relatively low in concentration and toxicity. No long-term effects on the soil or groundwater would occur. Although not likely, if a spill of significant quantity were to occur, the accidental release would be contained immediately with absorbent materials with no off-reservation impacts. The RIA would also implement **Mitigation Measure 3.6.1** to reduce potential impacts due to the introduction of new sources of hazards or hazardous substances during construction.

Although unlikely, the possibility exists of an off-reservation impact associated with wildland fires during the construction of the RIA. Like all construction projects, construction of the RIA could conceivably create sparks capable of igniting vegetation. However, the potential for such a fire is low and can be fully mitigated. The RIA, like the Proposed Project, would require the implementation of **Mitigation Measure 3.6.3** to reduce any impacts related to wildland fires during construction to less-than-significant levels.

Operation

Operation of the RIA would be similar to that of the Proposed Project, utilizing the same types of hazardous materials/chemicals for the on-site wastewater treatment plant (WWTP) and the water desalination treatment facility (WDTF). Generally, the quantities of chemicals used for the WWTP and WDTF are proportional to the wastewater flows and potable water supply demands, which are in turn proportional to the square footage of the facilities served by the WWTP and WDTF. The RIA would require lesser quantities of wastewater treatment chemicals than the Proposed Project. Sodium hypochlorite (NaOCl) and sodium hydroxide (NaOH) would continue to be stored within an on-site spill containment area.

The RIA, like the Proposed Project, would continue to utilize the on-site WWTP, and would therefore continue to require the same hazardous materials to be used on site as the Proposed Project, including hydrochloric acid (HCl). On-site HCl would continue to be stored in a 1,000-gallon bulk tank located inside the WWTP's containment area.

The RIA would continue to use the same self-contained emergency generators as the Proposed Project, and those generators would continue to be operated according to the manufacturer's operating procedures. Although not likely, if a fuel leak were to occur, the outer tank (secondary containment) would contain the leak. The Yocha Dehe Fire Department (YDFD) and available off-reservation resources available through existing agreements would minimize impacts associated with wildland fires. Operation of the RIA would result in less-than-significant impacts concerning hazardous materials and wildland fires.

HYDROLOGY AND WATER QUALITY

Construction

The RIA would involve construction activities that would result in the alteration of the existing topography of the Proposed Project site, similar to the Proposed Project. RIA construction would involve earth-moving, grading, and excavation activities on trust land, most of which has been previously disturbed and accounted for in an existing drainage plan (**Appendix G**). Construction-related issues associated with the RIA would be similar to those discussed in **Section 3.7**, **Hydrology and Water Quality**, with respect to the Proposed Project, and would include compliance with the United States Environmental Protection Agency's (USEPA's) Stormwater General National Pollutant Discharge Elimination System (NPDES) Permit for Construction Activities. Implementation of **Mitigation Measure 3.7.3** would reduce the RIA's construction-related impacts on hydrology and water quality to less-than-significant levels.

Operation

The RIA would involve operational activities that could result in potentially significant off-reservation impacts on hydrology and water quality. Such impacts would be similar to the off-reservation impacts on hydrology and water quality of the Proposed Project, although to a lesser extent. Issues related to RIA implementation and operation would be comparable to those discussed in **Section 3.7**, **Hydrology and Water Quality**, with respect to the Proposed Project, which would include the slight alteration of existing drainage patterns and small potential increases in surface runoff, water demand, wastewater generation, and recycled water disposal.

Stormwater Drainage

The RIA would alter on-site drainage patterns in the same manner as the Proposed Project. The increase in impervious surfaces on the Proposed Project site would be marginal because construction would primarily occur on surfaces that are currently paved; therefore, the existing on-site stormwater drainage would need to be rerouted around the structures constructed for the RIA. The RIA would not require

additional drainage culverts beneath SR-16. The existing culverts have adequate capacity to accommodate the minimal increase in stormwater runoff attributable to the RIA (**Appendix G**). The existing detention basin has the capacity to accommodate the runoff from the RIA.

Water Supply

Water demand for the RIA would be approximately 380,000 gallons per day (gpd) on average, with a peak demand of 530,000 gpd, which is an approximately 55 percent increase from existing conditions and approximately 4.1 percent less than the water demand increase for the Proposed Project. Potable water demand for the RIA would be met by the existing Resort groundwater wells, as described in **Section 3.7** and summarized below.

As discussed in **Section 3.7**, **Hydrology and Water Quality**, the Resort's three existing wells have firm pumping rates of 547,000 gpd, 454,000 gpd, and 288,000 gpd. Water demand of the RIA would represent approximately 84 percent of the firm pumping capacity of Well 2, the lowest-producing main Resort well. As described in **Appendix E**, groundwater drawdown attributable to the RIA would extend off reservation similar to the Proposed Project; however, the drawdown would be less than under the Proposed Project (**Appendix E**). The water demand of the RIA would not result in groundwater pumping rates that could adversely affect surrounding wells from drawdown of the groundwater table.

Wastewater Treatment and Disposal

Implementation of the RIA would increase wastewater generation over current conditions, although to a lesser extent than the Proposed Project. As discussed in **Section 3.7**, **Hydrology and Water Quality**, recycled water would continue to be used for irrigation of the golf course and on-site landscaping, as well as toilet and urinal flushing at the casino. Any excess recycled water would be routed to the existing leach fields on trust land and the existing seasonal storage capacity within South Lake. Usage of recycled water for irrigation, mixed with surface water from Cache Creek, would not result in significant impacts on groundwater quality. Ongoing groundwater monitoring at the golf course would ensure that the RIA is consistent with the Waste Discharge Requirements (WDRs) issued by the Central Valley Regional Water Quality Control Board (CVRWQCB). RIA wastewater disposal would result in less-than-significant off-reservation impacts on surface water and groundwater quality.

Flooding

Like the Proposed Project, the RIA would neither place structures within a 100-year flood hazard area nor expose off-reservation people or structures to flooding as a result of the failure of a dam or levee.

AIR QUALITY

Pollutants of Concern

Pollutants of concern for the RIA are the same as the Proposed Project: ozone precursors, diesel particulate matter (DPM), and carbon monoxide (CO). Refer to **Section 3.8**, **Air Quality**, for further

discussion regarding the pollutants of concern for the off-reservation environment surrounding the Proposed Project or Proposed Project site.

Construction

As discussed for the Proposed Project, the air basin surrounding the Proposed Project site is designated as being nonattainment for ozone, and therefore pollutants of concern for the region are the precursors to ozone generation: reactive organic gases (ROGs) and nitrogen oxides (NO_X). Refer to the discussion in **Section 3.8.3** regarding the methodology utilized to determine significance of air quality issues for the Proposed Project, which also applies to the RIA. ROGs and NO_X would be emitted from the operation of heavy equipment, construction machinery, and construction worker vehicle trips. Construction of the RIA would require less equipment than the Proposed Project and would therefore generate fewer emissions. Criteria air pollutant (CAP) emissions of the RIA were estimated using the same methodologies used for the Proposed Project. Refer to the discussion of the RIA in **Appendix J**. The estimates of maximum potential annual emissions for the RIA are 5.29 tons per year of ROGs and 6.88 tons per year of NO_X. The RIA would be developed with fewer hotel rooms, but the building footprint would be the same as the Proposed Project; therefore, construction emissions would be the same as for the Proposed Project. As with the Proposed Project, the estimated emissions for the RIA are below the corresponding *de minimis* levels. Because construction emissions of ROGs and NO_X would be below *de minimis* levels, construction of the RIA would not conflict with or obstruct implementation of the applicable ozone air quality plan, violate any ozone air quality standard, or contribute to any existing or projected air quality violation as related to the emissions of ozone precursors.

The other pollutants of concern, DPM and CO, would be emitted in connection with construction the RIA at levels below those of the Proposed Project (which were considered to result in a less-than-significant impact); therefore, construction of the RIA would not expose off-reservation sensitive receptors to substantial DPM or CO concentrations.

Operation

Operational emissions of ozone precursors attributable to the RIA would be primarily indirect (i.e., not associated with a point source on the Proposed Project site) and would be generated by patron and employee vehicle trips to the RIA. Combustion of natural gas on the Proposed Project site would also contribute to total emissions associated with the operation of the RIA.

Operational emissions for the RIA were estimated for the buildout year of 2019, using the same methodologies used to estimate operational emissions attributable to the Proposed Project. The 2019 CAP emissions attributable to the RIA are quantified in **Appendix J**. Unmitigated emissions from the RIA would be 3.6 tons of ROGs per year and 9.4 tons of NO_X per year. These levels are approximately 50 percent less than under the Proposed Project and would be less than the *de minimis* threshold of 25 tons per year for ROGs and NO_X. Because operational emissions of ROGs and NO_X from the RIA would be below the *de minimis* levels, operation of the RIA would not conflict with or obstruct

implementation of the applicable ozone air quality plan, violate any ozone air quality standard, or contribute to any existing or projected air quality violation as related to the emissions of ozone precursors.

The other pollutants of concern, DPM and CO, would be emitted by the operation of the RIA at levels below those of the operation of the Proposed Project (which were considered to result in a less-than-significant impact), and therefore operation of the RIA would not expose off-reservation sensitive receptors to substantial DPM or CO concentrations.

Odors

Operation of the RIA would not include new facilities that would emit off-reservation odors, such as industrial or manufacturing facilities. Furthermore, there are not a substantial number of residences in the off-reservation vicinity of the RIA, as described under **Sensitive Receptors** in **Section 3.8.2**. No impact would occur.

Climate Change

As discussed is **Section 3.8**, **Air Quality**, climate change is a global phenomenon attributable to the sum of all human activities and natural processes, and off-reservation climate change impacts cannot be attributed to the RIA. Accordingly, the potential impacts of the RIA on climate change are most appropriately addressed in terms of the incremental contribution to a global cumulative impact. Refer below to "Cumulative Impacts" for the climate change impact discussion for the RIA.

NOISE

Construction

Off-reservation noise impacts associated with construction of the RIA would be the same as construction-related noise impacts of the Proposed Project (refer to **Section 3.9**, **Noise**). Construction of the RIA would create temporary increases in off-reservation noise and vibrations. The nearest off-reservation sensitive receptor is a rural residence located 1,300 feet from the location of the nearest site of construction activities for the RIA (proposed parking area). These sensitive noise receptors have the potential to be subjected to construction noise higher than the existing ambient noise level. However, the construction-related off-reservation noise impacts of the RIA would be less than significant due to the distance from the nearest receptor and construction locations, as described in **Section 3.9** for the Proposed Project.

Operation

Operation of the RIA would have potential off-reservation noise impacts similar to those of the Proposed Project. Impacts from on-site operational noise would be the same as the Proposed Project (refer to **Impact 3.9.3** in **Section 3.9**, **Noise**). Operation of the RIA would lead to traffic increases and could potentially raise the ambient noise levels along SR-16, similar to the Proposed Project. The increase in the ambient noise levels along SR-16, near the proposed parking area, and from the RIA itself would be

slightly lower than the increase in noise levels experienced by the Proposed Project. **Table 4-5** presents the results of the traffic noise analysis for the RIA. While the RIA would cause ambient noise levels on SR-16 from CR-85B to CR-87 to increase from 60.0 dB Ldn to 60.6 dB Ldn, the 0.6 dB Ldn increase in ambient noise is not considered audible. Therefore, off-reservation traffic from the RIA would not result in any audible increases in ambient noise levels above applicable standards or result in a substantial increase to off-reservation ambient noise levels. Off-reservation operational noise impacts of the RIA would be less than significant.

TABLE 4-5
BASELINE VS. BASELINE PLUS REDUCED INTENSITY ALTERNATIVE TRAFFIC NOISE LEVELS

Roadway	Segment	Baseline (dB Ldn)	Baseline Plus Project (dB Ldn)	Change (dB Ldn)	Standard (Change in dB Ldn)[1]	Substantial Increase?
SR-16	North of Cache Creek Casino	59.3	59.4	+ 0.1	+ 5.0	No
SR-16	South of Cache Creek Casino	65.3	66.0	+ 0.7	+ 1.5	No
SR-16	West of County Road 85	61.0	61.7	+ 0.6	+ 3.0	No
SR-16	County Road 85 to County Road 85B	63.3	63.9	+ 0.6	+ 3.0	No
SR-16	County Road 85B to County Road 87	60.0	60.6	+ 0.6	+ 3.0	No
SR-16	East of Yolo Avenue	61.9	62.3	+ 0.5	+ 3.0	No
SR-16	West of County Road 89	66.0	66.5	+ 0.5	+ 1.5	No
SR-16	County Road 89 to I-505	64.1	64.5	+ 0.4	+ 3.0	No
SR-16	East of I-505	64.3	64.6	+ 0.3	+ 3.0	No
County Road 85	North of SR-16	51.4	51.7	+ 0.3	+ 5.0	No
County Road 85B	South of SR-16	59.2	59.9	+ 0.7	+ 5.0	No
County Road 85B	North of County Road 21A	59.0	59.7	+ 0.7	+ 5.0	No
County Road 21A	East of County Road 85B	58.1	58.4	+ 0.3	+ 5.0	No
County Road 87	North of SR-16	55.6	55.7	+ 0.1	+ 5.0	No
County Road 87	SR-16 to SR-16	58.1	58.6	+ 0.6	+ 5.0	No

Notes: 1 – Standard based on FICON, 1992.
Source: BAC, 2016 (**Appendix K**); FICON, 1992.

PUBLIC SERVICES, UTILITIES, AND SERVICE SYSTEMS

Construction

Similar to the Proposed Project, the RIA would not result in potential off-reservation public service or utility impacts during construction (refer to **Section 3.10**, **Public Services and Utilities and Service Systems**). Construction of the RIA would result in less intense impacts compared to the Proposed Project. With the YDFD located on trust land, the impact on fire protection services would be less than significant. Construction of the RIA would not substantially affect other public services and utility facilities to the extent that new or expanded government facilities and utilities would be required.

Operation

The RIA would increase the size of existing Resort facilities, to a similar extent as the Proposed Project, and would similarly not result in potential off-reservation public service impacts (**Section 3.10**). As described in **Section 3.10**, **Public Services and Utilities and Service Systems**, public service demands may increase; however, this would not result in the need for new or physically altered governmental facilities. To ensure impacts on law enforcement attributable to the RIA remain less than significant, **Mitigation Measure 3.10.10** would be implemented to minimize potential impacts from special events that would occur during operation of the RIA.

AESTHETICS

Construction

Potential off-reservation construction-related impacts to aesthetics during construction of the RIA would be similar to the impacts of construction of the Proposed Project (refer to **Section 3.11.3**). Construction of the RIA would temporarily alter off-reservation views of the Proposed Project site, with heavy machinery and construction activities visible from off-reservation locations in the vicinity of the RIA and to passing motorists on SR-16. Scenic resources adjacent to SR-16 would not be substantially altered by the RIA. Potential off-reservation impacts associated with light or glare from the construction of the RIA could occur. **Mitigation Measure 3.11.3** would be implemented under the RIA to reduce the off-reservation aesthetic impact from light and glare to a less-than-significant level.

Operation

The RIA would increase the size of existing Resort facilities, which would be visually similar to the Proposed Project. The hotel expansion would contain fewer rooms, would have a smaller square footage and be smaller in height. As with the Proposed Project, the RIA would include the addition of a water storage tank on the hillside that serves as a backdrop for the main Resort building when viewed from SR-16. The RIA would be designed to be visually compatible with the existing buildings on the Proposed Project site, and therefore would not affect any off-reservation scenic vistas. New landscaping under the RIA would be consistent with the current landscaping of the Resort and parking lots. Scenic resources adjacent to SR-16 would not be substantially altered by the RIA. Off-reservation aesthetics impacts associated with operation of the RIA would be less than significant. Potential off-reservation impacts associated with light or glare from the operation of the RIA could occur. **Mitigation Measure 3.11.3** would be implemented under the RIA to reduce the off-reservation aesthetic impact from light and glare to a less-than-significant level.

GEOLOGY, SOILS, AND MINERAL RESOURCES

The RIA would result in similar potential off-reservation geological, soil, and mineral resource impacts as the Proposed Project. Construction and operation of the RIA would not expose off-reservation people or structures to substantial adverse effects caused by fault rupture or seismic ground failure. Therefore, no impact on off-reservation people or structures attributable to seismic-related ground failure, including

liquefaction, would occur as a result of the RIA. No impact on off-reservation people or structures attributable to landslides would occur as a result of the RIA. However, the RIA would require implementation of **Mitigation Measure 3.7.3** to avoid potential off-reservation impacts from erosion during construction activities.

GROWTH-INDUCING IMPACTS

The potential for population growth-inducing impacts to occur as a result of the RIA would be similar to those of the Proposed Project (refer to **Section 3.13**, **Growth-inducing and Cumulative Off-reservation Impacts**), because the same number of employees would be hired for the RIA compared to the Proposed Project. Given the distribution of employee housing and the availability of labor in the regional workforce, it is expected that there would be negligible migration of workers into Yolo County as a result of RIA hiring. Furthermore, any infrastructure improvements that would be required for implementation of the RIA would not serve any areas other than the Resort and RIA, and therefore would not result in growth inducement potential.

CUMULATIVE IMPACTS

When considered in conjunction with other past, present, and probable development projects in the region, cumulative impacts would occur as a result of the RIA to a lesser degree than that discussed for the Proposed Project (refer to **Section 3.13**, **Growth-inducing and Cumulative Off-reservation Impacts**). As compared to the Proposed Project, the RIA would have similar or lesser cumulative impacts on all resource areas and would not cause additional cumulatively considerable impacts on the off-reservation environment.

Transportation and Traffic

Cumulative impacts to off-reservation traffic were assessed for the RIA in the Traffic Impact Study (TIS; **Appendix D**) to determine if a reduction of trips on the roadway network (as compared to the Proposed Project) would reduce off-reservation traffic impacts. Due to the projection of substantial additional traffic on study area roadways between now and 2035 accounted for in the Sacramento Area Council of Governments (SACOG) Metropolitan Transportation Plan (MTP) / Sustainable Communities Strategy (SCS) travel forecast model, the RIA would result in similar traffic impacts as the 2035 Plus Proposed Project Condition. The same methodology, trip generation rates, and trip distribution used under the 2035 Plus Proposed Project Condition for the Proposed Project were used for analysis of the 2035 Plus RIA Condition for the RIA

Operation of the RIA would result in fewer vehicle trips to and from the RIA under the 2035 RIA Condition than the trips to and from the Proposed Project under the 2035 Plus Proposed Project Condition; however, the RIA would cause an increase in traffic compared to the 2035 Baseline Condition (refer to **Section 3.13**, **Growth-inducing and Cumulative Off-reservation Impacts**). **Table 4-6** shows the LOS for intersections within the study area under the 2035 RIA Condition. As shown in **Table 4-6,** the following intersection would operate at an unacceptable LOS under the 2035 RIA Condition:

- SR-16/CR-94B

TABLE 4-6
STUDY AREA INTERSECTIONS – 2035 PLUS RIA CONDITION LEVELS OF SERVICE

	Intersection	Traffic Control	Criteria	2035 Baseline Condition				2035 Plus RIA Condition			
				Friday		Saturday		Friday		Saturday	
				LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1	SR-16 / North Casino Entrance	Signalized	D	B	11.9	A	9.0	B	10.8	A	8.5
2	SR-16 / Central Casino Entrance	TWSC	D	A	0.0	A	0.0	A	0.0	A	0.0
3	SR-16 / South Casino Entrance	TWSC	D	C	17.3	D	26.1	C	21.0	D	34.6
4	SR-16 / CR-85	TWSC	D	B	13.0	C	21.4	B	14.3	C	25.0
5	SR-16 / CR-85B	TWSC	D	A	9.3	C	16.6	B	10.3	C	24.7
6	SR-16 / Woodland Avenue	AWSC	E	A	4.5	A	5.8	A	5.4	A	6.6
7	SR-16 / Capay Street	TWSC	E	C	17.4	D	25.5	C	19.4	D	28.8
8	SR-16 / Madison Street	TWSC	E	C	17.0	C	22.9	C	18.7	D	25.3
9	SR-16 / Plainfield Street	TWSC	E	C	20.3	D	31.9	C	22.9	E	37.3
10	SR-16 / CR-21A	AWSC	D	C	16.7	C	23.6	C	18.8	D	28.8
11	CR-85B / CR-21A	TWSC	C	A	9.3	A	9.0	A	9.3	A	9.2
12	County Villa Estates / CR-21A	TWSC	C	A	9.9	A	10.0	B	10.1	B	10.2
13	Fremont Street / CR- 21A	TWSC	C	A	9.8	B	10.1	A	10.0	B	10.3
14	SR-16 / CR-89	AWSC	D	A	7.4	A	8.4	A	8.3	A	9.6
15	SR-16 / I-505 SB Ramp	TWSC	D	C	20.2	D	27.2	C	22.4	D	30.5
16	SR-16 / I-505 NB Ramp	Signalized	D	B	10.1	B	16.5	B	11.3	C	21.5
17	SR-16 / Wildwing Drive	TWSC	D	D	27.9	C	23.9	D	30.1	D	26.0
18	SR-16 / CR-94B	TWSC	D	**F**	**253.9**	**F**	**59.9**	**F**	**306.6**	**F**	**72.5**
19	SR-16 / CR-95	TWSC	D	C	24.4	C	20.7	D	25.6	C	21.8
20	SR-16 / CR-98	Signalized	D	C	25.7	C	24.6	C	25.9	C	24.8
21	SR-16 / West Kentucky Avenue	Signalized	D	C	20.2	B	19.0	C	20.0	B	18.7

Notes: **Bold** = unacceptable traffic operations under existing conditions.
Source: Kimley-Horn, 2016 (**Appendix D**).

The Tribe would implement traffic **Mitigation Measure 3.13.3** for the intersection of SR-16 and CR-94B, as described in **Section 3.13**, **Growth-inducing and Cumulative Off-reservation Impacts**. The results of the traffic analysis for the RIA indicate that the fair share contribution toward **Mitigation Measure 3.13.3** would be 13 percent, as compared to the Proposed Project, where the fair share contribution would be 14 percent (**Appendix D**). As discussed above with respect to the 2019 Baseline Condition for the RIA, the traffic analysis results indicate that the potential off-reservation development, if it actually occurs, would affect the regional roadway network to a far greater extent than either the RIA or the Proposed Project alone. Implementation of the mitigation measures recommended in **Section 3.13** would improve operations at the above intersection to an acceptable LOS or decrease the delay to better than the 2035 Baseline Conditions.

Table 4-7 presents the LOS for roadway segments within the study area under the 2035 Plus RIA Condition. As shown in **Table 4-7**, the same roadway segments affected under the 2035 Plus Proposed Project Condition would be affected under the 2035 Plus RIA Condition, because the roadways would be affected by the potential off-reservation development prior to the addition of trips attributable to the RIA. The Tribe would implement the recommended mitigation measures provided in **Section 3.13** with respect to the roadway segments listed in those mitigation measures. In the event such mitigation measures would be required to be implemented, they would improve the roadway segments' operating conditions to an acceptable LOS or to operate better than the 2035 Baseline Condition.

Climate Change

Greenhouse gas (GHG) emissions attributable to the RIA would be reduced compared to emissions the Proposed Project. Construction of the RIA would result in the emission of 1,234 metric tons (MT) of carbon dioxide equivalent (CO_2e) over the two-year construction period. Operation of the RIA would result in GHG emissions of 5,670 MT CO_2e per year. Both construction and operation of the RIA would not result in GHG emissions above 25,000 MT per year (refer to **Section 3.8**, **Air Quality**, and **Appendix J**). The GHG emissions of the RIA would not be cumulatively considerable and would therefore result in a less-than-significant impact on climate change.

Noise

Operation of the RIA in the cumulative year would have similar potential off-reservation noise impacts to those listed for the Proposed Project, although to a lesser extent. Operation of the RIA would lead to increased traffic volumes and could potentially raise the ambient noise levels along SR-16, as with the Proposed Project. Cumulative off-reservation noise impacts of on-site operations would be the same as under the Proposed Project and would be less than significant. The RIA would result in increased traffic in the cumulative year, which would increase ambient noise levels along study area roadways. However, similar to the Proposed Project, none of these increases would be audible. While the RIA would cause ambient noise levels on SR-16 north of the Resort and CR-85B south of SR-16 to increase from just below 60.0 dB Ldn to slightly above 60.0 dB Ldn, the increases of 1.2 dB Ldn and 0.6 dB Ldn, respectively, are not considered audible. Therefore, off-reservation traffic from the RIA would not result in any audible increases in ambient noise levels above applicable standards or result in a substantial increase to off-reservation ambient noise levels during the cumulative scenario. Off-reservation cumulative operational noise impacts of the RIA would be less than significant (refer to **Table 4-8**).

TABLE 4-7
STUDY ROADWAY SEGMENTS – 2035 PLUS RIA CONDITION LEVELS OF SERVICE

Roadway Segment	Class	Criteria	2035 Baseline Condition								2035 Plus RIA Condition							
			Friday				Saturday				Friday				Saturday			
			NB/WB		SB/EB		NB/WB		SB/EB		NB/WB		SB/EB		NB/WB		SB/EB	
			LOS	% TSF	LOS	% TSF	LOS	% TSF	LOS	% TSF	LOS	% TSF	LOS	% TSF	LOS	% TSF	LOS	% TSF
SR-16 From Cache Creek Casino to CR-85	I	D	D	64.1	D	73.0	**E**	**79.0**	**E**	**72.3**	D	69.8	D	75	**E**	**83.0**	**E**	**73.0**
SR-16 From CR-85 to Esparto	II	D	C	56.4	D	73.4	D	80.2	C	67.9	C	65.2	D	71.7	D	83.8	C	69.6
SR-16 Through Esparto	II	E	D	78.1	D	70.3	E	88.8	C	69.6	D	81.3	D	71	E	89.6	D	71.1
SR-16 From Esparto to CR-89	I	D	**E**	**81.9**	**E**	**77.5**	**E**	**90.2**	**E**	**77.0**	**E**	**84.4**	**E**	**79.2**	**E**	**91.8**	**E**	**79.1**
SR-16 From CR-89 to I-505	I	D	**E**	**76.0**	**E**	**82.0**	**E**	**84.5**	**E**	**78.6**	**E**	**80.1**	**E**	**83.0**	**E**	**86.6**	**E**	**79.8**
SR-16 From I-505 to CR-98	I	D	**E**	**74.2**	**E**	**77.8**	**E**	**79.9**	**E**	**62.1**	**E**	**76.0**	**E**	**78.1**	**E**	**80.2**	**E**	**62.7**
County Road 21A From CR-85B to SR-16	II	C	A	39.1	A	27.6	A	37.0	B	40.5	A	31.2	B	40.3	B	40.6	B	42.3
CR-85B From SR-16 to CR-21A	II	C	A	28.3	B	50.0	B	43.0	B	45.3	A	34.3	B	50.8	B	48.1	B	47.0

Notes: %TSF = percent time spent following; NB/WB = Northbound/Westbound; SB/EB = Southbound/Eastbound; **Bold** = unacceptable LOS.
Average travel speed calculation for Class I roadways are shown in **Appendix D**.
Source: Kimley-Horn, 2016 (**Appendix D**).

TABLE 4-8
CUMULATIVE VS CUMULATIVE PLUS REDUCED INTENSITY ALTERNATIVE TRAFFIC NOISE LEVELS

Roadway	Segment	Cumulative (dB Ldn)	Cumulative Plus Project (dB Ldn)	Change (dB Ldn)	Standard (Change in dB Ldn)[1]	Substantial Increase?
SR-16	North of Cache Creek Casino	59.3	60.5	+ 1.2	+ 5.0	No
SR-16	South of Cache Creek Casino	65.8	66.4	+ 0.6	+ 1.5	No
SR-16	West of County Road 85	61.5	62.1	+ 0.6	+ 3.0	No
SR-16	County Road 85 to County Road 85B	63.8	64.4	+ 0.6	+ 3.0	No
SR-16	County Road 85B to County Road 87	60.8	61.3	+ 0.5	+ 3.0	No
SR-16	East of Yolo Avenue	63.5	63.8	+ 0.3	+ 3.0	No
SR-16	West of County Road 89	66.6	67.0	+ 0.4	+ 1.5	No
SR-16	County Road 89 to I-505	65.2	65.6	+ 0.4	+ 3.0	No
SR-16	East of I-505	66.0	66.2	+ 0.2	+ 3.0	No
County Road 85	North of SR-16	53.4	53.6	+ 0.2	+ 5.0	No
County Road 85B	South of SR-16	59.5	60.2	+ 0.6	+ 5.0	No
County Road 85B	North of County Road 21A	59.3	60.0	+ 0.7	+ 5.0	No
County Road 21A	East of County Road 85B	58.2	58.8	+ 0.6	+ 5.0	No
County Road 87	North of SR-16	57.1	57.2	+ 0.1	+ 5.0	No
County Road 87	SR-16 to SR-16	58.9	59.4	+ 0.5	+ 5.0	No

Notes: 1 – Standard based on FICON, 1992.
Source: BAC, 2016 (**Appendix K**); FICON, 1992.

4.3 NO ACTION ALTERNATIVE

Under the No Action Alternative, the Resort would not be expanded or substantially modified and would continue to exist in its current form and capacity. Under the No Action Alternative, the areas proposed for expansion under the Proposed Project would not be developed and would continue to operate mainly as surface parking and landscaped areas for the existing Resort. Thus, the No Action Alternative would not affect the off-reservation environment. If the development of the residential units allowed by the *County of Yolo 2030 Countywide General Plan* (General Plan) occurs, one of the traffic impacts identified in this Draft TEIR for the Proposed Project and for the RIA at SR-16 and County Road 94B would be experienced under the No Action Alternative. This is because that off-reservation residential development would generate sufficient additional traffic (without any improvement or change to the Resort) to create those impacts.

The project objectives listed in **Section 2.2** would not be met under the No Action Alternative. The No Action Alternative would not succeed in providing adequate hotel rooms, dining options, and entertainment facilities to meet current demand; providing adequate back-of-house and warehouse space to improve operational efficiency; eliminating the need for off-site storage and warehouse facilities; improving the Tribe's ability to remain competitive in the northern California casino market; or enabling

the Tribe to develop and maintain a sustainable, long-term economic base for its government and for future generations.

4.4 OTHER ALTERNATIVES

Before focusing on the Proposed Project, the Tribe considered a broad range of alternatives, which included the Destination Resort Project previously abandoned, the RIA, the No Action Alternative, and others. Potential alternatives removed from further consideration before this Draft TEIR was prepared were not considered because they were not economically feasible or did not meet the project objectives listed in **Section 2.2**, which focus on enabling the Tribe to develop sustainable, long-term financial support for its government. Alternatives that were not located on trust land were not considered due to the timeframe and expense of placing new lands into trust and securing gaming eligibility for those lands, and the fact that the project purposes call for expanding the existing Resort. With some exceptions, the Indian Gaming Regulatory Act (IGRA) generally restricts gaming activities to Indian lands held in trust prior to its enactment in October 1988, and it is therefore very unlikely that the Tribe could lawfully make arrangements to move the entire Resort elsewhere. The Destination Resort Project, which was previously proposed by the Tribe, was determined to be impracticable based on changes in the national and regional economy and therefore was removed from further consideration.

4.5 COMPARISON OF ALTERNATIVES

Generally, for the purposes of this Draft TEIR, the environmentally superior alternative is the alternative that would cause the least impact on the off-reservation natural and physical environment. For this project, the environmentally superior alternative (without consideration of whether it meets the project objectives) would be the No Action Alternative, as it would result in the avoidance of the environmental effects that would occur under the Proposed Project or the RIA, except for potential long-term (2035) transportation impacts that would be attributable primarily to off-reservation development. However, the No Action Alternative would not achieve the project objectives listed in **Section 2.2**.

The RIA is a scaled-down version of the Proposed Project, including the reduction of rooms at the hotel expansion. The RIA would be environmentally superior to the Proposed Project, as it would result in reduced off-reservation impacts. However, the RIA would be less likely to meet the Tribe's objective to remain competitive in the market and provide a premier casino/resort in northern California.

Table 4-9 provides a comparison of the significance of impacts of each alternative to that of the Proposed Project.

TABLE 4-9
COMPARISON OF POTENTIAL IMPACTS OF ALTERNATIVES TO THOSE OF THE PROPOSED PROJECT

Environmental Resource Area	No Action Alternative	Reduced-Intensity Alternative
Transportation/Traffic	Lesser	Lesser
Land Use and Associated Resources	Lesser	Similar
Biological Resources	Lesser	Similar
Cultural Resources	Lesser	Similar
Hazards and Hazardous Materials	Lesser	Similar
Hydrology and Water Quality	Lesser	Lesser
Air Quality	Lesser	Lesser
Noise	Lesser	Lesser
Public Services, Utilities, and Service Systems	Lesser	Similar
Aesthetics	Lesser	Similar
Geology, Soils, and Mineral Resources	Lesser	Similar
Notes: "Lesser," Greater," and "Similar" are statements of comparison to the Proposed Project.		

SECTION 5.0

REPORT AUTHORS AND PERSONS CONSULTED

SECTION 5.0

REPORT AUTHORS AND PERSONS CONSULTED

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SECTION 6.0

BIBLIOGRAPHY

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BIBLIOGRAPHY

Abrams Associates, 2008. *Cache Creek Destination Resort Project Traffic Impact Study*. April 2008.

Alt, D. D. and D. W. Hyndman, 1975. *Roadside Geology of Northern California*. Mountain Press Publishing Company, Missoula, Montana.

Analytical Environmental Services (AES), 2003a. *Delineation of Waters of the U.S. Subject to Corps Jurisdiction Report, Cache Creek Golf Course Project*. Yolo County, California.

AES, 2003b. *Phase I Environmental Site Assessment: Cache Creek Casino / Capay Hills Golf Course*. December 2003.

AES, 2010. *Cache Creek Characterization and Assessment*, Yocha Dehe Wintun Nation. Prepared by Analytical Environmental Services. April 2010.

AES, 2016. *Calculations related to the Cache Creek Hotel Expansion Project*. July 2016.

Bollard Acoustical Consultants, Inc. (BAC), 2016. *Environmental Noise Assessment: Cache Creek Hotel Expansion*. August 3, 2016. Included as **Appendix K**.

Bolt, Bruce A., 1988. Ab*ridged Modified Mercalli Intensity Scale, Earthquakes-Newly Revised and Expanded*, Appendix C, W.H. Freeman and Co. 1993, 331 pp.

Bureau of Labor Statistics (BLS), 2016. *Local Area Unemployment Statistics.* June 2016. Available online at: http://www.bls.gov/lau/. Accessed July 27, 2016.

Cache Creek Casino Resort (CCCR), 2016a. *EE Count by Dept by County*. February 9, 2016. Personal communication on July 18, 2016.

CCCR, 2016b. Responses from off-site agencies requested by Resort's security personnel during 2015. Communication with Mark Longshore, Vice President of Security at Cache Creek Casino Resort on September 7, 2016.

California Air Resources Board (CARB), 2007. *Climate Change Early Action Staff Report*. Available online at http://www.arb.ca.gov/cc/ccea/reports/reports.htm. Accessed May 2010.

CARB, 2010a. *Glossary of Air Pollution Terms*. Reviewed April 14, 2010. Available online at: http://www.arb.ca.gov/html/gloss.htm. Accessed May 19, 2010.

CARB, 2010b. *California Local Air District Directory*. Reviewed May 17, 2010. Available online at: http://www.arb.ca.gov/capcoa/roster.htm. Accessed May 19, 2010.

CARB, 2010c. *Reducing Toxic Air Pollutants in California's Communities*. Available online at: http://www.arb.ca.gov/toxics/brochure.pdf. Accessed May 20, 2010.

CARB, 2014. *Area Designations Maps*. Available online at: http://www.arb.ca.gov/desig/adm/adm.htm. Accessed April 15, 2016.

CARB, 2016. *iADAM Top 4 Summary.* Available online at: http://www.arb.ca.gov/adam/topfour/topfour1.php/. Accessed July 11, 2016.

California Department of Conservation (DOC), 2015a. *Farmland Mapping and Monitoring Program*. Available online at: http://www.conservation.ca.gov/dlrp/fmmp. Accessed April 19, 2016.

DOC, 2015b. *Williamson Act Program*. Available online at: http://www.conservation.ca.gov/dlrp/lca/Pages/Index.aspx. Accessed on April 19, 2016.

California Department of Education (CDE), 2016a. *Selected District Level Data – 5772710 – Woodland Joint Unified – for the year 2014-15*. Available online at http://data1.cde.ca.gov/dataquest/Enrollment/EthnicEnr.aspx?cChoice=DistEnrEth&cYear=2014-15&cSelect=5772710--Woodland%20Joint%20Unified&TheCounty=&cLevel=District&cTopic=Enrollment&myTimeFrame=S&cType=ALL&cGender=B. Accessed April 22, 2016.

CDE, 2016b. *Selected District Level Data – 5772702 – Winters Joint Unified – for the year 2014-15*. Available online at: http://data1.cde.ca.gov/dataquest/Cbeds3.asp?Tp=on&GradeSpan=on&NumSchls=on&Enroll=on&cSelect=5772702--Winters+Joint+Unified&cChoice=DstProf2&cYear=2014-15&cLevel=District&cTopic=Profile&myTimeFrame=S&submit1=Submit. Accessed April 22, 2016.

California Department of Finance (DOF), 2016. *Report E-5: Population and Housing Estimates for Cities, Counties, and the State – 2011-2016, with 2010 Benchmark*. Available online at: http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-5/. Accessed April 19, 2016.

California Department of Fire and Forestry (CAL FIRE), 2007. *Fire Hazard Severity Zones*. Available online at: http://frap.fire.ca.gov/webdata/maps/yolo/fhszs_map.57.pdf. November 6, 2007. Accessed July 7, 2016.

California Department of Fish and Wildlife (CDFW), 1980. *At the crossroads: a report on the status of California's endangered and rare fish and wildlife*. Revised 1983. Sacramento, CA.

CDFW, 1994. *Staff Report regarding Mitigation for Impacts to Swainson's Hawks (Buteo swainsoni) in the Central Valley of California*. Sacramento, CA.

CDFW, 2003a. *RareFind 3.1.0, California Natural Diversity Data Base*. Updated 9/1/2007. Sacramento, California.

CDFW, 2003b. *California's Plants and Animals*. Habitat Conservation Planning Branch, California Department of Fish and Game, Sacramento, California. Available online at: http://www.dfg.ca.gov/ hcpb/species/search_species.shtml. Accessed July 2016.

CDFW, 2005. *California Interagency Wildlife Task Group*. CWHR version 8.1 personal computer program. Sacramento, CA.

CDFW, 2008. *Western Red Bat*. Available online at: https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0ahUKEwico5PU8LLOAhUO3mMKHXmdB54QFggcMAA&url=https%3A%2F%2Fnrm.dfg.ca.gov%2FFileHandler.ashx%3FDocumentID%3D2339&usg=AFQjCNFTZT2s6fv_bWlktN8fG0V-wY299w&bvm=bv.129391328,d.cGc. Accessed August 8, 2016.

CDFW, 2015. *Notice of Meeting; Final Agenda Items*. September 3, 2015. Available online at: https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=8&cad=rja&uact=8&ved=0ahUKEwjz6JXDkrLOAhVGxmMKHV1kBLIQFggxMAc&url=https%3A%2F%2Fnrm.dfg.ca.gov%2FFileHandler.ashx%3FDocumentID%3D106312&usg=AFQjCNEiDaqc_hMABq9V6x9fQGAMrUG13g&bvm=bv.129391328,d.cGc. Accessed August 8, 2016.

CDFW and United States Fish and Wildlife Service (USFWS), 2003. *Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander*. October, 2003.

California Department of Resources Recycling and Recovery (CalRecycle), 2001. *Bioreactor Landfills*. September 1, 2001. Available online at: http://www.calrecycle.ca.gov/lea/conference/01Conf/LFTech/Bioreactor.htm. Accessed April 22, 2016.

CalRecycle, 2016a. *Disposal Reporting System*. Available online at http://www.ciwmb.ca.gov/LGCentral/DRS/default.htm. Accessed April 22, 2016.

CalRecycle, 2016b. *Facility/Site Summary Details: Yolo County Central Landfill*. Available online at: http://www.calrecycle.ca.gov/SWFacilities/Directory/57-AA-0001/Detail/. Accessed July 7, 2016.

CalRecycle, 2016c. *Facility/Site Summary Details: Yolo County Central Landfill*. Available online at: http://www.calrecycle.ca.gov/SWFacilities/Directory/57-AA-0001/Detail/. Accessed April 22, 2016.

CalRecycle, 2016d. *Estimated Solid Waste Generation and Disposal Rates*. Available online at: http://www.calrecycle.ca.gov/wastechar/wastegenrates/. Accessed August 2, 2016.

California Department of Transportation (Caltrans), 2004. *Transportation- and Construction-Induced Vibration Guidance Manual*. June 2004. Available online at: http://www.dot.ca.gov/hq/env/noise/pub/vibrationmanFINAL.pdf. Accessed April 21, 2016.

Caltrans, 2012. *Transportation Corridor Concept Report: State Route 16*. Available online at: http://www.dot.ca.gov/hq/tpp/corridor-mobility/documents/d_3_docs/SR16_TCCR_FINAL.pdf. Accessed August 2016.

Caltrans, 2013. *Technical Noise Supplement to the Traffic Noise Analysis Protocol*. Available online at http://www.dot.ca.gov/hq/env/noise/pub/TeNS_Sept_2013B.pdf. Accessed April 21, 2016.

Caltrans, 2014. *California Manual on Uniform Traffic Control Devices for Streets and Highways*. November 2014. Available online at: http://www.dot.ca.gov/trafficops/camutcd/. Accessed September 2016.

Caltrans, 2015a. *State Route 16 Safety Improvement Project Initial Study with Mitigated Negative Declaration*. June 2016. Available online at: http://www.dot.ca.gov/dist3/Projects/0C470/pdfs/June%202015%20FED.pdf. Accessed July 31, 2016.

Caltrans, 2015b. *California County-Level Economic Forecast 2015-2040.* September 2015. Available online at: http://www.dot.ca.gov/hq/tpp/offices/eab/docs/Full%20Report%202015.pdf. Accessed July 15, 2016.

Caltrans, 2016a. *CO Protocol*. Available online at: http://www.dot.ca.gov/hq/env/air/pages/coprot.htm. Accessed July 7, 2016.

Caltrans, 2016b. *Frequently Asked Questions*. Available online at: http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/faq.htm. Accessed April 21, 2016.

California Department of Water Resources (DWR), 2004. *Groundwater Bulletin 118: 5-21.68 Capay Valley Subbasin*. February 27, 2004. Available online at http://www.water.ca.gov/groundwater/bulletin118/basindescriptions/5-21.68.pdf. Accessed April 25, 2016.

DWR, 2016. *Fault and Seismic Hazards Investigation*. Available online at: http://www.water.ca.gov/storage/docs/NODOS%20Project%20Docs/NODOS%20Progress%20Report/App.%20O/o_seismicity_ref_att_a.pdf. Accessed April 20, 2016.

California Emissions Estimator Model (CalEEMod), 2016. *California Emissions Estimator Model*. Available online at http://www.caleemod.com/. Accessed July 2016. Included as **Appendix J**.

California Environmental Protection Agency (CalEPA), 2010. *2010 CAT Report to the Governor and the Legislature.* Available online at: http://www.climatechange.ca.gov/climate_action_team/reports/. Accessed April 15, 2016.

California Geological Survey (CGS), 2002. *How Earthquakes and Their Effects Are Measured (Note 32)*. Revised April 2002. Available online at http://www.conservation.ca.gov/cgs/information/publications/cgs_notes/note_32/documents/note_32.pdf. Accessed April 20, 2016.

CGS, 2006. *Simplified Geologic Map of California*. Available online at: http://www.conservation.ca.gov/cgs/information/publications/ms/Documents/MS057.pdf. Accessed July 13, 2016.

CGS, 2007. *Fault Rupture Hazard Zones in California (Special Publication 42)*. Available online at ftp://ftp.consrv.ca.gov/pub/dmg/pubs/sp/Sp42.pdf. Accessed April 20, 2016.

CGS, 2015. *Probabilistic Seismic Hazards Mapping Ground Motion Page*. Available online at http://www.conservation.ca.gov/cgs/rghm/psha. Accessed April 21, 2016.

CGS, 2016. *California Geotour Index*. Available online at: http://www.conservation.ca.gov/cgs/geotour/Pages/Index.aspx. Accessed April, 2016.

California Highway Patrol (CHP), 2013. *Annual Report of Fatal/ Injury Motor Vehicle Traffic Collisions – 2013*. Available online at http:// http://www.chp.ca.gov/switrs/index.html. Accessed July 5, 2016.

California Native Plant Society (CNPS), 2014. *Rare and Endangered Plant Inventory*. Available online at http://www.rareplants.cnps.org/. Accessed April 19, 2016.

CNPS, 2016. *Navarretia leucocephala ssp. bakeri*. Available online at: http://www.rareplants.cnps.org/detail/1736.html. Accessed September 2016.

California State University, Northridge (CSUN), 2016. *Geomorphic Regions of California*. Available online at: https://www.csun.edu/science/sierras/geomorphic-regions/index.html. Accessed April 20, 2016.

California Shock Trauma Air Rescue (CALSTAR), 2016. *Inter-Facility Transport Program*. Available online at: http://www.calstar.org/service/mcclellanf.aspx. Accessed July 7, 2016.

Castillo, E. D., 1978. *The Impact of Euro-American Exploration and Settlement*. In Handbook of North American Indians, vol. 8. Edited by Robert F. Heizer. Smithsonian Institution, Washington D.C.

Caughey, J.W., 1940. *California*. Prentice-Hall, Englewood Cliffs, NJ.

Cedano, Martha, 2016. Email communication with Martha Cedano, Security Administrative Assistant on July 21, 2016 regarding Cache Creek Casino Resort Security.

Center for Business and Policy Research, 2016. *California & Metro Forecast*. January 2016. Available online at: http://www.pacific.edu/Documents/school-business/BFC/Forecasts/CA-Forecast-January2016-REV4.pdf. Accessed July 15, 2016.

Central Valley Regional Water Quality Control Board (CVRWQCB), 2007. *Amendment to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins For the Control of Mercury in Cache Creek, Bear Creek, Sulphur Creek, and Harley Gulch: Staff Report*. Prepared by the Staff of the Central Valley Regional Water Quality Control Board. March 2007. Available online at: https://www.epa.gov/sites/production/files/2015-03/documents/ca5-designate-sport-fishing.pdf. Accessed July 8, 2016.

CVRWQCB, 2010. *Sacramento-San Joaquin Delta Estuary TMDL for Methylmercury: Staff Report*. Available online at: http://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/central_valley_projects/delta_hg/april_2010_hg_tmdl_hearing/apr2010_tmdl_staffrpt_final.pdf. Accessed July 8, 2016.

CVRWQCB, 2015. *The Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board Central Valley Region*. Fourth Edition. Revised June 2015 (with approved amendments).

City of Davis, 2016. Explosive Ordinance Disposal. Available online at: http://cityofdavis.org/city-hall/police-department/eod-explosive-ordnance-disposal. Accessed July 25, 2016.

City of Woodland, 2002. *City of Woodland General Plan*. Available online at: http://www.cityofwoodland.org/gov/depts/cd/divisions/planning/online/general_plan.asp. Accessed September, 2016.

Council on Environmental Quality (CEQ), 2016. *2014 Draft Guidance*. Available online at: https://www.whitehouse.gov/sites/default/files/docs/nepa_revised_draft_ghg_guidance_searchable.pdf. Accessed April 15, 2016.

Davis Enterprise, 2014. *Supervisors approve ambulance-services contract with AMR*. February 26, 2014. Available online at: http://www.davisenterprise.com/local-news/county-government/supervisors-approve-ambulance-services-contract-with-amr/. Accessed July 7, 2016.

Education Data Partnership (Ed-Data), 2016. Available online at: http://www.ed-data.org/. Accessed April 22, 2016.

EDD, 2016. *Yolo County Labor Force Data*. July 22, 2016. Available online at: http://www.labormarketinfo.edd.ca.gov/county/yolo.html. Accessed July 27, 2016.

Environmental Data Resources, Inc. (EDR), 2016. *Radius Map Report*. April 22, 2016.

Esparto Fire Protection District (EFPD), 2016. Personal communication between AES (William Collins) and EFPD. July 7, 2016.

Federal Emergency Management Agency (FEMA), 2004. *Earthquake Hazards Reduction Act of 1977*, As Amended. Available online at https://www.fema.gov/media-library/assets/documents/12521. Accessed April 20, 2016.

Federal Interagency Committee on Noise (FICON), 1992. *Federal Agency Review of Selected Airport Noise Analysis Issues*. Available online at: ftp://ftp.agl.faa.gov/Materials%20Released%20Related%20to%20the%20OM%20EIS/3-31-2005%20World%20Gateway%20Related%20Documents/787_122.pdf. Accessed July 5, 2016.

Federal Transit Administration (FTA), 2006. *Transit Noise and Vibration Impact Assessment*. Available online at: https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/FTA_Noise_and_Vibration_Manual.pdf. Accessed April 21, 2016.

Fire Department, 2016. *Capay Valley Fire Protection District*. Available online at: http://www.firedepartment.net/directory/california/yolo-county/guinda/capay-valley-fire-protection-district. Accessed July 7, 2016.

Fredericksen, Gary, 2016a. Telephone communication with Gary Fredericksen, Yocha Dehe Fire Department (YDFD) Fire Chief. July 20, 2016.

Fredericksen, Gary, 2016b. Email communication with Gary Fredericksen, YDFD Fire Chief. July 6, 2016.

Fredricksen, Gary. 2016c. Yocha Dehe Fire Department Fire Chief. Personal communication on November 2, 2016.

Fredrickson, David, 1973. *Early Cultures of the North Coast Ranges, California*. Ph.D. Dissertation, Department of Anthropology, University of California, Davis.

Fredrickson, David, 1974. *Cultural Diversity in Early Central California: A View from the North Coast Ranges*. Journal of California Anthropology 1(1):41-53.

Garrison, 1998. Bank Swallow (Riparia riparia). *In The Riparian Bird Conservation Plan: a strategy for reversing the decline of riparian-associated birds in California*. California Partners in Flight. http://www.prbo.org/calpif/htmldocs/riparian_v-2.html. Accessed August 8, 2016.

Garrison, B.A., 1999. *Bank swallow (Riparia riparia)*. In A. Poole and F. Gill (eds.), The birds of North America, No. 414. Philadelphia, PA: The Academy of Natural Sciences and Washington DC: The American Ornithologists' Union.

Garrison, B.A., 2002. *Draft bank swallow account*. In The bird species of special concern. CA Dept. of Fish and Game and Pt. Reyes Bird Observatory.

Garrison, B.A., J.M. Humphrey, and S.A. Laymon, 1987. *Bank swallow distribution and nesting ecology on the Sacramento River, California*. Western Birds 18(1):71-76.

Garrison, Dan, 2016. Fire Chief of the Capay Valley Fire Protection District (CVFPD). Personal communication between CVFPD (Dan Garrison) and AES (William Collins). July 7, 2016.

Granite Construction, 2016. Available online at: https://graniteconstruction.com/. Accessed April 21, 2016.

Gregory, T., 1913. *History of Yolo County, California*. Historic Record Company, Los Angeles.

Harden, D. R., 2004. *California Geology*, 2nd ed.: Prentice Hall, Upper Saddle River, NJ.

Harvey, 2004. *California Bat Mitigation Techniques, Solutions, and Effectiveness*. Available online at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=10334. Accessed August 8, 2016.

Hickman, 1993. *The Jepson Manual*. Hickman, James C. (ed.). University of California Press, Berkeley, CA.

Hill, M. 1984. *California Landscape: Origin and Evolution*. University of California Press, Berkeley.

Holland, 1986. *Preliminary Descriptions of the Terrestrial Natural Communities of California*. Resources Agency, California State Department of Fish and Game, Natural Heritage Division.

Hoogerhyde, Cindy, 2016. Email correspondence with Cindy Hoogerhyde, Business Enterprise Solutions, PG&E. July 1, 2016.

Hoover, Mildred B., H.E. Rensch, E.G. Rensch, and W.N. Abeloe, 2002. *Historic Spots in California*. Revised by Douglas E. Kyle. Palo Alto, Stanford University Press.

Hydroscience, 2016. *Cache Creek Hotel Expansion Project Water and Wastewater Feasibility Study*. July 2016. Included as **Appendix F**.

Illuminating Engineering Society of North America (IES), 2001. *Full Cutoff Lighting: the Benefits*. April 2001. Available online at http://www.ies.org/PDF/Archives/2001_04.pdf. Accessed April 21, 2016. Pages 54-56.

Institute of Transportation Engineers (ITE), 2012. *Trip Generation Manual, 9th edition*. Available online at: http://www.ite.org/tripgeneration/trippubs.asp. Accessed September 2016.

Intergovernmental Panel on Climate Change (IPCC), 2013. *Long-term Climate Change.* Available online at: http://www.climatechange2013.org/images/report/WG1AR5_Chapter12_FINAL.pdf. Accessed April 15, 2016.

Jameson, E.W., and H.J. Peeters, 2004. *Mammals of California*. University of California Press, Berkeley, CA.

Jennings, M.R., and M.P. Hayes, 1994. *Amphibian and reptile species of special concern in California*. Final Report to the California Department of Fish and Game, Inland Fisheries Division, Rancho Cordova, CA.

Johnson, P., 1978. *Patwin*. In Handbook of the North American Indians, Volume 8, California, edited by R. F. Heizer, pp. 350-360. Smithsonian Institution, Washington, D.C.

Kimley-Horn, 2010. *Draft Traffic Impact Study: Cache Creek Casino Resort Event Center Project*. June 2010. Included within **Appendix D**.

Kimley-Horn, 2016. *Traffic Impact Study*. July 2016. Included as **Appendix D**.

Kinter, Leland, 2015. *Land Acquisition Application – Yocha Dehe Wintun Nation Benewihno Kewe Property*. Letter to Amy Dutschke, Regional Director, Bureau of Indian Affairs. Available online at: http://www.yolocounty.org/home/showdocument?id=34462. Accessed July 19, 2016.

Klinkhammer, Marcus, 2016. Battalion Chief of the Willow Oaks Fire Protection District (WOFPD). Personal communication between WOFPD (Marcus Klinkhammer) and AES (William Collins). July 06, 2016.

KQED, 2016. *California has Hundreds of Dams*. Available online at: http://www.kqed.org/news/science/climatewatch/waterandpower/map.jsp. Accessed July 13, 2016.

Kroeber, Alfred, 1925. *Handbook of the Indians of California*. Bureau of American Ethnology Bulletin 78. Smithsonian Institution, Washington, D.C. Reprinted by Dover, New York.

Kroeber, Alfred, 1932. *The Patwin and Their Neighbors*. University of California Publications in American Archaeology and Ethnology 29(4)254-423. Berkeley.

Madison Fire Protection District (MFPD), 2016. *Madison Apparatus and Department Personnel.* Available online at: http://madison-fire.com/. Accessed July 6, 2016.

McKern, W. K., 1922. *Functional Families of the Patwin*. University of California Publications in American Archaeology and Ethnology 13(7)235-258. Berkeley.

McKern, W. K, 1923. *Patwin Houses*. University of California Publications in American Archaeology and Ethnology 20(10)159-171. Berkeley.

Natural Resources Conservation Service (NRCS), 2016. *Soil Survey of Yolo County*. Natural Resources Conservation Service Web Soil Survey (WSS). Available online at http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm. Accessed April 20, 2016.

Natureserve, 2015. *Caradrius montanus: Mountain Plover*. Available online at: http://explorer.natureserve.org/servlet/NatureServe?searchName=Charadrius+montanus. Accessed August 8, 2016.

Northwest Information Center (NWIC), 2016. Records search conducted at Northwest Information Center (NWIC) of the California Historical Resources Information System by NWIC staff, on April 11, 2016 (NWIC file 15-1451).

Powers, S., 1976. *Tribes of California*. Reprinted 1976 from the original 1877 manuscript. University of California Press, Berkeley.

Redwood Empire Air Care Helicopter Air Support Services (REACH), 2015. *Santa Rosa Service Area*. Available online at: http://reachair.com/wp-content/uploads/REACH_1_Service_Map_2015.pdf. Accessed July 7, 2016.

REACH, 2016. *REACH History*. Available online at: http://reachair.com/about-us/history/. Accessed July 7, 2016.

RMC, 2016a. *CapayIGSM Update and Scenario Analysis Final Report*. July 2016. Included as **Appendix E**.

RMC, 2016b. *Golf Course Water Supply Information*. September 2016.

Sacramento Area Council of Governments (SACOG), ~~2012. *2013 to 2021 Regional Housing Needs Plan*. Adopted: September 20, 2012. Available online at: http://www.sacog.org/regional-housing-needs-assessment. Accessed April 19, 2016.~~

~~SACOG,~~ 2016. *2016 MTP/SCS*. Available online at: http://www.sacog.org/general-information/2016-mtpscs. Accessed August 2016.

Sanchez, N. Van de Grift, 1930. *My Years with Chief Solano*. Translated by Nellie Van de Grift Sanchez. Touring Topics 22(2):39, 52.

Sawyer, J.O., and T. Keeler-Wolf, 1995. *A Manual of California Vegetation*. Available online at: http://www.cnps.org/cnps/vegetation/manual.php. Accessed August 8, 2016.

Schenck, H.G. and A.M. Keen, 1955. *California Fossils for the Field Geologist*. Stanford University Press, Stanford.

~~Sierra-Sacramento Valley EMS Agency, 2016. *Program Policy for 9-1-1 Response Time Criteria-Yolo County*. Available online at http://www.ssvems.com/. Accessed September 2016.~~

State Water Resources Control Board (SWRCB), 2012. *Final California 2012 Integrated Report (303(d) List/305(b) Report)*. Available online at: http://www.waterboards.ca.gov/water_issues/programs/tmdl/2012state_ir_reports/01151.shtml#19543. Accessed July 8, 2016.

Stebbins, Robert C., 1951. *Amphibians of western North America*. University of California Press, Berkeley, California.

Stebbins, Robert C., 2003. A field guide to western reptiles and amphibians (3rd ed.): New York, Houghton Mifflin Harcourt.

Transportation Research Board, 2010. *Highway Capacity Manual*.

United Nations Framework Convention on Climate Change (UNFCCC), 2014. *Global Warming Potentials*. Available online at: http://unfccc.int/ghg_data/items/3825.php. Accessed on July 1, 2016.

United States Census Bureau (US Census), 2012. *Population and Housing Narrative Profile: 2010-2012.* 2010-2012 American Community Survey 3-Year Estimates. Available online at: http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_12_3YR_NP01&prodType=narrative_profile. Accessed July 15, 2016.

US Census, 2014a. *Income in the Past 12 Months: 2010-2014 American Community Survey 5-Year Estimates*. Available online at:

http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_14_5YR_S1901&prodType=table. Accessed April 19, 2016.

US Census, 2014b. *Employment Status: 2010-2014 American Community Survey 5-Year Estimates*. Available online at: http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_14_5YR_S2301&prodType=table. Accessed April 19, 2016.

US Census, 2014c. *Employment Status: 2014 American Community Survey 1-Year Estimates*. Available online at: http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_14_1YR_S2301&prodType=table. Accessed April 19, 2016.

~~US Census, 2014d. *Employment Status; American Community Survey. 2005–2014*. Available online at: http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_14_1YR_S2301&prodType=table. Accessed July 14, 2016.~~

United States Environmental Protection Agency (USEPA), 1976. *Toxic Substances Control Act*. Available online at: http://www.epw.senate.gov/tsca.pdf. Accessed September 2016.

USEPA, 1986a. *Resource Conservation and Recovery Act*, amended 1986. Available online at: http://www.epw.senate.gov/rcra.pdf. Accessed September 2016.

USEPA, 1986b. *Superfund Amendments and Reauthorization Act (SARA) Overview*. Available online at: http://www.epw.senate.gov/sara.pdf. Accessed September 2016.

USEPA, 2015. *Air Data*. Available online at: https://www3.epa.gov/airdata/ad_maps.html. Accessed July 1, 2016.

USEPA, 2016a. *NPDES Permit Program Basics*. Office of Wastewater Management. April 11, 2016. Available online at https://www.epa.gov/npdes. Accessed April 25, 2016.

USEPA, 2016b. *NAAQS Table*. Available online at: https://www.epa.gov/criteria-air-pollutants/naaqs-table. Accessed July 1, 2016.

USEPA, 2016c. *Current Nonattainment Counties for All Criteria Pollutants*. Available online at: https://www3.epa.gov/airquality/greenbook/ancl.html. Accessed July 1, 2016.

USEPA, 2016d. *Power Profiler*. Available online at: https://www.epa.gov/energy/power-profiler. Accessed July 7, 2016.

United States Fish and Wildlife Service (USFWS), 1999. *Conservation Guidelines for the Valley Elderberry Longhorn Beetle.* U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, Sacramento, California.

USFWS, 2002. *Recovery Plan for the California Red-Legged Frog*. Available online at: https://www.fws.gov/arcata/es/amphibians/crlf/documents/020528.pdf. Accessed August 8, 2016.

USFWS, 2007. *Federal Endangered and Threatened Species that Occur in or May be Affected by Projects in Esparto, CA and Brooks, CA*. USGS 7.5" Topographic Quadrangle. USFWS Sacramento Office. Last updated June 9, 2007. Accessed on September 6, 2007.

USFWS, 2012. *Bald Eagle*. Available online at: https://www.fws.gov/oregonfwo/species/data/baldeagle/. Accessed August 8, 2016.

United States Geological Survey (USGS), 1982. *Landslide Overview Map of the Conterminous United States*. Available online at http://landslides.usgs.gov/hazards/nationalmap/.Accessed April 20, 2016.

USGS, 1996. *Probabilistic Seismic Hazard Assessment for the State of California*. Available online at: http://www.conservation.ca.gov/cgs/rghm/psha/ofr9608/Pages/index.aspx. Accessed April 21, 2016.

USGS, 2000. *Quaternary Fault and Fold Database of the United States: Hunting Creek-Berryessa fault system, Wilson section*. Compiler: W.A. Bryant. Last reviewed April 28, 2000. Available online at: http://geohazards.usgs.gov/cfusion/qfault/show_report_AB.cfm?fault_id=35&section_id=a. Accessed April 20, 2016.

USGS, 2009. *Mercury in the Environment*. February 19, 2009. Available online at: https://www2.usgs.gov/themes/factsheet/146-00/. Accessed July 8, 2016.

USGS, 2011. *ShakeMap Scientific Background*. March 9, 2011. Available online at: http://earthquake.usgs.gov/earthquakes/shakemap/background.php. Accessed April 21, 2016.

USGS, 2016a. *Geologic units by State*. Available online at: http://mrdata.usgs.gov/geology/state/sgmc-lith.php?code=root. Accessed July 13, 2016.

USGS, 2016b. *USGS FAQs*. Available online at http://landslides.usgs.gov/. February 24, 2016. Accessed April 20, 2016.

University of California Davis (UC Davis), 1997. *Transportation Project-Level Carbon Monoxide Protocol*. University of California, Davis Institute of Transportation Studies. Prepared for California Department of Transportation. Revised December, 1997.

UC Davis, 2016. *Agritourism*. April 7, 2016. Available online at: http://sfp.ucdavis.edu/agritourism/. Accessed April 20, 2016.

University of California Museum of Paleontology (UCMP), 2016. *Online Collections Database, Specimen Search*. Electronic Document. Available online at: http://ucmpdb.berkeley.edu/. Accessed April 6, 2016.

Vargas, Ron, 2016. Personal communication regarding Ride Share Programs. April 28, 2016.

Visit California, 2016. *Amazing Agritourism Experiences*. Available online at: http://www.visitcalifornia.com/feature/amazing-agritourism-experiences. Accessed April 20, 2016.

Western Regional Climate Center (WRCC), 2007. *Western Regional Climate Center database for Brooks Farnham Ranch, California.* Western Regional Climate Center, Reno, Nevada. Accessed 9/6/2007 from http://www.wrcc.dri.edu/

White, C.M., N.J. Clum, T.J. Cade and W.G. Hunt, 2002. *Peregrine Falcon (Falco peregrinus).* In A. Poole and F. Gill (eds.), The birds of North America, No. 414. Philadelphia, PA: The Academy of Natural Sciences and Washington DC: The American Ornithologists' Union.

Yocha Dehe Fire Department (YDFD), 2016. *Yocha Dehe Fire Department*. Available online at: http://www.yochadehe.org/tribal-government/yocha-dehe-fire-department. Accessed July 7, 2016.

Yocha Dehe Wintun Nation (YDWN), 2016. *Yolo County and Yocha Dehe Partner to Fund Emergency Services*. Available online at: http://www.yochadehe.org/news/yolo-county-and-yocha-dehe-partner-fund-emergency-services. Accessed August 2, 2016.

Yolo County, 2007. *Town of Esparto General Plan*. April 2007. Available online at: http://www.yolocounty.org/home/showdocument?id=15788. Accessed April 22, 2016.

Yolo County, 2009a. *County of Yolo 2030 Countywide General Plan*. Available online at http://www.yolocounty.org/general-government/general-government-departments/county-administrator/general-plan-update/adopted-general-plan. Accessed April 19, 2016.

Yolo County, 2009b. *Yolo County General Plan Final Environmental Impact Report*. Available online at ht http://www.yolocounty.org/general-government/general-government-departments/county-administrator/general-plan-update/final-environmental-impact-report-eir-. Accessed March 2010.

Yolo County, 2010. *Capay Valley Area Plan*. Available online at http://www.yolocounty.org/home/showdocument?id=15779. Accessed April 19, 2016.

Yolo County, 2011. *Climate Action Plan*. Available online at: http://www.yolocounty.org/community-services/planning-public-works/planning-division/climate-action-plan. Accessed April 15, 2016.

Yolo County, 2012a. *Yolo County Operational Area: Multi-Jurisdictional Hazard Mitigation Plan*. December 2012. Available online at: http://www.yolocounty.org/home/showdocument?id=24428. Accessed July 13, 2016.

Yolo County, 2012b. *Appendix A Mining Sites*. Available online at: http://www.yolocounty.org/home/showdocument?id=28873. Accessed April 21, 2016.

Yolo County, 2014. *Strategic Space Utilization Study: Executive Summary and Recommended Scenario*. October 31, 2014. Available online at: http://www.yolocounty.org/home/showdocument?id=27250. Accessed July 8, 2016.

Yolo County, 2015. *2014 Updated Yolo County Code*. Available online at: http://www.yolocounty.org/community-services/planning-division/2014-zoning-code. Accessed April 20, 2016.

Yolo County, 2016a. *Parks Information*. Available online at: http://www.yolocounty.org/general-government/general-government-departments/parks/parks-information. Accessed April 19, 2016.

Yolo County, 2016b. *Yolo Narcotics Enforcement Task Force*. Available online at: http://www.yolocounty.org/law-justice/district-attorney/yolo-narcotics-enforcement-task-force. Accessed July 6, 2016.

Yolo County Fire Services, 2016. *Agreement for Yolo County Fire Services Mutual Aid*. April 11, 2016.

Yolo County Central Landfill (YCCL), 2016. *Yolo County Central Landfill*. Available online at: http://www.yolocounty.org/community-services/planning-public-works/integrated-waste-management-division/central-landfill. Accessed August 2, 2016.

Yolo County General Services Department (YCGS), 2016. Personal communication on August 3, 2016 regarding upgrades and expansion to Yolo County public health facilities.

Yolo County Healthcare for Indigents Program (YCHIP), 2007. *Yolo County YCHIP Program Instruction Sheet*. Available online at: http://www.yolocounty.org/Home/ShowDocument?id=129. Accessed July 6, 2016.

Yolo County Sheriff's Office, 2016. *Sheriff's Department Website*. Available online at http://www.yolocountysheriff.com/. Accessed July 7, 2016.

Yolo Emergency Communications Agency (YECA), 2016. *Dispatch Center and Call Statistics.* Available online at: http://www.yolo911.org/CENTER.html. Accessed July 6, 2015.

Yolo Habitat Conservancy (YHC), 2016. *About*. Available online at: http://www.yolohabitatconservancy.org/. Accessed July 8, 2016.

Yolo Solano Air Quality Management District (YSAQMD), 2007. *Handbook for Assessing and Mitigating Air Quality Impacts*. Available online at http://www.ysaqmd.org/documents/CEQAHandbook2007.pdf. Accessed April 15, 2016.

YSAQMD, 2012. *Triennial Assessment and Plan Update – Draft*. Available online at: http://www.ysaqmd.org/planning/triennial-plan-2016-draft.pdf. March 11, 2016. Accessed July 13, 2016.

Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer (eds.), 1988. *California's wildlife*. Volume I: Amphibians and reptiles. California Statewide Wildlife Habitat Relationships System. Sacramento, CA: California Department of Fish and Game.

Zweifel, R.G., 1955. *Ecology, distribution, and systematics of frogs of the Rana boylei group*. University of California Publications in Zoology 54(4):207-292.

FINAL TRIBAL ENVIRONMENTAL IMPACT REPORT

YOCHA DEHE WINTUN NATION

CACHE CREEK HOTEL EXPANSION PROJECT

VOLUME III: APPENDICES

JANUARY 2017

LEAD AGENCY:
The Yocha Dehe Wintun Nation
P.O. Box 18
Brooks, CA 95606

FINAL TRIBAL ENVIRONMENTAL IMPACT REPORT

YOCHA DEHE WINTUN NATION

CACHE CREEK HOTEL EXPANSION PROJECT

VOLUME III: APPENDICES

JANUARY 2017

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OFF-RESERVATION ENVIRONMENTAL IMPACT ANALYSIS CHECKLIST

EXHIBIT A

OFF-RESERVATION ENVIRONMENTAL IMPACT ANALYSIS CHECKLIST

I. AESTHETICS

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☐
b) Substantially damage off-reservation scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☐
c) Create a new source of substantial light or glare, which would adversely affect day or nighttime views of historic buildings or views in the area?	☐	☐	☐	☐

II. AGRICULTURAL RESOURCES

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Involve changes in the existing environment, which, due to their location or nature, could result in conversion of off-reservation farmland to non-agricultural use?	☐	☐	☐	☐

III. AIR QUALITY

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☐
b) Violate any air quality standard or contribute to an existing or projected air quality violation?	☐	☐	☐	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?	☐	☐	☐	☐

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
d) Expose off-reservation sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☐
e) Create objectionable odors affecting a substantial number of people off-reservation?	☐	☐	☐	☐

IV. BIOLOGICAL RESOURCES

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Have a substantial adverse impact, either directly or through habitat modifications, on any species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☐
b) Have a substantial adverse effect on any off-reservation riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☐
c) Have a substantial adverse effect on federally protected off-reservation wetlands as defined by Section 404 of the Clean Water Act?	☐	☐	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☐
e) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☐

V. CULTURAL RESOURCES

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Cause a substantial adverse change in the significance of an off-reservation historical or archeological resource?	☐	☐	☐	☐
b) Directly or indirectly destroy a unique *off-reservation* paleontological resource or site or unique off-reservation geologic feature?	☐	☐	☐	☐
c) Disturb any off-reservation human remains, including those interred outside of formal cemeteries?	☐	☐	☐	☐

VI. GEOLOGY AND SOILS

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Expose off-reservation people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☐
ii) Strong seismic ground shaking?	☐	☐	☐	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☐
iv) Landslides?	☐	☐	☐	☐
b) Result in substantial off-reservation soil erosion or the loss of topsoil?	☐	☐	☐	☐

VII. HAZARDS AND HAZARDOUS MATERIALS

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Create a significant hazard to the off-reservation public or the off-reservation *environment through* the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	☐

b) Create a significant hazard to the off-reservation public or the off-reservation environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed off-reservation school?	☐	☐	☐	☐
d) Expose off-reservation people or structures to a significant risk of loss, injury or death involving wildland fires.	☐	☐	☐	☐

VIII. WATER RESOURCES

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☐	☐
b) Substantially deplete off-reservation groundwater supplies or interfere substantially with groundwater recharge such that there should be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion of siltation off-site?	☐	☐	☐	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding off-site?	☐	☐	☐	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff off-reservation?	☐	☐	☐	☐
f) Place within a 100-year flood hazard area structures, which would impede or redirect off-reservation flood flows?	☐	☐	☐	☐
g) Expose off-reservation people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☐

IX. LAND USE

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Conflict with any off-reservation land use plan, policy, or regulation of an agency adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☐
b) Conflict with any applicable habitat conservation plan or natural communities conservation plan covering off-reservation lands?	☐	☐	☐	☐

X. MINERAL RESOURCES

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Result in the loss of availability of a known off-reservation mineral resource classified MRZ-2 by the State Geologist that would be of value to the region and the residents of the state?	☐	☐	☐	☐
b) Result in the loss of availability of an off-reservation locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☐

XI. NOISE

Would the project result in:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Exposure of off-reservation persons to noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☐	☐
b) Exposure of off-reservation persons to excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☐
c) A substantial permanent increase in ambient noise levels in the off-reservation vicinity of the project?	☐	☐	☐	☐

Would the project result in:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
d) A substantial temporary or periodic increase in ambient noise levels in the off-reservation vicinity of the project?	☐	☐	☐	☐

XII. POPULATION AND HOUSING

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Induce substantial off-reservation population growth?	☐	☐	☐	☐
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere off-reservation?	☐	☐	☐	☐

XIII. PUBLIC SERVICES

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered off-reservation governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the off-reservation public services:				
Fire protection?	☐	☐	☐	☐
Police protection?	☐	☐	☐	☐
Schools?	☐	☐	☐	☐
Parks?	☐	☐	☐	☐
Other public facilities?	☐	☐	☐	☐

XIV. RECREATION

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Increase the use of existing off-reservation neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☐

XV. TRANSPORTATION / TRAFFIC

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Cause an increase in off-reservation traffic, which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)?	☐	☐	☐	☐
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated off-reservation roads or highways?	☐	☐	☐	☐
c) Substantially increase hazards to an off-reservation design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☐
d) Result in inadequate emergency access for off-reservation responders?	☐	☐	☐	☐

XVI. UTILITIES AND SERVICE SYSTEMS

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Exceed off-reservation wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☐
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant off-reservation environmental effects?	☐	☐	☐	☐
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant off-reservation environmental effects?	☐	☐	☐	☐

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
d) Result in a determination by an off-reservation wastewater treatment provider (if applicable), which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☐

XVII. CUMULATIVE EFFECTS

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Have impacts that are individually limited, but cumulatively considerable off-reservation? "Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past, current, or probable future projects.	☐	☐	☐	☐

APPENDIX B

NOTICE OF PREPARATION AND SUPPLEMENTAL NOTICE OF PREPARATION

NOTICE OF PREPARATION

NOTICE OF PREPARATION OF TRIBAL ENVIRONMENTAL IMPACT REPORT FOR CACHE CREEK HOTEL EXPANSION PROJECT

Date: **March 21, 2016**

To: **State Clearinghouse**
County of Yolo
Interested Parties

From: **Yocha Dehe Wintun Nation**
18960 Puhkum Road
P.O. Box 18
Brooks, CA 95606

Project Title: **Cache Creek Hotel Expansion Project**

Project Sponsor: **Yocha Dehe Wintun Nation**

The Yocha Dehe Wintun Nation (the "Tribe") owns and operates the Cache Creek Casino Resort (the "Resort") situated on federally-owned land that is held in trust for the Tribe and located at 14455 Highway 16, Brooks, California (the "Trust Land").

The Resort is operated by the Tribe pursuant to a gaming compact with the State of California (the "Compact"). The Compact requires that, before beginning construction of any new "Project" (as defined in the Compact), the Tribe cause to be prepared a tribal environmental impact report (a "TEIR") analyzing the potentially significant off-reservation environmental impacts of that Project. That environmental analysis is to be conducted pursuant to the process described in the Compact.

The Tribe's governing body — specifically, its Tribal Council — has authorized the preparation of a TEIR for a potential project on the Trust Land that would add to the Resort an additional hotel tower and the other components described in this Notice (collectively and sometimes referenced to in this Notice as the "Hotel Expansion Project" or the "Proposed Project"). The Hotel Expansion Project is a "Project" under the Compact, and therefore requires a TEIR.

This Notice is given pursuant to the Compact to inform you that the Tribe is beginning the TEIR process and that, as required by that process, a draft of the TEIR for the Hotel Expansion Project will be prepared by environmental consultants engaged by the Tribe. That draft TEIR will address each of the items listed in the Off-Reservation Impact Checklist, as required by the Compact. A copy of the Off-Reservation Impact Checklist is attached to this Notice as **Exhibit A**.

The Compact provides that you may, at any time within thirty (30) days after the date on which this Notice is received by the State Clearinghouse in the State Office of Planning and Research (the "State Clearinghouse") and the County of Yolo (the "County"), provide comments to the Tribe. The Tribe requests that you identify in your comments any potentially significant off-reservation environmental

impacts, and any reasonable mitigation measures to address those impacts, that you believe should be considered in the draft TEIR for the Hotel Expansion Project.

Comments should be in writing and sent by mail to the following address, and will be considered timely if postmarked no later than April 21, 2016. Please send your comments to:

Yocha Dehe Wintun Nation
18960 Puhkum Road
P.O. Box 18
Brooks, CA 95606

All comments postmarked by April 21, 2016 will be carefully reviewed and considered by the Tribe. A project description, location map and site plan for the Hotel Expansion Project, as well as a brief description of the environmental areas in which off-reservation impacts attributable to the Hotel Expansion Project may be probable, are included in the following pages of this Notice. The description of probable off-reservation environmental impacts of the Hotel Expansion Project in this Notice has been prepared before the analysis required to complete the TEIR has been completed. Accordingly, the description of probable impacts in this Notice is subject to the results of the analysis in the TEIR, and the potentially significant off-reservation impacts identified in the TEIR may differ from those described in this Notice.

A copy of this Notice is available online at www.cachecreekteir.com. A copy of the draft TEIR will be posted on that website when the draft TEIR is completed. In addition, the Tribe may from time-to-time post other information regarding the Hotel Expansion Project on that website.

The draft TEIR will include the analysis of potentially significant direct and indirect off-reservation environmental impacts attributable to the Proposed Project, and mitigation measures to address such impacts as required by the Compact. The draft TEIR shall also describe a range of reasonable alternatives to the Proposed Project that could avoid or minimize potentially significant adverse impacts, and evaluate the comparative merits of the alternatives.

The Compact requires that the draft TEIR, when completed, be filed with the State Clearinghouse, the County, and the California Department of Justice. After that filing, there will be a 45-day period during which interested persons and agencies may submit comments regarding the draft TEIR. The draft TEIR will include provisions describing how any such comments are to be submitted to the Tribe.

As required by the Compact, any comments regarding the draft TEIR received by the Tribe during the 45-day comment period will be carefully considered and evaluated in connection with the preparation of a proposed final draft of the TEIR. Once completed, the final draft of the TEIR will be presented to the Tribal Council for its review and approval or disapproval. The proposed final TEIR will include copies of all of the comments regarding the draft TEIR received by the Tribe during the 45-day comment period, as well as a written response to each of those comments. If the final TEIR is approved, the Tribal Council will certify that approval, and a copy of the final TEIR will be provided to the County Clearinghouse. In addition, the Tribe will post a copy of the final TEIR on the website mentioned above.

INFORMATION REGARDING PROPOSED PROJECT

PROJECT TITLE

Cache Creek Hotel Expansion Project

LOCATION

The Proposed Project would be situated entirely on the Trust Land on which the Resort is located. The Resort is located in the northwestern area of Yolo County, west of the City of Woodland, at 14455 Highway 16, Brooks, California 95606.

Regional access to the site of the Proposed Project would be provided by Interstate 505, which connects Interstate 80 in Vacaville to Interstate 5 near the Yolo/Colusa County line. State Route 16 provides direct access to the Resort, which is located on State Route 16.

Figure 1 attached to this Notice shows the location of the Proposed Project.

SITE CHARACTERISTICS

The Trust Land on which the Proposed Project would be constructed (project site) is already fully developed with the Resort and supporting infrastructure. The Proposed Project would occur within the existing paved surface parking area located to the south of the main Resort building. In addition, equipment at the existing water treatment facilities and the existing wastewater treatment facilities for the Resort (both of which are on the Trust Land) would be modified to treat the additional water required for and the additional wastewater generated by the Proposed Project.

All new construction for the Proposed Project, as well as temporary construction parking and the management of cut/fill generated by the Proposed Project, would be entirely on the Trust Land, and therefore will not be "off-reservation."

Figure 2 is an aerial photograph of the project site and vicinity. The Trust Land is outlined in red on **Figure 2**.

Surrounding Land Uses

Surrounding land uses in the immediate vicinity of the Proposed Project are as follows:

North: Agricultural land, rural residences, and tribal governmental uses.

South: Agricultural land and rural residences.

East: Golf course, Cache Creek, and rangeland.

West: Highway 16, agricultural land, and rural residences.

PROJECT DESCRIPTION

The Proposed Project would offer additional amenities at the Resort and provide additional administrative support space for the Resort. A breakdown of the Proposed Project components is provided in **Table 1.** The Proposed Project is designed to enhance the Resort guest experience by offering additional hotel rooms, entertainment and event options, and more dining options.

The Proposed Project would be built on areas of the Trust Land that already have been developed with a parking lot and already have impervious surfaces. The height of the new hotel tower would be generally consistent with or similar to the height of the existing Resort buildings, and the Proposed Project would feature the same architectural style as the existing buildings.

Figure 3 is a preliminary site plan for the Proposed Project.

Water supply for the Proposed Project would be provided by the Tribe's existing wells, and also from Cache Creek during certain months in accordance with the Tribe's existing water rights. The Proposed Project would include equipment modifications to the Tribe's existing water and wastewater treatment facilities to accommodate the additional water required and the additional wastewater generated by the Proposed Project.

TABLE 1
PROPOSED RESORT EXPANSION ELEMENTS

Element	Existing	Proposed (new) (net gain) ---	Total
Hotel	137,320 sf 200 rooms	297,902 sf 377 rooms	435,222 sf 577 rooms
Spa	11,800 sf	--	11,800 sf
Gaming Floor	94,505 sf	--	94,505 sf
Ballroom	0 sf 0 seats	13,350 sf 1,325 seats	13,350 sf 1,325 seats
Restaurants	32,353 sf	9,475 sf	41,828 sf
Miscellaneous Public Spaces	40,857 sf	27,165 sf	68,022 sf
Back of House	97,275 sf	57,108 sf	154,838 sf
Total Square Feet	414,110 sf	405,000 sf	819,110 sf

Objectives

The Proposed Project would meet the demand for overnight stays by existing patrons by adding hotel rooms. The existing 200-room hotel has been operating at capacity from the outset of its opening, and particularly on weekends, many guests are unable to extend their visits due to lack of lodging. The Proposed Project would also provide additional amenities related to dining and entertainment that are in demand from existing patrons that are not currently available in the area. Offering the new amenities would enable the facility to remain competitive, as a premier casino/resort in northern California, and continue to provide a sustainable, long-term economic base for the Tribal Government.

PROBABLE OFF-RESERVATION ENVIRONMENTAL EFFECTS

The following sections of this Notice discuss, based on the Tribe's current knowledge without the benefit of the environmental analysis that will be performed as part of the TEIR process, areas in which adverse off-reservation environmental impacts attributable to the Proposed Project may be probable. As noted above, each of these potential impacts will be analyzed in the TEIR. The TEIR will also analyze the extent to which mitigation measures (which the TEIR will describe) would minimize or eliminate potentially significant adverse off-reservation environmental impacts of the Proposed Project. The TEIR will identify any anticipated potentially significant off-reservation adverse environmental impacts of the Proposed Project that cannot be mitigated.

The TEIR will include analysis of the Proposed Project's potentially significant off-reservation environmental impacts associated with the following resource areas (each of which is required by the Off-Reservation Impact Checklist):

Aesthetics

The Proposed Project may change the visual character of the area. Although the height of the proposed facilities is not anticipated to substantially exceed the height of the existing Resort buildings, the new hotel tower and expanded size of the Resort could visually impact certain off-reservation properties. The TEIR will assess the impacts of the Proposed Project on the existing visual character and quality of the off-reservation area, including light and glare effects and the impacts of the Proposed Project on any off-reservation scenic vistas or resources. The TEIR will include architectural renderings of the proposed structures. The TEIR will identify mitigation measures to address any potentially significant impacts.

Agricultural Resources

The Proposed Project would be constructed entirely on Trust Land, and would not use any agricultural land, either on a temporary or permanent basis. Accordingly, the Proposed Project would not directly convert any existing farmland to any non-agricultural use.

Air Quality and Climate Change

The Proposed Project would generate short-term emissions, including dust, during the construction phase and long-term emissions from vehicle traffic which could contribute to existing or projected air quality issues. Additionally, the Proposed Project would result in short-term emissions of greenhouse gas (GHG) associated with construction and long-term GHG emissions primarily associated with vehicle traffic and energy usage, that could contribute to cumulative effects associated with climate change. The TEIR will assess the off-reservation impacts of the Proposed Project associated with air quality and greenhouse gas emissions, including consistency with applicable air quality standards and plans, and impacts on sensitive receptors from pollutant emissions and odors. The TEIR will identify mitigation measures to address any potentially significant impacts.

Biological Resources

Construction activities for the Proposed Project would be on areas of the Trust Land that have already been disturbed with prior development, much of which is currently paved and being used for parking. Accordingly, impacts to biological resources would likely be minimal. The TEIR will assess the off-reservation impacts of the Proposed Project on biological resources, including habitat, wetlands, fish and

wildlife migration, species preservation, natural community preservation and compliance with applicable plans, standards, laws, and regulations relating thereto. The TEIR will identify mitigation measures to address any potentially significant impacts, if necessary.

Cultural Resources

Construction activity for the Proposed Project would be confined to the Trust Land (which is already developed and was previously surveyed for cultural resources), and it is therefore not anticipated that any off-reservation cultural resources would be impacted by the Proposed Project. The TEIR will assess the off-reservation impacts of the Proposed Project on cultural resources, and identify mitigation measures to address any potentially significant impacts.

Geology and Soils

The Proposed Project would be constructed on the Trust Land and will meet all applicable earthquake safety standards. It is therefore not anticipated that any people or structures would be subjected to adverse effects from earthquakes, ground shaking, seismic ground failure, landslides, or erosion as a result of the Proposed Project. The TEIR will assess the off-reservation impacts of the Proposed Project by virtue of earthquakes, ground shaking, seismic ground failure, landslides, or erosion, and identify mitigation measures to address any potentially significant impacts.

Hazards and Hazardous Materials

Certain hazardous materials would be used in the construction and in the operation of the Proposed Project. The TEIR will assess off-reservation impacts associated with the hazards and hazardous materials attributable the Proposed Project, and identify mitigation measures to address any potentially significant impacts.

Water Resources

The Proposed Project would result in increased water use and wastewater generation. Construction of the Proposed Project could increase the potential for erosion and direct or indirect discharge of sediment and other materials into off-reservation drainages near the Proposed Project site. The TEIR will assess the off-reservation impacts of the Proposed Project on water resources, including compliance with applicable plans, standards, laws, and regulations relating to water resources, off-reservation ground water supplies and quality, alteration of off-reservation drainage patterns, and off-reservation flood hazards. The TEIR will identify mitigation measures to address any potentially significant impacts.

Land Use

The Proposed Project would not introduce any new or alter any existing off-reservation land use in the area. The Proposed Project would be constructed on the Trust Land, and it is therefore not anticipated that any off-reservation land use plan, policy, habitat conservation plan, or natural community conservation plan would apply to the Proposed Project. The TEIR will assess the Proposed Project's off-reservation impact on surrounding land uses and any applicable off-reservation land use, habitat conservation and natural community preservation plans, and will identify mitigation measures to address any potentially significant impacts.

Mineral Resources

The Proposed Project would be constructed entirely on Trust Land, and would not use any off-reservation mineral resources. Accordingly, the Proposed Project is unlikely to impact off-reservation mineral resources.

Noise and Vibrations

Construction and operation of the Proposed Project could increase off-reservation noise levels and vibrations in limited areas near the Proposed Project. The TEIR will assess the Proposed Project's off-reservation noise and vibration impacts, and will identify mitigation measures to address any potentially significant impacts.

Population and Housing

The Proposed Project would be constructed entirely on Trust land, and would not displace any existing housing. The Proposed Project would provide new employment opportunities; however, it is likely to have a less than significant impact on off-reservation housing because the majority of the new employees would likely already reside within commuting distance of the Proposed Project. The TEIR will assess the Proposed Project's impact on off-reservation population growth, and will identify mitigation measures to address any potentially significant impacts.

Public Services Facilities

The Compact requires that the TEIR analyze whether the Proposed Project will cause adverse physical environmental impacts associated with the construction of new or the physical alteration of any existing public facilities to maintain acceptable service levels or other performance objectives. Through its fire department, the Tribe would provide fire and emergency medical services for the Proposed Project, and it is therefore unlikely the Proposed Project would require any other governmental agency to build any new or expand any existing fire facilities. The Proposed Project would employ additional employees and attract additional patrons that could use public services and facilities. The TEIR will assess whether the Proposed Project would generate the need for any other governmental agency to construct any new or alter any existing fire, police, school, park, or other public facility, and will identify mitigation measures to address any potentially significant environmental impacts associated with any such construction or alteration.

Recreation

The Proposed Project would employ additional employees and attract additional patrons. The TEIR will assess whether the Proposed Project would increase the use of local and regional parks and other recreational facilities to the extent that substantial physical deterioration of those facilities would occur or be accelerated as a result of such increased use, and will identify mitigation measures to address any such substantial deterioration.

Transportation and Traffic

The Proposed Project would generate additional vehicular use of certain public roads, contributing to increased traffic volumes and possible deterioration of levels of service. The TEIR will assess the Proposed Project's impacts on city, county, and state roads (during both construction and operation of the

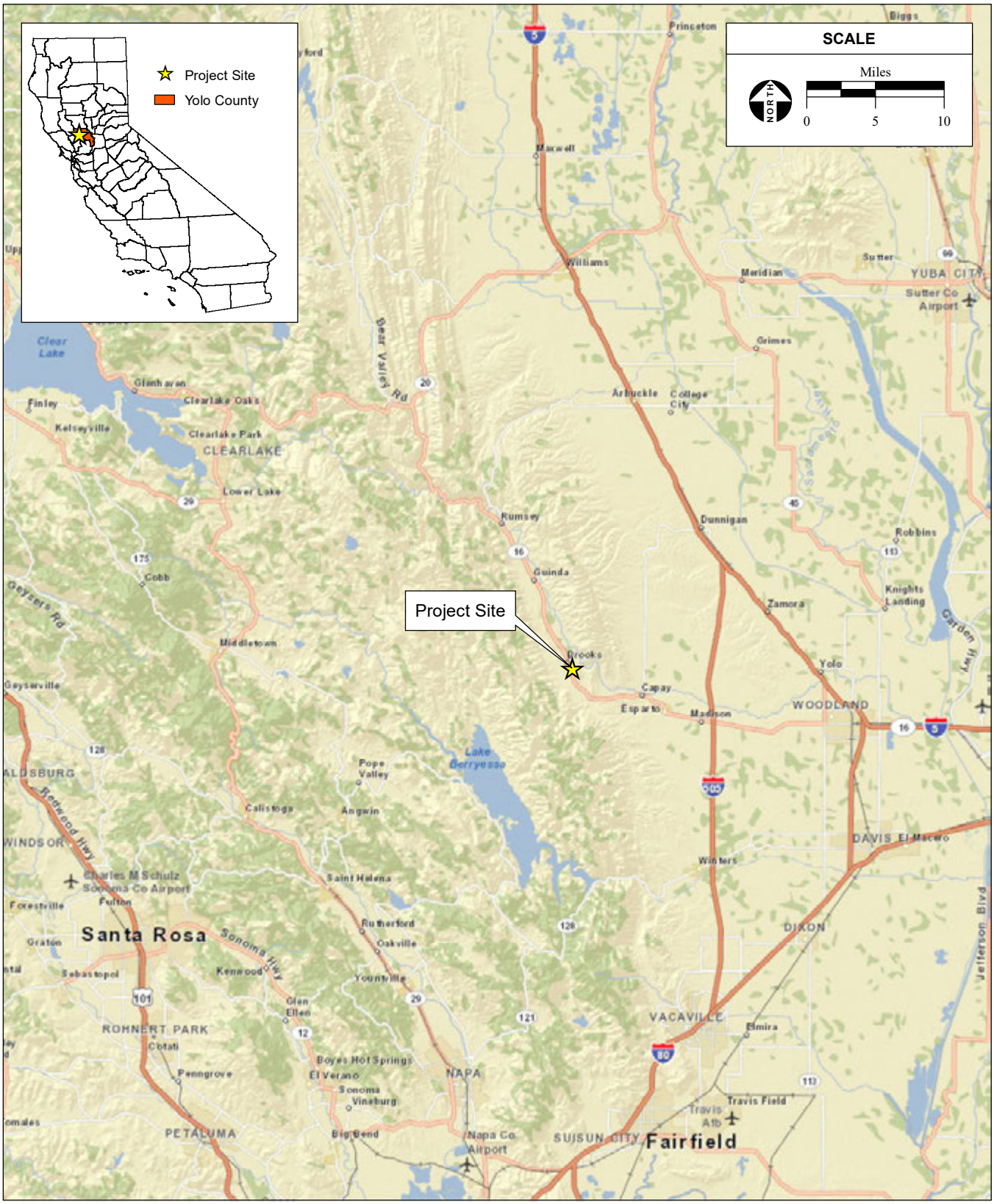
Proposed Project), including vehicle trips attributable to the Proposed Project, and the impacts of the Proposed Project on off-reservation road and intersection capacities, levels of service, existing hazardous conditions and emergency vehicle response times. The TEIR will identify mitigation measures to address any potentially significant impacts.

Utility and Service Systems

Equipment at the Tribe's existing water supply system and wastewater treatment facilities would be modified to provide water for, and to treat the wastewater generated by, the Proposed Project. The Proposed Project would not require water treatment or wastewater treatment by any off-reservation entity. Storm water drainage for the Proposed Project would be similar to the drainage that currently exists for the impervious surfaces on which the Proposed Project would be built, and that drainage would be discharged into the Tribe's existing drainage system. The TEIR will, possibly as part of the water resources analysis described above, assess the Proposed Project's impacts on off-reservation water and wastewater treatment and storm water drainage facilities, and will identify mitigation measures to address any potentially significant impacts.

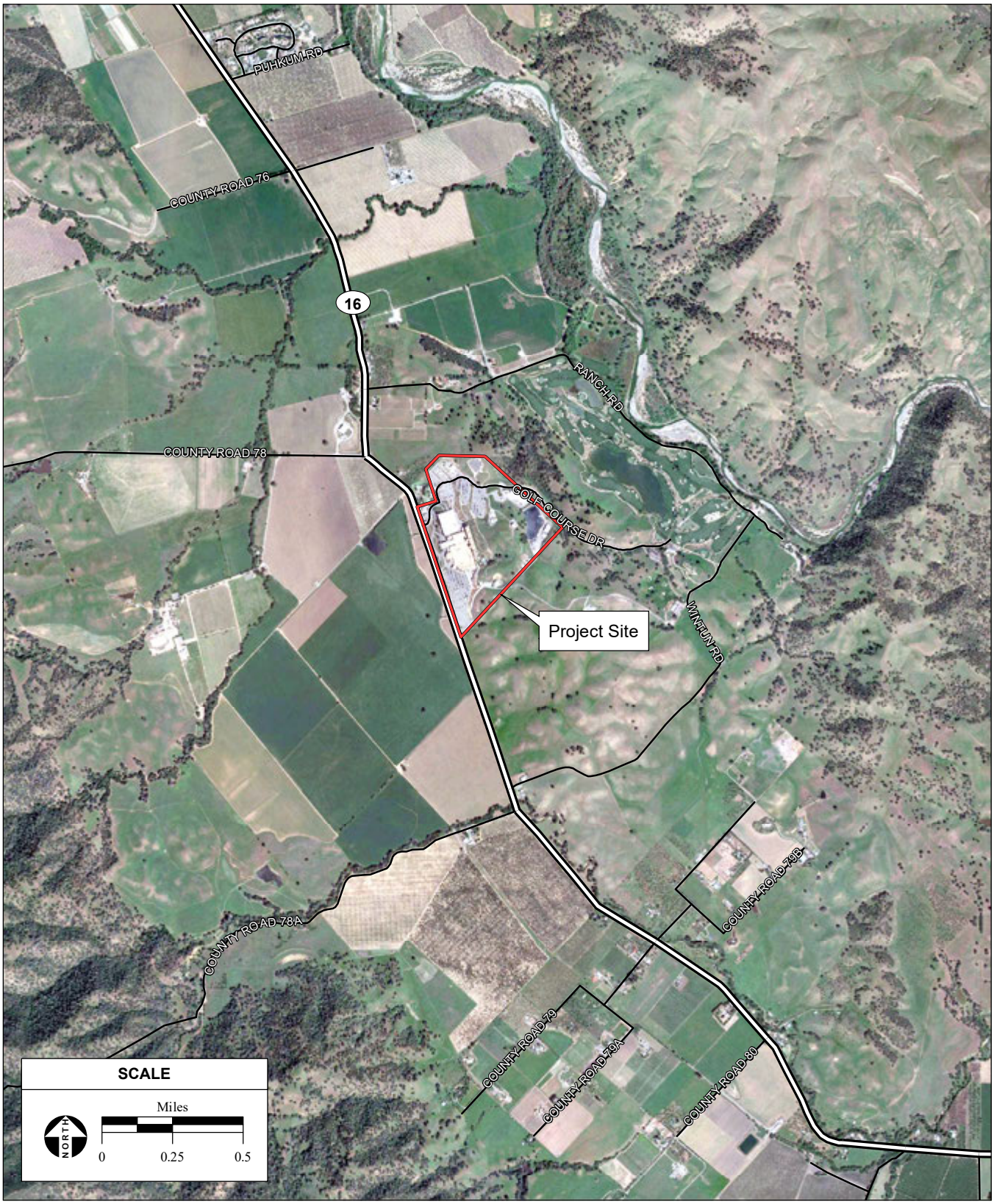
Cumulative Effects

The TEIR will analyze whether, with respect to each of the items or categories listed in the Off-Reservation Impact Checklist, the Proposed Project will cause any "cumulatively considerable" off-reservation impacts. Under the Compact, "cumulatively considerable" off-reservation environmental impacts of the Proposed Project will be those that are considerable when viewed in connection with past, current, or probable future projects.



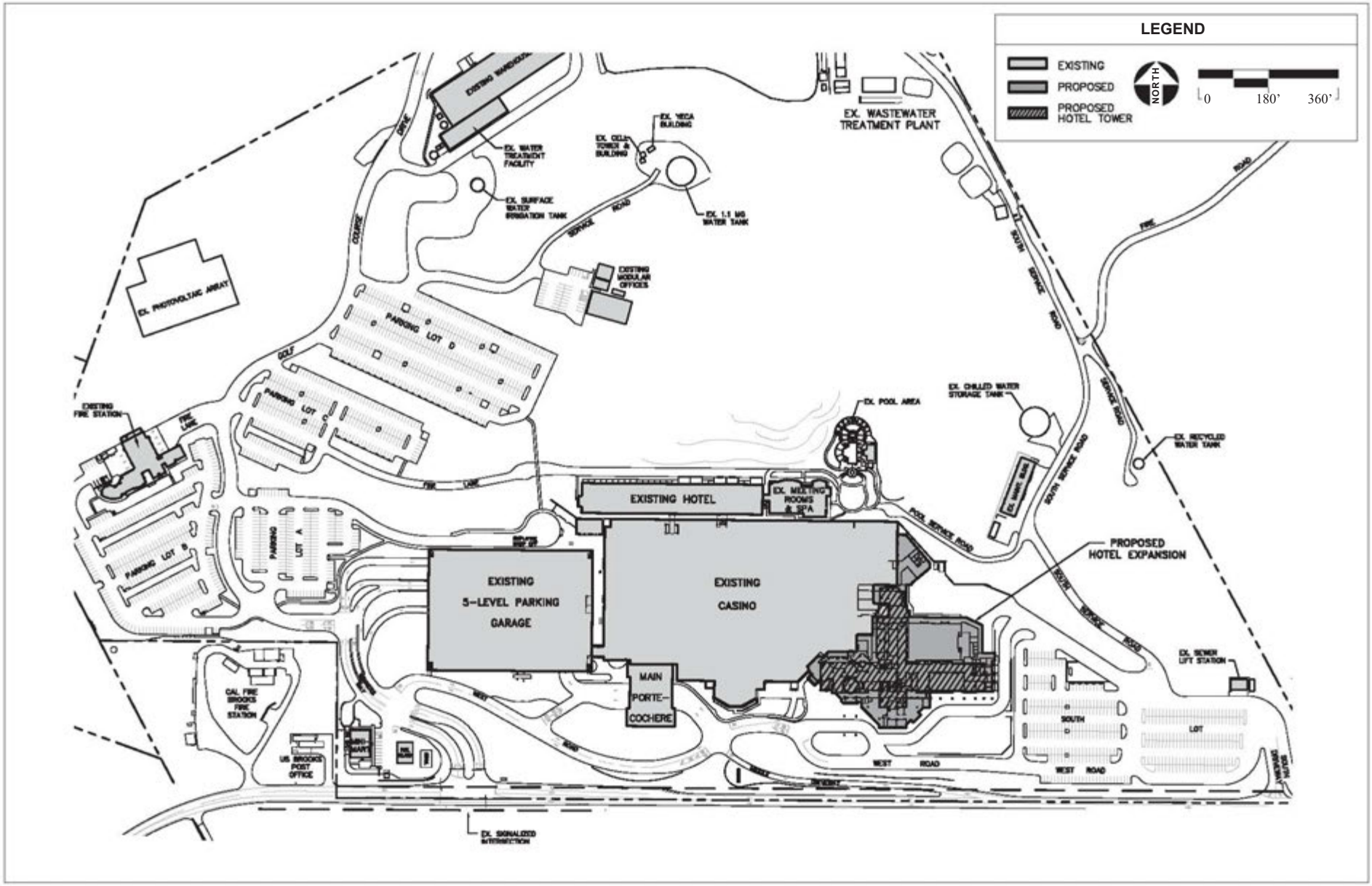
SOURCE: ESRI Data, 2016; AES, 2/10/2016

Figure 1
Regional Location



SOURCE: DigitalGlobe aerial photograph, 4/1/2015; ESRI Data, 2016; AES, 2/12/2016

Figure 2
Site and Vicinity



SOURCE: LM Engineering, 2016; AES, 3/7/2016

Figure 3
Site Plan

EXHIBIT A TO NOTICE OF PREPARATION

Off-Reservation Impact Checklist

EXHIBIT A

OFF-RESERVATION ENVIRONMENTAL IMPACT ANALYSIS CHECKLIST

I. AESTHETICS

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☐
b) Substantially damage off-reservation scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☐
c) Create a new source of substantial light or glare, which would adversely affect day or nighttime views of historic buildings or views in the area?	☐	☐	☐	☐

II. AGRICULTURAL RESOURCES

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Involve changes in the existing environment, which, due to their location or nature, could result in conversion of off-reservation farmland to non-agricultural use?	☐	☐	☐	☐

III. AIR QUALITY

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☐
b) Violate any air quality standard or contribute to an existing or projected air quality violation?	☐	☐	☐	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?	☐	☐	☐	☐

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
d) Expose off-reservation sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☐
e) Create objectionable odors affecting a substantial number of people off-reservation?	☐	☐	☐	☐

IV. BIOLOGICAL RESOURCES

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Have a substantial adverse impact, either directly or through habitat modifications, on any species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☐
b) Have a substantial adverse effect on any off-reservation riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☐
c) Have a substantial adverse effect on federally protected off-reservation wetlands as defined by Section 404 of the Clean Water Act?	☐	☐	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☐
e) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☐

V. CULTURAL RESOURCES

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Cause a substantial adverse change in the significance of an off-reservation historical or archeological resource?	☐	☐	☐	☐
b) Directly or indirectly destroy a unique *off-reservation* paleontological resource or site or unique off-reservation geologic feature?	☐	☐	☐	☐
c) Disturb any off-reservation human remains, including those interred outside of formal cemeteries?	☐	☐	☐	☐

VI. GEOLOGY AND SOILS

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Expose off-reservation people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☐
ii) Strong seismic ground shaking?	☐	☐	☐	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☐
iv) Landslides?	☐	☐	☐	☐
b) Result in substantial off-reservation soil erosion or the loss of topsoil?	☐	☐	☐	☐

VII. HAZARDS AND HAZARDOUS MATERIALS

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Create a significant hazard to the off-reservation public or the off-reservation *environment through the routine* transport, use, or disposal of hazardous materials?	☐	☐	☐	☐

b) Create a significant hazard to the off-reservation public or the off-reservation environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed off-reservation school?	☐	☐	☐	☐
d) Expose off-reservation people or structures to a significant risk of loss, injury or death involving wildland fires.	☐	☐	☐	☐

VIII. WATER RESOURCES

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☐	☐
b) Substantially deplete off-reservation groundwater supplies or interfere substantially with groundwater recharge such that there should be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion of siltation off-site?	☐	☐	☐	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding off-site?	☐	☐	☐	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff off-reservation?	☐	☐	☐	☐
f) Place within a 100-year flood hazard area structures, which would impede or redirect off-reservation flood flows?	☐	☐	☐	☐
g) Expose off-reservation people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☐

IX. LAND USE

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Conflict with any off-reservation land use plan, policy, or regulation of an agency adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☐
b) Conflict with any applicable habitat conservation plan or natural communities conservation plan covering off-reservation lands?	☐	☐	☐	☐

X. MINERAL RESOURCES

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Result in the loss of availability of a known off-reservation mineral resource classified MRZ-2 by the State Geologist that would be of value to the region and the residents of the state?	☐	☐	☐	☐
b) Result in the loss of availability of an off-reservation locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☐

XI. NOISE

Would the project result in:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Exposure of off-reservation persons to noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☐	☐
b) Exposure of off-reservation persons to excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☐
c) A substantial permanent increase in ambient noise levels in the off-reservation vicinity of the project?	☐	☐	☐	☐

Would the project result in:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
d) A substantial temporary or periodic increase in ambient noise levels in the off-reservation vicinity of the project?	☐	☐	☐	☐

XII. POPULATION AND HOUSING

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Induce substantial off-reservation population growth?	☐	☐	☐	☐
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere off-reservation?	☐	☐	☐	☐

XIII. PUBLIC SERVICES

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered off-reservation governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the off-reservation public services:				
Fire protection?	☐	☐	☐	☐
Police protection?	☐	☐	☐	☐
Schools?	☐	☐	☐	☐
Parks?	☐	☐	☐	☐
Other public facilities?	☐	☐	☐	☐

XIV. RECREATION

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Increase the use of existing off-reservation neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☐

XV. TRANSPORTATION / TRAFFIC

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Cause an increase in off-reservation traffic, which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)?	☐	☐	☐	☐
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated off-reservation roads or highways?	☐	☐	☐	☐
c) Substantially increase hazards to an off-reservation design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☐
d) Result in inadequate emergency access for off-reservation responders?	☐	☐	☐	☐

XVI. UTILITIES AND SERVICE SYSTEMS

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Exceed off-reservation wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☐
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant off-reservation environmental effects?	☐	☐	☐	☐
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant off-reservation environmental effects?	☐	☐	☐	☐

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
d) Result in a determination by an off-reservation wastewater treatment provider (if applicable), which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☐

XVII. CUMULATIVE EFFECTS

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Have impacts that are individually limited, but cumulatively considerable off-reservation? "Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past, current, or probable future projects.	☐	☐	☐	☐

SUPPLEMENTAL NOTICE OF PREPARATION

SUPPLEMENTAL NOTICE OF PREPARATION OF TRIBAL ENVIRONMENTAL IMPACT REPORT FOR CACHE CREEK HOTEL EXPANSION PROJECT

Date: **July 22, 2016**

To: **State Clearinghouse**
County of Yolo
Interested Parties

From: **Yocha Dehe Wintun Nation**
18960 Puhkum Road
P.O. Box 18
Brooks, CA 95606

Project Title: **Cache Creek Hotel Expansion Project**

Project Sponsor: **Yocha Dehe Wintun Nation**

REASON FOR SUPPLEMENTATION AND EXTENSION OF COMMENT PERIOD

On March 21, 2016, the Yocha Dehe Wintun Nation (the "Tribe") issued a Notice of Preparation (NOP) of a Tribal Environmental Impact Report (TEIR) for the Cache Creek Hotel Expansion Project (the "Proposed Project"). In accordance with the Tribe's gaming compact with the State of California (the "Compact"), the NOP was provided to the County of Yolo and the State Clearinghouse to inform interested persons of the preparation of a draft TEIR for the Hotel Expansion Project and of the 30-day opportunity for public comments to be submitted to the Tribe. The Tribe received three comment letters on the NOP. Since the initial circulation of the NOP, the Proposed Project has been refined to increase the number of proposed hotel rooms from 377 to 459, with a corresponding adjustment to the back of the house area. No other changes to the Project are proposed.

The Compact does not require or otherwise provide for supplementation or recirculation of a Notice of Preparation; however, to ensure that interested stakeholders have a reasonable opportunity to identify potentially significant off-reservation environmental impacts (and any reasonable mitigation measures to address those impacts) that should be considered in the draft TEIR, the Tribe has elected to supplement and recirculate the NOP for an additional 20 days of review and comment.

NOTICE OF PREPARATION

The Tribe owns and operates the Cache Creek Casino Resort (the "Resort") situated on federally-owned land that is held in trust for the Tribe and located at 14455 Highway 16, Brooks, California (the "Trust Land").

The Resort is operated by the Tribe pursuant to a gaming compact with the State of California (the "Compact"). The Compact requires that, before beginning construction of any new "Project" (as defined in the Compact), the Tribe cause to be prepared a TEIR analyzing the potentially significant off-reservation environmental impacts of that Project. That environmental analysis is to be conducted pursuant to the process described in the Compact.

The Tribe's governing body — specifically, its Tribal Council — has authorized the preparation of a TEIR for a potential project on the Trust Land that would add to the Resort an additional hotel tower and the other components described in this Notice (collectively and sometimes referenced to in this Notice as the "Hotel Expansion Project" or the "Proposed Project"). The Hotel Expansion Project is a "Project" under the Compact, and therefore requires a TEIR.

This Notice is given pursuant to the Compact to inform you that the Tribe is beginning the TEIR process and that, as required by that process, a draft of the TEIR for the Hotel Expansion Project will be prepared by environmental consultants engaged by the Tribe. That draft TEIR will address each of the items listed in the Off-Reservation Impact Checklist, as required by the Compact. A copy of the Off-Reservation Impact Checklist is attached to this Notice as **Exhibit A**.

The Tribe requests that you identify in your comments any potentially significant off-reservation environmental impacts, and any reasonable mitigation measures to address those impacts, that you believe should be considered in the draft TEIR for the Hotel Expansion Project.

Comments should be in writing and sent by mail to the following address, and will be considered timely if postmarked no later than August 11, 2016. Please send your comments to:

Yocha Dehe Wintun Nation
18960 Puhkum Road
P.O. Box 18
Brooks, CA 95606

All comments postmarked by August 11, 2016 will be carefully reviewed and considered by the Tribe. A project description, location map and site plan for the Hotel Expansion Project, as well as a brief description of the environmental areas in which off-reservation impacts attributable to the Hotel Expansion Project may be probable, are included in the following pages of this Notice. The description of probable off-reservation environmental impacts of the Hotel Expansion Project in this Notice has been prepared before the analysis required to complete the TEIR has been completed. Accordingly, the description of probable impacts in this Notice is subject to the results of the analysis in the TEIR, and the potentially significant off-reservation impacts identified in the TEIR may differ from those described in this Notice.

A copy of this Notice is available online at www.cachecreekteir.com. A copy of the draft TEIR will be posted on that website when the draft TEIR is completed. In addition, the Tribe may from time-to-time post other information regarding the Hotel Expansion Project on that website.

The draft TEIR will include the analysis of potentially significant direct and indirect off-reservation environmental impacts attributable to the Proposed Project, and mitigation measures to address such impacts as required by the Compact. The draft TEIR shall also describe a range of reasonable alternatives to the Proposed Project that could avoid or minimize potentially significant adverse impacts, and evaluate the comparative merits of the alternatives. Alternatives to be evaluated in the TEIR may include but are not limited to a No Action Alternative and a Reduced Intensity Alternative with 399 hotel rooms.

The Compact requires that the draft TEIR, when completed, be filed with State Clearinghouse in the State Office of Planning and Research (the "State Clearinghouse"), the County of Yolo (the "County"), and the California Department of Justice. After that filing, there will be a 45-day period during which interested persons and agencies may submit comments regarding the draft TEIR. The draft TEIR will include provisions describing how any such comments are to be submitted to the Tribe.

As required by the Compact, any comments regarding the draft TEIR received by the Tribe during the 45-day comment period will be carefully considered and evaluated in connection with the preparation of a proposed final draft of the TEIR. Once completed, the final draft of the TEIR will be presented to the Tribal Council for its review and approval or disapproval. The proposed final TEIR will include copies of all of the comments regarding the draft TEIR received by the Tribe during the 45-day comment period, as well as a written response to each of those comments. If the final TEIR is approved, the Tribal Council will certify that approval, and a copy of the final TEIR will be provided to the County Clearinghouse. In addition, the Tribe will post a copy of the final TEIR on the website mentioned above.

INFORMATION REGARDING PROPOSED PROJECT

PROJECT TITLE

Cache Creek Hotel Expansion Project

LOCATION

The Proposed Project would be situated entirely on the Trust Land on which the Resort is located. The Resort is located in the northwestern area of Yolo County, west of the City of Woodland, at 14455 Highway 16, Brooks, California 95606.

Regional access to the site of the Proposed Project would be provided by Interstate 505, which connects Interstate 80 in Vacaville to Interstate 5 near the Yolo/Colusa County line. State Route 16 provides direct access to the Resort, which is located on State Route 16.

Figure 1 attached to this Notice shows the location of the Proposed Project.

SITE CHARACTERISTICS

The Trust Land on which the Proposed Project would be constructed (project site) is already fully developed with the Resort and supporting infrastructure. The Proposed Project would occur within the existing paved surface parking area located to the south of the main Resort building. In addition, equipment at the existing water treatment facilities and the existing wastewater treatment facilities for the Resort (both of which are on the Trust Land) would be modified to treat the additional water required for and the additional wastewater generated by the Proposed Project.

All new construction for the Proposed Project, as well as temporary construction parking and the management of cut/fill generated by the Proposed Project, would be entirely on the Trust Land, and therefore will not be "off-reservation."

Figure 2 is an aerial photograph of the project site and vicinity. The Trust Land is outlined in red on **Figure 2**.

Surrounding Land Uses

Surrounding land uses in the immediate vicinity of the Proposed Project are as follows:

North: Agricultural land, rural residences, and tribal governmental uses.

South: Agricultural land and rural residences.

East: Golf course, Cache Creek, and rangeland.

West: Highway 16, agricultural land, and rural residences.

PROJECT DESCRIPTION

The Proposed Project would offer additional amenities at the Resort and provide additional administrative support space for the Resort. A breakdown of the Proposed Project components is provided in **Table 1.** The Proposed Project is designed to enhance the Resort guest experience by offering additional hotel rooms, entertainment and event options, and more dining options.

The Proposed Project would be built on areas of the Trust Land that already have been developed with a parking lot and already have impervious surfaces. The height of the new hotel tower would be generally consistent with or similar to the height of the existing Resort buildings, and the Proposed Project would feature the same architectural style as the existing buildings.

Figure 3 is a preliminary site plan for the Proposed Project.

Water supply for the Proposed Project would be provided by the Tribe's existing wells, and also from Cache Creek during certain months in accordance with the Tribe's existing water rights. The Proposed Project would include equipment modifications to the Tribe's existing water and wastewater treatment facilities to accommodate the additional water required and the additional wastewater generated by the Proposed Project.

TABLE 1
PROPOSED RESORT EXPANSION ELEMENTS

Element	Existing	Proposed (new) (net gain)	Total
Hotel	137,320 sf 200 rooms	346,801 sf 459 rooms	484,121 sf 659 rooms
Spa	11,800 sf	--	11,800 sf
Gaming Floor	94,505 sf	--	94,505 sf
Ballroom	0 sf 0 seats	13,350 sf 1,325 seats	13,350 sf 1,325 seats
Restaurants	32,353 sf	9,475 sf	41,828 sf
Miscellaneous Public Spaces	40,857 sf	27,165 sf	68,022 sf
Back of House	97,275 sf	102,956 sf	200,231 sf
Total Square Feet	414,110 sf	499,747 sf	913,857 sf

Objectives

The Proposed Project would meet the demand for overnight stays by existing patrons by adding hotel rooms. The existing 200-room hotel has been operating at capacity from the outset of its opening, and particularly on weekends, many guests are unable to extend their visits due to lack of lodging. The Proposed Project would also provide additional amenities related to dining and entertainment that are in demand from existing patrons that are not currently available in the area. Offering the new amenities would enable the facility to remain competitive, as a premier casino/resort in northern California, and continue to provide a sustainable, long-term economic base for the Tribal Government.

PROBABLE OFF-RESERVATION ENVIRONMENTAL EFFECTS

The following sections of this Notice discuss, based on the Tribe's current knowledge without the benefit of the environmental analysis that will be performed as part of the TEIR process, areas in which adverse off-reservation environmental impacts attributable to the Proposed Project may be probable. As noted above, each of these potential impacts will be analyzed in the TEIR. The TEIR will also analyze the extent to which mitigation measures (which the TEIR will describe) would minimize or eliminate potentially significant adverse off-reservation environmental impacts of the Proposed Project. The TEIR will identify any anticipated potentially significant off-reservation adverse environmental impacts of the Proposed Project that cannot be mitigated.

The TEIR will include analysis of the Proposed Project's potentially significant off-reservation environmental impacts associated with the following resource areas (each of which is required by the Off-Reservation Impact Checklist):

Aesthetics

The Proposed Project may change the visual character of the area. Although the height of the proposed facilities is not anticipated to substantially exceed the height of the existing Resort buildings, the new hotel tower and expanded size of the Resort could visually impact certain off-reservation properties. The TEIR will assess the impacts of the Proposed Project on the existing visual character and quality of the off-reservation area, including light and glare effects and the impacts of the Proposed Project on any off-reservation scenic vistas or resources. The TEIR will include architectural renderings of the proposed structures. The TEIR will identify mitigation measures to address any potentially significant impacts.

Agricultural Resources

The Proposed Project would be constructed entirely on Trust Land, and would not use any agricultural land, either on a temporary or permanent basis. Accordingly, the Proposed Project would not directly convert any existing farmland to any non-agricultural use.

Air Quality and Climate Change

The Proposed Project would generate short-term emissions, including dust, during the construction phase and long-term emissions from vehicle traffic which could contribute to existing or projected air quality issues. Additionally, the Proposed Project would result in short-term emissions of greenhouse gas (GHG) associated with construction and long-term GHG emissions primarily associated with vehicle traffic and

energy usage, that could contribute to cumulative effects associated with climate change. The TEIR will assess the off-reservation impacts of the Proposed Project associated with air quality and greenhouse gas emissions, including consistency with applicable air quality standards and plans, and impacts on sensitive receptors from pollutant emissions and odors. The TEIR will identify mitigation measures to address any potentially significant impacts.

Biological Resources

Construction activities for the Proposed Project would be on areas of the Trust Land that have already been disturbed with prior development, much of which is currently paved and being used for parking. Accordingly, impacts to biological resources would likely be minimal. The TEIR will assess the off-reservation impacts of the Proposed Project on biological resources, including habitat, wetlands, fish and wildlife migration, species preservation, natural community preservation and compliance with applicable plans, standards, laws, and regulations relating thereto. The TEIR will identify mitigation measures to address any potentially significant impacts, if necessary.

Cultural Resources

Construction activity for the Proposed Project would be confined to the Trust Land (which is already developed and was previously surveyed for cultural resources), and it is therefore not anticipated that any off-reservation cultural resources would be impacted by the Proposed Project. The TEIR will assess the off-reservation impacts of the Proposed Project on cultural resources, and identify mitigation measures to address any potentially significant impacts.

Geology and Soils

The Proposed Project would be constructed on the Trust Land and will meet all applicable earthquake safety standards. It is therefore not anticipated that any people or structures would be subjected to adverse effects from earthquakes, ground shaking, seismic ground failure, landslides, or erosion as a result of the Proposed Project. The TEIR will assess the off-reservation impacts of the Proposed Project by virtue of earthquakes, ground shaking, seismic ground failure, landslides, or erosion, and identify mitigation measures to address any potentially significant impacts.

Hazards and Hazardous Materials

Certain hazardous materials would be used in the construction and in the operation of the Proposed Project. The TEIR will assess off-reservation impacts associated with the hazards and hazardous materials attributable the Proposed Project, and identify mitigation measures to address any potentially significant impacts.

Water Resources

The Proposed Project would result in increased water use and wastewater generation. Construction of the Proposed Project could increase the potential for erosion and direct or indirect discharge of sediment and other materials into off-reservation drainages near the Proposed Project site. The TEIR will assess the off-reservation impacts of the Proposed Project on water resources, including compliance with applicable plans, standards, laws, and regulations relating to water resources, off-reservation ground water supplies and quality, alteration of off-reservation drainage patterns, and off-reservation flood hazards. The TEIR will identify mitigation measures to address any potentially significant impacts.

Land Use

The Proposed Project would not introduce any new or alter any existing off-reservation land use in the area. The Proposed Project would be constructed on the Trust Land, and it is therefore not anticipated that any off-reservation land use plan, policy, habitat conservation plan, or natural community conservation plan would apply to the Proposed Project. The TEIR will assess the Proposed Project's off-reservation impact on surrounding land uses and any applicable off-reservation land use, habitat conservation and natural community preservation plans, and will identify mitigation measures to address any potentially significant impacts.

Mineral Resources

The Proposed Project would be constructed entirely on Trust Land, and would not use any off-reservation mineral resources. Accordingly, the Proposed Project is unlikely to impact off-reservation mineral resources.

Noise and Vibrations

Construction and operation of the Proposed Project could increase off-reservation noise levels and vibrations in limited areas near the Proposed Project. The TEIR will assess the Proposed Project's off-reservation noise and vibration impacts, and will identify mitigation measures to address any potentially significant impacts.

Population and Housing

The Proposed Project would be constructed entirely on Trust land, and would not displace any existing housing. The Proposed Project would provide new employment opportunities; however, it is likely to have a less than significant impact on off-reservation housing because the majority of the new employees would likely already reside within commuting distance of the Proposed Project. The TEIR will assess the Proposed Project's impact on off-reservation population growth, and will identify mitigation measures to address any potentially significant impacts.

Public Services Facilities

The Compact requires that the TEIR analyze whether the Proposed Project will cause adverse physical environmental impacts associated with the construction of new or the physical alteration of any existing public facilities to maintain acceptable service levels or other performance objectives. Through its fire department, the Tribe would provide fire and emergency medical services for the Proposed Project, and it is therefore unlikely the Proposed Project would require any other governmental agency to build any new or expand any existing fire facilities. The Proposed Project would employ additional employees and attract additional patrons that could use public services and facilities. The TEIR will assess whether the Proposed Project would generate the need for any other governmental agency to construct any new or alter any existing fire, police, school, park, or other public facility, and will identify mitigation measures to address any potentially significant environmental impacts associated with any such construction or alteration.

Recreation

The Proposed Project would employ additional employees and attract additional patrons. The TEIR will assess whether the Proposed Project would increase the use of local and regional parks and other recreational facilities to the extent that substantial physical deterioration of those facilities would occur or be accelerated as a result of such increased use, and will identify mitigation measures to address any such substantial deterioration.

Transportation and Traffic

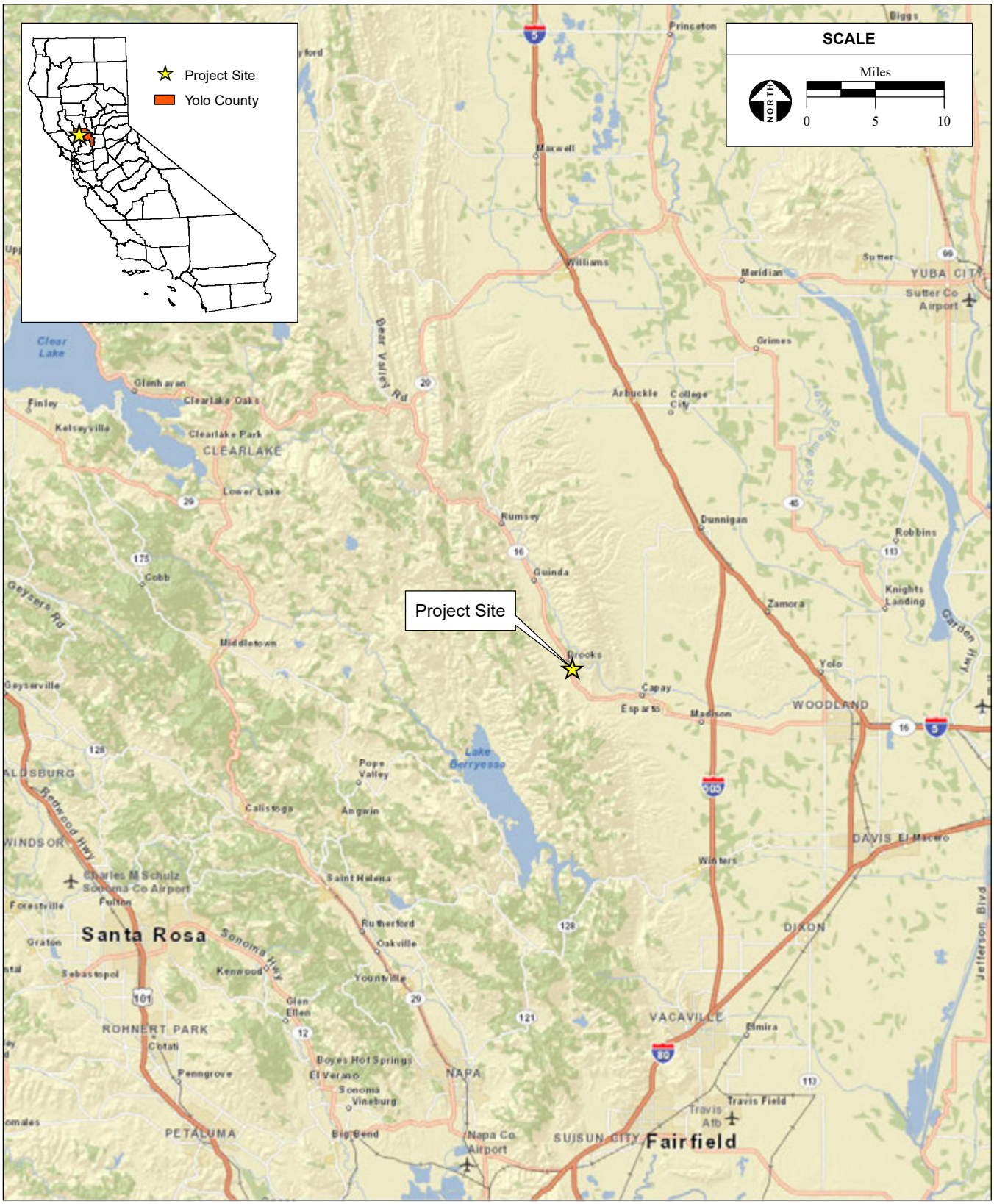
The Proposed Project would generate additional vehicular use of certain public roads, contributing to increased traffic volumes and possible deterioration of levels of service. The TEIR will assess the Proposed Project's impacts on city, county, and state roads (during both construction and operation of the Proposed Project), including vehicle trips attributable to the Proposed Project, and the impacts of the Proposed Project on off-reservation road and intersection capacities, levels of service, existing hazardous conditions and emergency vehicle response times. The TEIR will identify mitigation measures to address any potentially significant impacts.

Utility and Service Systems

Equipment at the Tribe's existing water supply system and wastewater treatment facilities would be modified to provide water for, and to treat the wastewater generated by, the Proposed Project. The Proposed Project would not require water treatment or wastewater treatment by any off-reservation entity. Storm water drainage for the Proposed Project would be similar to the drainage that currently exists for the impervious surfaces on which the Proposed Project would be built, and that drainage would be discharged into the Tribe's existing drainage system. The TEIR will, possibly as part of the water resources analysis described above, assess the Proposed Project's impacts on off-reservation water and wastewater treatment and storm water drainage facilities, and will identify mitigation measures to address any potentially significant impacts.

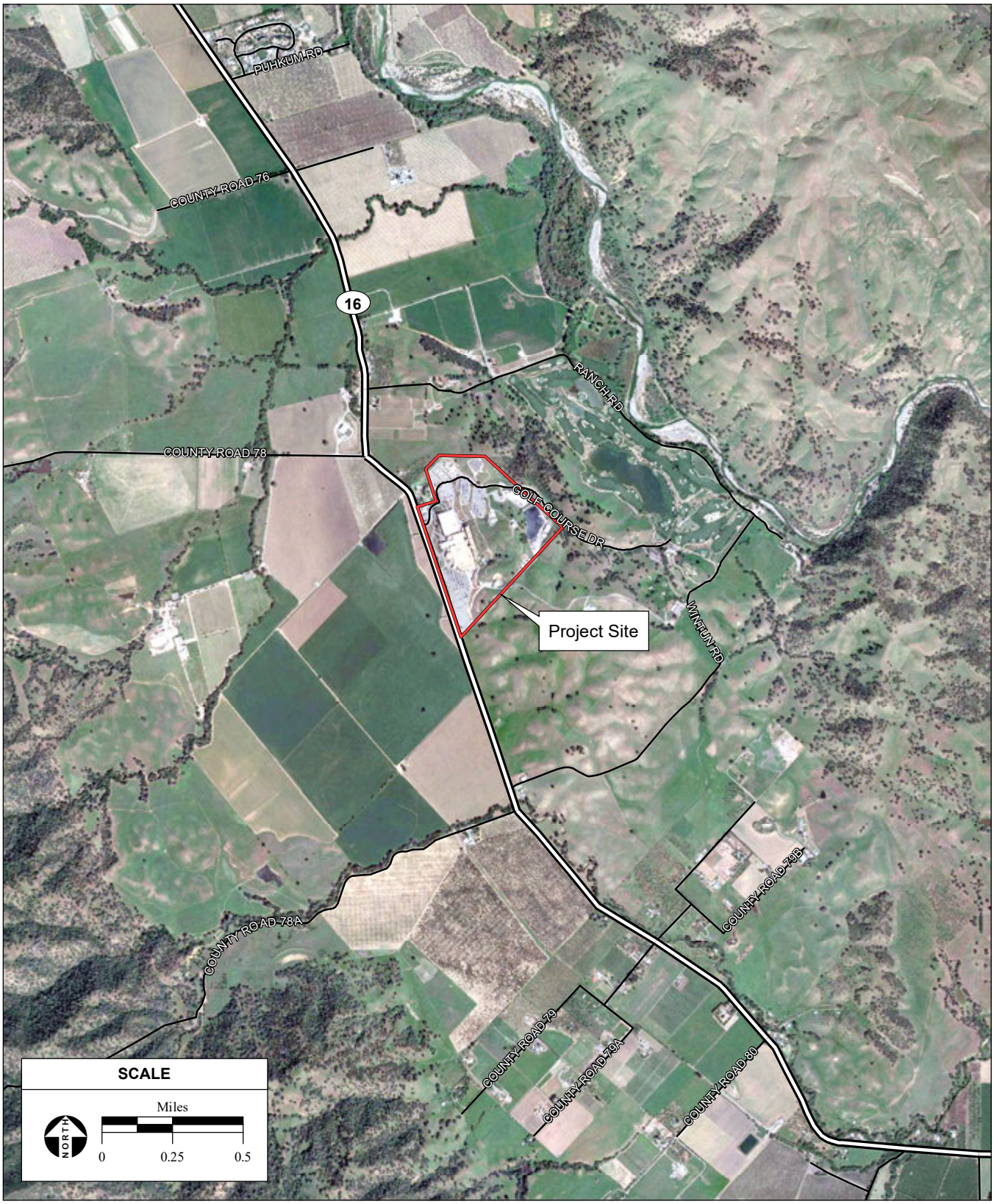
Cumulative Effects

The TEIR will analyze whether, with respect to each of the items or categories listed in the Off-Reservation Impact Checklist, the Proposed Project will cause any "cumulatively considerable" off-reservation impacts. Under the Compact, "cumulatively considerable" off-reservation environmental impacts of the Proposed Project will be those that are considerable when viewed in connection with past, current, or probable future projects.



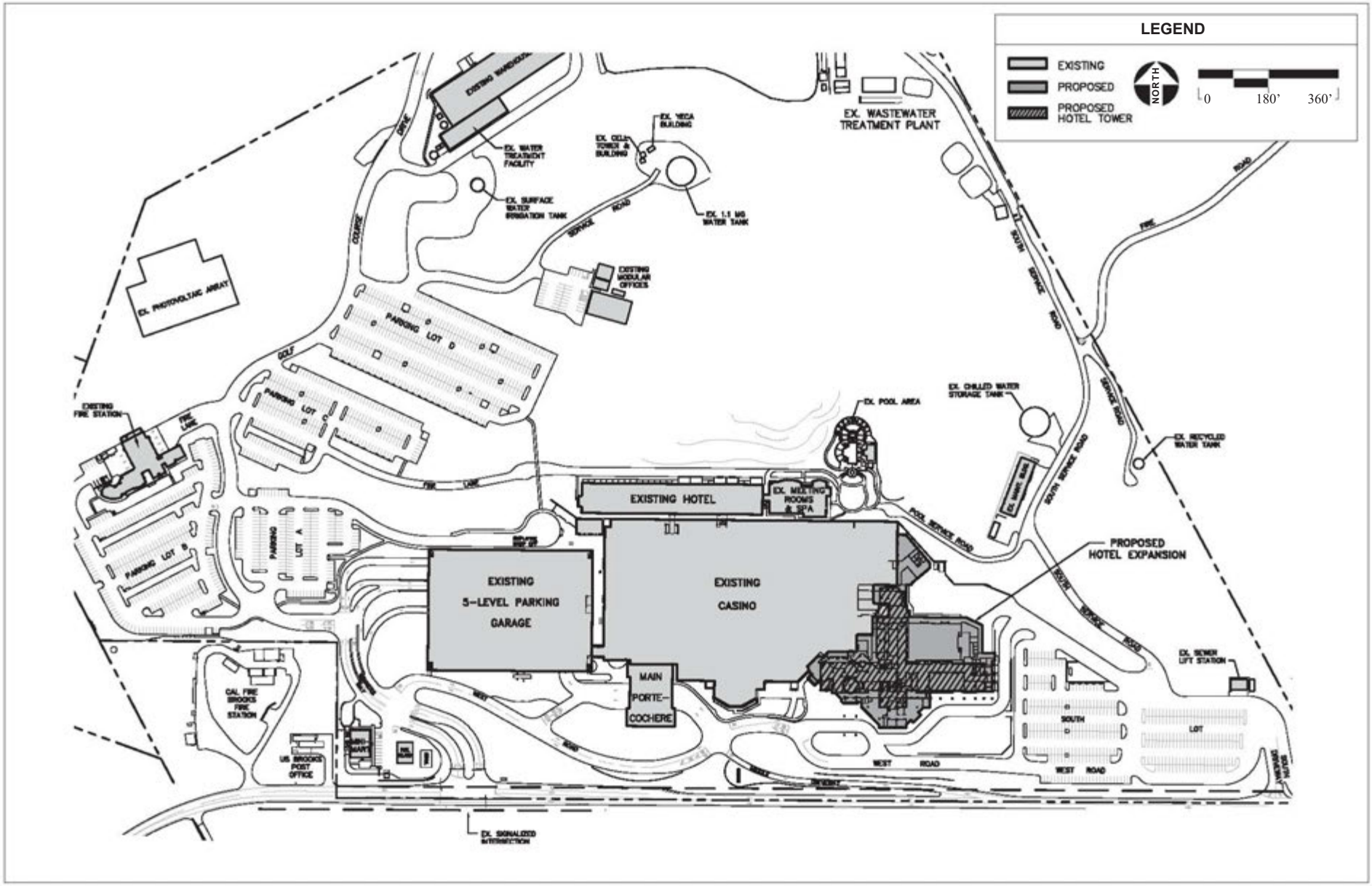
SOURCE: ESRI Data, 2016; AES, 2/10/2016

Figure 1
Regional Location



SOURCE: DigitalGlobe aerial photograph, 4/1/2015; ESRI Data, 2016; AES, 2/12/2016

Figure 2
Site and Vicinity



SOURCE: LM Engineering, 2016; AES, 3/7/2016

Figure 3
Site Plan

EXHIBIT A TO NOTICE OF PREPARATION

Off-Reservation Impact Checklist

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EXHIBIT A

OFF-RESERVATION ENVIRONMENTAL IMPACT ANALYSIS CHECKLIST

I. AESTHETICS

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☐
b) Substantially damage off-reservation scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☐
c) Create a new source of substantial light or glare, which would adversely affect day or nighttime views of historic buildings or views in the area?	☐	☐	☐	☐

II. AGRICULTURAL RESOURCES

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Involve changes in the existing environment, which, due to their location or nature, could result in conversion of off-reservation farmland to non-agricultural use?	☐	☐	☐	☐

III. AIR QUALITY

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☐

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
b) Violate any air quality standard or contribute to an existing or projected air quality violation?	☐	☐	☐	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?	☐	☐	☐	☐
d) Expose off-reservation sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☐
e) Create objectionable odors affecting a substantial number of people off-reservation?	☐	☐	☐	☐

IV. BIOLOGICAL RESOURCES

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Have a substantial adverse impact, either directly or through habitat modifications, on any species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☐
b) Have a substantial adverse effect on any off-reservation riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☐
c) Have a substantial adverse effect on federally protected off-reservation wetlands as defined by Section 404 of the Clean Water Act?	☐	☐	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☐
e) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☐

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*

V. CULTURAL RESOURCES

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Cause a substantial adverse change in the significance of an off-reservation historical or archeological resource?	☐	☐	☐	☐
b) Directly or indirectly destroy a unique off-reservation paleontological resource or site or unique off-reservation geologic feature?	☐	☐	☐	☐
c) Disturb any off-reservation human remains, including those interred outside of formal cemeteries?	☐	☐	☐	☐

VI. GEOLOGY AND SOILS

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Expose off-reservation people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☐
ii) Strong seismic ground shaking?	☐	☐	☐	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☐
iv) Landslides?	☐	☐	☐	☐
b) Result in substantial off-reservation soil erosion or the loss of topsoil?	☐	☐	☐	☐

VII. HAZARDS AND HAZARDOUS MATERIALS

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Create a significant hazard to the off-reservation public or the off-reservation environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	☐
b) Create a significant hazard to the off-reservation public or the off-reservation environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed off-reservation school?	☐	☐	☐	☐
d) Expose off-reservation people or structures to a significant risk of loss, injury or death involving wildland fires.	☐	☐	☐	☐

VIII. WATER RESOURCES

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☐	☐
b) Substantially deplete off-reservation groundwater supplies or interfere substantially with groundwater recharge such that there should be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion of siltation off-site?	☐	☐	☐	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding off-site?	☐	☐	☐	☐

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
e) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff off-reservation?	☐	☐	☐	☐
f) Place within a 100-year flood hazard area structures, which would impede or redirect off-reservation flood flows?	☐	☐	☐	☐
g) Expose off-reservation people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☐

IX. LAND USE

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Conflict with any off-reservation land use plan, policy, or regulation of an agency adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☐
b) Conflict with any applicable habitat conservation plan or natural communities conservation plan covering off-reservation lands?	☐	☐	☐	☐

X. MINERAL RESOURCES

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Result in the loss of availability of a known off-reservation mineral resource classified MRZ-2 by the State Geologist that would be of value to the region and the residents of the state?	☐	☐	☐	☐
b) Result in the loss of availability of an off-reservation locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☐

XI. NOISE

Would the project result in:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Exposure of off-reservation persons to noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☐	☐
b) Exposure of off-reservation persons to excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☐
c) A substantial permanent increase in ambient noise levels in the off-reservation vicinity of the project?	☐	☐	☐	☐
d) A substantial temporary or periodic increase in ambient noise levels in the off-reservation vicinity of the project?	☐	☐	☐	☐

XII. POPULATION AND HOUSING

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Induce substantial off-reservation population growth?	☐	☐	☐	☐
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere off-reservation?	☐	☐	☐	☐

XIII. PUBLIC SERVICES

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered off-reservation governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the off-reservation public services:				
Fire protection?	☐	☐	☐	☐
Police protection?	☐	☐	☐	☐
Schools?	☐	☐	☐	☐

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
Parks?	☐	☐	☐	☐
Other public facilities?	☐	☐	☐	☐

XIV. RECREATION

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Increase the use of existing off-reservation neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☐

XV. TRANSPORTATION / TRAFFIC

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Cause an increase in off-reservation traffic, which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)?	☐	☐	☐	☐
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated off-reservation roads or highways?	☐	☐	☐	☐
c) Substantially increase hazards to an off-reservation design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☐
d) Result in inadequate emergency access for off-reservation responders?	☐	☐	☐	☐

XVI. UTILITIES AND SERVICE SYSTEMS

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Exceed off-reservation wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☐
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant off-reservation environmental effects?	☐	☐	☐	☐
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant off-reservation environmental effects?	☐	☐	☐	☐
d) Result in a determination by an off-reservation wastewater treatment provider (if applicable), which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☐

XVII. CUMULATIVE EFFECTS

Would the project:	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less than Significant Impact*	*No Impact*
a) Have impacts that are individually limited, but cumulatively considerable off-reservation? "Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past, current, or probable future projects.	☐	☐	☐	☐

APPENDIX C

NOTICE OF PREPARATION COMMENT LETTERS

CALTRANS COMMENT LETTER

DEPARTMENT OF TRANSPORTATION
DISTRICT 3 – SACRAMENTO AREA OFFICE
2379 GATEWAY OAKS DRIVE, STE 150 – MS 19
SACRAMENTO, CA 95833
PHONE (916) 274-0635
FAX (916) 263-1796
TTY 711

Governor's Office of Planning & Research

APR 20 2016

STATE CLEARINGHOUSE

Serious drought.
Help save water!

April 19, 2016

clear
04/21/16

032016-YOL-0009
03-YOL-16 / 19.236
SCH# 2016032058

Yocha Dehe Wintun Nation
18960 Puhkum Road
P.O. Box 18
Brooks, CA 95606

Cache Creek Hotel Expansion Project – Notice of Preparation (NOP)

Dear Yocha Dehe Wintun Nation:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the project referenced above. Caltrans' new mission, vision, and goals signal a modernization of our approach to California's transportation system. We review this local development for impacts to the State Highway System in keeping with our mission, vision and goals for sustainability/livability/economy, and safety/health. We provide these comments consistent with the State's smart mobility goals that support a vibrant economy, and build communities, not sprawl.

The proposed project will be adjacent to the Cache Creek Casino Resort, which is located at 14455 Highway 16, Brooks, California. Regional access to the site of the proposed project would be provided by Interstate 505, which connects Interstate 80 in Vacaville to Interstate 5 near the Yolo/Colusa County line. State Route (SR) 16 provides direct access to the Resort, which is located on SR 16.

The proposed project consists of the construction of an additional structure which would include 377 new hotel rooms along with other amenities for a total of an additional 405,000 sf. The following comments are based on the NOP.

Transportation Impact Analysis

This development is likely to increase Vehicle-Miles Traveled (VMT). The Tribal Environmental Impact Report (TEIR) should include an analysis of the multimodal travel demand expected from the proposed project. The study should include an analysis of the Base Year, (at the time the project opens for business), project only, as well as Base Year plus Project. This analysis should also identify potentially significant adverse impacts from such demands and avoidance, minimization, and mitigation measures needed to address them.

Early collaboration, such as sharing the analysis for review and comment prior to the environmental document, leads to better outcomes for all stakeholders.

Given that Caltrans current guidelines are in the process of being updated, a transportation impact study scoping meeting with District staff could be used to discuss the most appropriate methodology for this analysis. At a minimum, the analysis should provide the following:

1. Vicinity maps, regional location map, and a site plan clearly showing project access in relation to nearby roadways and key destinations. Ingress and egress for all project components should be clearly identified. Clearly identify the State right-of-way (ROW). Project driveways, the State Highway System and local roads, intersections and interchanges, pedestrian and bicycle routes, car/bike parking, and transit routes and facilities should be mapped.

2. Project-related VMT including per capita use of transit, rideshare or active transportation modes and VMT reduction factors. The assumptions and methodologies used to develop this information should be detailed in the study, should utilize the latest place based research, and should be supported with appropriate documentation. Mitigation for any roadway section or intersection with increasing VMT should be identified and mitigated as possible. The scope of the study should include, but not be limited to, the following intersections with SR 16: the I-505 Interchange, County Road 85 in Capay, County Road 85B in Esparto, and the Casino accesses.

3. Schematic illustrations of walking, biking and auto traffic conditions at the project site and study area roadways, trip distribution percentages and volumes as well as intersection geometrics, i.e., lane configurations, for AM and PM peak periods. Operational concerns for all road users that may increase the potential for future collisions should be identified and fully mitigated.

Traffic Management Plan

If it is determined that traffic restrictions and detours are needed on or affecting State highways, a TMP or construction Traffic Impact Study may be required for approval by Caltrans prior to construction. TMPs must be prepared in accordance with Caltrans' *Manual on Uniform Traffic Control Devices.* Further information is available for download at the following web address:
http://www.dot.ca.gov/hq/traffops/engineering/mutcd/

Hydraulics

Current runoff from the proposed project site must be analyzed and outfall must be identified. In addition, post-project runoff must be calculated and outfalls identified. No additional runoff may be directed towards the State's ROW. The project must not create conditions which cause erosion or sediment release within the State's ROW.

Encroachment Permit

Any project along or within the State's ROW requires an encroachment permit that is issued by Caltrans. To apply, a completed encroachment permit application, environmental documentation, and five sets of plans clearly indicating State ROW must be submitted to:

Charles Laughlin
California Department of Transportation District 3, Office of Permits
703 B Street
Marysville, CA 95901

Please provide our office with copies of any further actions regarding this project. We would appreciate the opportunity to review and comment on any changes related to this development.

If you have any questions regarding these comments or require additional information, please contact Jacob Buffenbarger, Intergovernmental Review Coordinator at (916) 236-1625 or by email at: Jacob.Buffenbarger@dot.ca.gov.

Sincerely,

ERIC FREDERICKS, Chief
Office of Transportation Planning – South Branch

CVRWQCB COMMENT LETTER

CALIFORNIA Water Boards

EDMUND G. BROWN JR. GOVERNOR

MATTHEW RODRIQUEZ SECRETARY FOR ENVIRONMENTAL PROTECTION

Central Valley Regional Water Quality Control Board

14 April 2016

Yocha Dehe Wintun Nation
18960 Puhkum Road
Brooks, CA 95606

CERTIFIED MAIL
91 7199 9991 7035 8420 1244

COMMENTS TO REQUEST FOR REVIEW FOR THE NOTICE OF PREPARATION FOR THE DRAFT ENVIRONMENTAL IMPACT REPORT, CACHE CREEK HOTEL EXPANSION PROJECT, SCH# 2016032058, YOLO COUNTY

Pursuant to the State Clearinghouse's 21 March 2016 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Request for Review for the Notice of Preparation for the Draft Environment Impact Report* for the Cache Creek Hotel Expansion Project, located in Yolo County.

Our agency is delegated with the responsibility of protecting the quality of surface and groundwaters of the state; therefore our comments will address concerns surrounding those issues.

I. Regulatory Setting

Basin Plan

The Central Valley Water Board is required to formulate and adopt Basin Plans for all areas within the Central Valley region under Section 13240 of the Porter-Cologne Water Quality Control Act. Each Basin Plan must contain water quality objectives to ensure the reasonable protection of beneficial uses, as well as a program of implementation for achieving water quality objectives with the Basin Plans. Federal regulations require each state to adopt water quality standards to protect the public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act. In California, the beneficial uses, water quality objectives, and the Antidegradation Policy are the State's water quality standards. Water quality standards are also contained in the National Toxics Rule, 40 CFR Section 131.36, and the California Toxics Rule, 40 CFR Section 131.38.

The Basin Plan is subject to modification as necessary, considering applicable laws, policies, technologies, water quality conditions and priorities. The original Basin Plans were adopted in 1975, and have been updated and revised periodically as required, using Basin Plan amendments. Once the Central Valley Water Board has adopted a Basin Plan amendment in noticed public hearings, it must be approved by the State Water Resources Control Board (State Water Board), Office of Administrative Law (OAL) and in some cases,

the United States Environmental Protection Agency (USEPA). Basin Plan amendments only become effective after they have been approved by the OAL and in some cases, the USEPA. Every three (3) years, a review of the Basin Plan is completed that assesses the appropriateness of existing standards and evaluates and prioritizes Basin Planning issues.

For more information on the *Water Quality Control Plan for the Sacramento and San Joaquin River Basins*, please visit our website:
http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/.

Antidegradation Considerations

All wastewater discharges must comply with the Antidegradation Policy (State Water Board Resolution 68-16) and the Antidegradation Implementation Policy contained in the Basin Plan. The Antidegradation Policy is available on page IV-15.01 at:
http://www.waterboards.ca.gov/centralvalleywater_issues/basin_plans/sacsjr.pdf

In part it states:

> *Any discharge of waste to high quality waters must apply best practicable treatment or control not only to prevent a condition of pollution or nuisance from occurring, but also to maintain the highest water quality possible consistent with the maximum benefit to the people of the State.*
>
> *This information must be presented as an analysis of the impacts and potential impacts of the discharge on water quality, as measured by background concentrations and applicable water quality objectives.*

The antidegradation analysis is a mandatory element in the National Pollutant Discharge Elimination System and land discharge Waste Discharge Requirements (WDRs) permitting processes. The environmental review document should evaluate potential impacts to both surface and groundwater quality.

II. Permitting Requirements

Construction Storm Water General Permit

Dischargers whose project disturb one or more acres of soil or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction Activities (Construction General Permit), Construction General Permit Order No. 2009-009-DWQ. Construction activity subject to this permit includes clearing, grading, grubbing, disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan

(SWPPP).

For more information on the Construction General Permit, visit the State Water Resources Control Board website at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml.

Phase I and II Municipal Separate Storm Sewer System (MS4) Permits[1]
The Phase I and II MS4 permits require the Permittees reduce pollutants and runoff flows from new development and redevelopment using Best Management Practices (BMPs) to the maximum extent practicable (MEP). MS4 Permittees have their own development standards, also known as Low Impact Development (LID)/post-construction standards that include a hydromodification component. The MS4 permits also require specific design concepts for LID/post-construction BMPs in the early stages of a project during the entitlement and CEQA process and the development plan review process.

For more information on which Phase I MS4 Permit this project applies to, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/municipal_permits/.

For more information on the Caltrans Phase I MS4 Permit, visit the State Water Resources Control Board at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/caltrans.shtml.

For more information on the Phase II MS4 permit and who it applies to, visit the State Water Resources Control Board at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/phase_ii_municipal.shtml.

Industrial Storm Water General Permit
Storm water discharges associated with industrial sites must comply with the regulations contained in the Industrial Storm Water General Permit Order No. 2014-0057-DWQ.

For more information on the Industrial Storm Water General Permit, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/industrial_general_permits/index.shtml.

Clean Water Act Section 404 Permit
If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the

[1] Municipal Permits = The Phase I Municipal Separate Storm Water System (MS4) Permit covers medium sized Municipalities (serving between 100,000 and 250,000 people) and large sized municipalities (serving over 250,000 people). The Phase II MS4 provides coverage for small municipalities, including non-traditional Small MS4s, which include military bases, public campuses, prisons and hospitals.

United States Army Corps of Engineers (USACOE). If a Section 404 permit is required by the USACOE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements.

If you have any questions regarding the Clean Water Act Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACOE at (916) 557-5250.

Clean Water Act Section 401 Permit – Water Quality Certification

If an USACOE permit (e.g., Non-Reporting Nationwide Permit, Nationwide Permit, Letter of Permission, Individual Permit, Regional General Permit, Programmatic General Permit), or any other federal permit (e.g., Section 10 of the Rivers and Harbors Act or Section 9 from the United States Coast Guard), is required for this project due to the disturbance of waters of the United States (such as streams and wetlands), then a Water Quality Certification must be obtained from the Central Valley Water Board prior to initiation of project activities. There are no waivers for 401 Water Quality Certifications.

Waste Discharge Requirements – Discharges to Waters of the State

If USACOE determines that only non-jurisdictional waters of the State (i.e., "non-federal" waters of the State) are present in the proposed project area, the proposed project may require a Waste Discharge Requirement (WDR) permit to be issued by Central Valley Water Board. Under the California Porter-Cologne Water Quality Control Act, discharges to all waters of the State, including all wetlands and other waters of the State including, but not limited to, isolated wetlands, are subject to State regulation.

For more information on the Water Quality Certification and WDR processes, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/help/business_help/permit2.shtml.

Dewatering Permit

If the proposed project includes construction or groundwater dewatering to be discharged to land, the proponent may apply for coverage under State Water Board General Water Quality Order (Low Risk General Order) 2003-0003 or the Central Valley Water Board's Waiver of Report of Waste Discharge and Waste Discharge Requirements (Low Risk Waiver) R5-2013-0145. Small temporary construction dewatering projects are projects that discharge groundwater to land from excavation activities or dewatering of underground utility vaults. Dischargers seeking coverage under the General Order or Waiver must file a Notice of Intent with the Central Valley Water Board prior to beginning discharge.

For more information regarding the Low Risk General Order and the application process, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wqo/wqo2003-0003.pdf

For more information regarding the Low Risk Waiver and the application process, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/waivers/r5-2013-0145_res.pdf

Regulatory Compliance for Commercially Irrigated Agriculture

If the property will be used for commercial irrigated agricultural, the discharger will be required to obtain regulatory coverage under the Irrigated Lands Regulatory Program. There are two options to comply:

1. **Obtain Coverage Under a Coalition Group.** Join the local Coalition Group that supports land owners with the implementation of the Irrigated Lands Regulatory Program. The Coalition Group conducts water quality monitoring and reporting to the Central Valley Water Board on behalf of its growers. The Coalition Groups charge an annual membership fee, which varies by Coalition Group. To find the Coalition Group in your area, visit the Central Valley Water Board's website at: http://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/for_growers/apply_coalition_group/index.shtml or contact water board staff at (916) 464-4611 or via email at IrrLands@waterboards.ca.gov.

2. **Obtain Coverage Under the General Waste Discharge Requirements for Individual Growers, General Order R5-2013-0100**. Dischargers not participating in a third-party group (Coalition) are regulated individually. Depending on the specific site conditions, growers may be required to monitor runoff from their property, install monitoring wells, and submit a notice of intent, farm plan, and other action plans regarding their actions to comply with their General Order. Yearly costs would include State administrative fees (for example, annual fees for farm sizes from 10-100 acres are currently $1,084 + $6.70/Acre); the cost to prepare annual monitoring reports; and water quality monitoring costs. To enroll as an Individual Discharger under the Irrigated Lands Regulatory Program, call the Central Valley Water Board phone line at (916) 464-4611 or e-mail board staff at IrrLands@waterboards.ca.gov.

Low or Limited Threat General NPDES Permit

If the proposed project includes construction dewatering and it is necessary to discharge the groundwater to waters of the United States, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. Dewatering discharges are typically considered a low or limited threat to water quality and may be covered under the General Order for *Dewatering and Other Low Threat Discharges to Surface Waters* (Low Threat General Order) or the General Order for *Limited Threat Discharges of Treated/Untreated Groundwater from Cleanup Sites, Wastewater from Superchlorination Projects, and Other Limited Threat Wastewaters to Surface Water*

(Limited Threat General Order). A complete application must be submitted to the Central Valley Water Board to obtain coverage under these General NPDES permits.

For more information regarding the Low Threat General Order and the application process, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2013-0074.pdf

For more information regarding the Limited Threat General Order and the application process, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2013-0073.pdf

If you have questions regarding these comments, please contact me at (916) 464-4644 or Stephanie.Tadlock@waterboards.ca.gov.

Stephanie Tadlock

Stephanie Tadlock
Environmental Scientist

cc: State Clearinghouse unit, Governor's Office of Planning and Research, Sacramento

YOLO COUNTY COMMENT LETTER

COUNTY OF YOLO

Office of the County Administrator

Patrick S. Blacklock
County Administrator

625 Court Street, Room 202 Woodland, CA 95695
(530) 666-8150 FAX (530) 668-4029
www.yolocounty.org

April 21, 2016

Mr. Leland Kinter
Tribal Chairman
Yocha Dehe Wintun Nation
P.O. Box 18
Brooks, CA 95606

Dear Chairman Kinter,

Yolo County appreciates the opportunity to provide comments on the proposed Hotel Expansion Project ("Project") described in the March 21, 2016 Notice of Preparation. The County understands that the Project includes 177 additional rooms, a 1,325-seat ballroom, and additional space for restaurants and other uses. Consequently, the Project represents a significant undertaking that would almost double the total square footage of the Cache Creek Casino Resort.

At the outset, the County recognizes that the Tribe has a sincere appreciation for the agricultural and natural heritage of the Capay Valley and associated environmental resources. Also, the County and Tribe enjoy a strong government-to-government relationship based on open dialogue, clear communication, and good faith negotiation at appropriate times. We thus offer the following initial list of issues to aid the Tribe in preparing the Tribal Environmental Impact Report ("TEIR") for the Project, recognizing that the Tribe is already mindful of many (if not all) of these issues:

- **Transportation/Traffic -** The roads leading traffic to the Resort are heavily burdened with traffic, and there is widespread public interest in ensuring that changes such as the Project occur in a manner that addresses potential traffic and roadway impacts. The TEIR should include a robust traffic impact analysis of both impacts to ordinary traffic volumes and also analyze peak hour and major event traffic. The County's Public Works Division has traffic and accident data available that may be helpful, among other data sources, in conducting the traffic analysis. Given the likely significant impact the Project may have, mitigation for such traffic impacts—including effects on physical infrastructure—must be implemented prior to the completion of the project.

- **Water Resources -** The County has significant concerns regarding the project's use of additional groundwater and the potential to overdraft the groundwater basin, which could deplete adjacent wells and degrade groundwater quality. The County has similar concerns with any increased usage of Cache Creek water resources. The TEIR should thoroughly analyze the viability of extensive leach fields or the discharge of wastewater, including into Cache Creek.

The TEIR must contemplate and address the procurement of any relevant federal water discharge permits and the Project's compatibility with County/state groundwater regulation as mandated by the Sustainable Groundwater Management Act (SGMA). As noted in Section 1.o.i.(f) of the 2002 Intergovernmental Agreement, "[t]he tribe will comply with the County's groundwater ordinance," and this includes any Countywide groundwater ordinance or other regulatory program arising from implementation of the SGMA.

- **Housing and Growth -** The Project will likely include an increase in workers at the Resort, which will result in increased demand for all County services, including services to children, mothers, senior citizens, low-income residents, and the chronically ill. These impacts must be thoroughly analyzed and mitigated. The Draft TEIR also should include a robust analysis of Project's affordable housing impacts and the affordable housing availability in surrounding communities.

This is an initial list of the issues of greatest potential concern to the County, and we reserve the right to identify additional issues for your consideration as the TEIR process moves forward. Also, we urge the Tribe to ensure that TEIR preparation proceeds in accord with language in Section 10.8.1 of the Amended Compact requiring a TEIR to identify all "direct and indirect significant effects on the off-reservation environment" and to include "feasible measures which could minimize significant adverse effects." The Amended Compact also mandates that "[f]ormulation of mitigation measures should not be deferred until some future time." Consistent with these requirements, all potentially significant off-reservation environmental impacts to traffic circulation, transportation facilities, surface and groundwater resources, and housing and service impacts should be subject to rigorous scrutiny in the TEIR.

Please do not hesitate to contact Alexander Tengolics in the County Administrator's Office at (530) 666-8068 or alexander.tengolics@yolocounty.org should you have any questions or would like to discuss further. The County looks forward to a productive and healthy dialogue as this Project progresses.

Sincerely,

Patrick S. Blacklock
Yolo County Administrator

CAPAY VALLEY VINEYARDS COMMENT LETTER

Capay Valley
VINEYARDS

P.O.Box 17, Brooks, CA 95606
ph (530) 796-4110
info@capayvalleyvineyards.com

August 8, 2016
3 pages total

Yocha Dehe Wintun Nation
P.O.Box 18
Brooks, CA 95606

Re: NOP - Significant off-reservation impacts from Cache Creek Hotel Expansion Project

Dear Sir or Madam:

Upon review of the Notice of Preparation, the Tribal Environmental Impact Report (Draft TEIR) should address the following issues:

1. Cumulative impacts:

   a. The socioeconomic effects on –local businesses – both farming and non-farming.
   b. The Project's socioeconomic effects on the towns of Esparto and Capay that may lead to environmental impacts
   c. The Project's effect of water availability on adjacent farms and homes.
   d. The effect on the Capay Valley of no legal accountability in that there is no ability to enforce mitigation measures if the Tribe fails to fully and completely implement all mitigation measures.

2. Traffic

The Draft TEIR must evaluate the cumulative impacts on the towns of Esparto and Capay and all residents, farms and businesses who use the highway. The Draft TEIR must analyze and discuss whether the Project will trigger a need to widen Highway 16 which the community has rejected repeatedly and will not pay for.

The Casino could be a good neighbor and it would be to their benefit to build their own access to their site. It would seem a good business decision to protect over $276 million annually. (Sacramento Bee article citing court document January 22, 2012).

3. Noise and odors

The Casino's current operation has resulted in significant impacts regarding light, and noise, as well as odors from the casino air expellation system. Doubling the size of the casino/hotel will result in additional impacts regarding light, noise and odors. The NOP must discuss and analyze those impacts.

4. Effects of no legal accountability on the everyday workings of the community where everyone else has different rules to follow.

5. Aesthetics

The NOP states:

> *"The Proposed Project may change the visual character of the area. Although the height of the proposed facilities is not anticipated to substantially exceed the height of the existing Resort buildings, the new hotel tower and expanded size of the Resort could visually impact certain off-reservation properties. The TEIR will assess the impacts of the Proposed Project on the existing visual character and quality of the off-reservation area, including light and glare effects and the impacts of the Proposed Project on any off reservation scenic vistas or resources. The TEIR will include architectural renderings of the proposed structures. The TEIR will identify mitigation measures to address any potentially significant impacts."*

The square footage increase resulting from the expansion suggests structures much taller than "substantially the same as the existing resort buildings". The Draft TEIR should give specific heights, scale drawings showing relationships to existing buildings as well as hills and other landmarks. Before the comment period for the Draft TEIR, physical on-site framework should be erected to show proposed height and area to be built. This is common practice in many counties and cities.

The Draft TEIR should include mitigation measures that provide for screening on tribal property of all surrounding neighboring properties – be it green landscape, walls, or a combination in multiple heights and depths.

There is already a substantial visual impact on residents – any increase is a substantial off reservation cumulative impact.

6. Water Resources-off reservation ground water supplies

The proposed project is similar in scale to the Tribe's 2008 proposal to triple the number of hotel rooms. At that time, the Tribe acknowledged as a potentially significant impact the overdraft of the groundwater basin and lowering of the local groundwater table. Of particular concern would be wells closest to the tribal property. (AES April 2008 Draft TEIR 3.7.4)

Capay Valley Vineyards is next door and relies on ground water for grape growing and their livelihood. There has been a severe drought since 2008. This is a substantial off reservation cumulative impact.

Mitigation for this threat would be access to the casino's water system prior to project construction. The hydrant at Highway 16 could be connected relatively easily to our system. Without this mitigation, the casino has the ability (knowingly or not) to run us dry. In this way we continue to share the same aquifer on an equitable basis as neighboring overlying water users.

7. The Draft TEIR must evaluate the cumulative effects on the environment of the Capay Valley of the combination of a casino concession, trust taking, and non accountability for actions.

Sincerely,

Tom Frederick
Pam Welch
Capay Valley Vineyards

RUMSEY HOUSE BED AND BREAKFAST COMMENT LETTER

Yocha Dehe Wintun Nation
18960 Puhkum Road
P.O. Box 18
Brooks, CA 95606

July 30, 2016

Re: Cache Creek Casino Expansion Plan

To Whom it May Concern:

Thank you for giving us valley residents and business owners a chance to respond to your impact report.

I own and operate Rumsey House B&B in Rumsey and have had cordial relations with the casino and respect for the Tribe since the time I moved here. I also served as the latest executive director of the Esparto Regional Chamber of Commerce and became familiar with the subjects of which I speak below.

Despite my friendly relations with both the Tribe and Casino, I do have significant concerns with the proposed expansion:

1. The aesthetics impacts you name are too narrow, seeming to address only immediate neighbors of the Casino. Such a huge expansion would affect the burgeoning reputation of the Capay Valley as a wonderland of organic and other farms, and would negatively impact the impression of visitors from the Bay Area (especially) who come up here to escape urbanization and enjoy the country life.

2. The is a glaring absence of any reference to the stultifying effect the Casino expansion would have on local commerce. Naturally, I have a stake in this since I operate a B&B which often accommodates golfers, casino concert attendees and gamblers from the Casino. But other B&B's (existing and some in the works), hotels and airbnb commerce would be affected not only in the Capay Valley but as far as Woodland and Winters. These hotels not only provide lodging, but are often the source of referrals to other local businesses. For instance, my guests

often ask me to refer them to local farm stores, wineries, rafting companies, etc. The Casino has its own interests at heart and would prefer to keep customers solely on its site, especially once it has expanded and has larger expenses to maintain. Proof of the damaging effect the Casino has already had on local businesses can be seen in the fact that other gas stations closed once the casino gas station opened, at least one hotel closed in Guinda, and the new hotel opening in Winters has been relying on part of its profit from the need for overflow lodging from the Casino (this last piece of information was given to me directly by the Mayor of Winters a couple of months ago, before she had heard about the expansion of the Casino).

3. I know I am one of many who is worried about traffic and water usage, so will only add my voices to others. Both of these are extremely worrisome to me, since many of my neighbors' wells ran dry over the past year from ground water pumping, necessitating digger deeper and more costly wells.

I am wondering if there are any mitigation plans for local businesses which will be adversely affected. My own business may decrease to the point where I would have to consider closing my B&B. I have been very appreciative of referrals from the casino, or people who have found my B&B on their own after finding the casino full. I assume most of that business would dry up.

Thank you for your consideration of my concerns.

Sincerely,

Camilla Barry
Owner of Rumsey House B&B
Past Executive Director of the Esparto Regional Chamber of Commerce

cc: Yolo County Board of Supervisors
625 Court St #204, Woodland, CA 95695

Yolo County Planning Department
292 W Beamer St, Woodland, CA 95695

CAPAY VALLEY COALITION COMMENT LETTER

copy: M. Wilson

Capay Valley Coalition
P.O. Box 894
Esparto, CA 95627

August 11, 2016
9 pages total

Yocha Dehe Wintun Nation
P.O.Box 18
Brooks, CA 95606

cc: Duane Chamberlain, Yolo County Supervisor
Don Mooney, Attorney at Law

Re: NOP - Significant off-reservation impacts from Cache Creek Hotel Expansion Project

Dear Sir or Madam:

Having received from the County the Notice of Preparation for the Tribal Environmental Impact Report (Draft TEIR) on July 27th, dated July 22nd with a deadline of 20 days, thus August 11th, we have worked as quickly as possible to assemble a response. However, we note that:

> On Page One of the NOP, it is noted that, "On March 21, 2016, the Yocha Dehe Wintun Nation (the "Tribe") issued a Notice of Preparation (NOP) of a Tribal Environmental Impact Report (TEIR) for the Cache Creek Hotel Expansion Project (the "Proposed Project"). In accordance with the Tribe's gaming compact with the State of California (the "Compact"), the NOP was provided to the County of Yolo and the State Clearinghouse to inform interested persons of the preparation of a draft TEIR for the Hotel Expansion Project and of the 30-day opportunity for public comments to be submitted to the Tribe. The Tribe received three comment letters on the NOP. Since the initial circulation of the NOP, the Proposed Project has been refined to increase the number of proposed hotel rooms from 377 to 459, with a corresponding adjustment to the back of the house area. No other changes to the Project are proposed.
>
> "The Compact does not require or otherwise provide for supplementation or recirculation of a Notice of Preparation; however, to ensure that interested stakeholders have a reasonable opportunity to identify potentially significant off-reservation environmental impacts (and any reasonable mitigation measures to address those impacts) that should be considered in the draft TEIR, the Tribe has elected to supplement and recirculate the NOP for an additional 20 days of review and comment."
>
> When this supplemental NOP reflects that, "Since the initial circulation of the NOP, the Proposed Project has been refined to increase the number of proposed hotel rooms from 377 to 459, with a corresponding adjustment to the back of the house area." – a substantial increase! It would seem that the process should not be merely a voluntary decision to revise the NOP but a requirement.

Upon review of the Notice of Preparation, the Tribal Environmental Impact Report (Draft TEIR) the Capay Valley Coalition respectfully requests that the report should address the following issues, following the format and questions posed in the NOP:

Aesthetics

Would the project:

. a) Have a substantial adverse effect on a scenic vista?

The high valued placed by residents of Yolo County and Capay Valley on the unique scenic qualities of the Capay Valley is an important element in assessing the impacts of casino expansion. Highway 16 is a scenic State Route, a special designation that is not enhanced by a very urban development such as a casino. Expansion inevitably impacts the area's visual character; certainly doubling the number of hotel rooms is a massive expansion. A reduced size of project, or no further expansion should be a fair alternative to consider.

In order to provide input, it will be important to specify height of the proposed facility and its profile from different vantage points, that are the vantage points used and accessed by residents and visitors to the Valley (not a profile as viewed from the middle of a field, for instance).

c) Create a new source of substantial light or glare, which would adversely affect day or nighttime views of historic buildings or views in the area?

Assessment of light and glare should consider the current status and cumulative effects. Capay Valley has been an area in the state with unparalled nighttime star viewing, but the clarity of the night sky is impaired with each addition of night lighting in a large development like the casino. In the response to the 2002 casino expansion, there was already concern about light and glare from an expanded operation, yet those levels of light and glare have been increased through expansions since then. While all parking lot lights are downward facing, the two large electronic screens on the side of the building already create nighttime glare. Increased lighting generated from the doubling of the number of hotel rooms will have significant cumulative impacts.

Nighttime light pollution should consider the long string of car lights along highway 16.

d) Sound pollution – possibly dealt with below under noise, but sound pollution is an aesthetic, as well as physical impact.

Agricultural Resources

Would the project:

a) Involve changes in the existing environment, which, due to their location or nature, could result in conversion of off-reservation farmland to non-agricultural use?

Any development related to the expansion, such as water and waste water management that might impact on land use beyond the footprint of the expansion should be addressed.

Air Quality and Climate Change

On a national and global level, the degree of concern over greenhouse gas emissions has increased exponentially over the last decade, and the onus is on all development to engineer into project design sophisticated emission controls and mitigation. The project should address not simply its emission levels, but what it can contribute to building greater climate change adaptation and resilience in Yolo County. Much of this should be reflected in measures to reduce traffic emissions.

The estimates of construction emissions and increased emissions from traffic need to be accurate; previous TEIRs (2008) greatly underestimated construction emission and number of

trip generation rates.

Electrical power consumed by the expansion, including but not limited to lighting, heating, cooling and ventilation shall be provided by on-grid power with 100% renewable source, on-site net energy renewable source, or with purchase of carbon offsets of any proportion of the power not provided by renewable energy

Would the project:

a) Conflict with or obstruct implementation of the applicable air quality plan?

The project would generate emissions on off-reservation lands that are within the jurisdiction of the Yolo Solano Air Quality Management District and must address off-reservation air quality impacts on this plan, not solely in relation to federal standards.

b) Violate any air quality standard or contribute to an existing or projected air quality violation?

As above

c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non- attainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?

The air quality modeling must rely on accurate and year –round data. In County comments to the 2008 TEIR, it was noted that

Additional Air Quality Monitoring Needed in the Capay Valley - The Yolo Solano Air Quality Management District received funding from Yolo County in 2005 to install a particulate sampler in Esparto in order to better understand the air quality impacts within the Capay Valley associated with the substantial vehicle traffic generated by casino operations. However, the initial funding was not sufficient to maintain and operate the sampler, and the quality of the equipment is not comparable to other monitoring stations within the District. Due to the significant air quality impacts anticipated with project implementation within the Capay Valley, the Executive Director/Air Pollution Control Officer for the District has concluded that an upgrade of this air quality monitoring station would be necessary to accurately quantify the project's impacts on air quality. As this need is a direct result of the proposed casino expansion, the Tribe is responsible for appropriately funding this air quality monitoring station.

Has this upgrade been installed, and will it inform the TEIR?

e) Create objectionable odors affecting a substantial number of people off-reservation?

Odors from waste treatment should be addressed here.

Biological Resources

Would the project:

a) Have a substantial adverse impact, either directly or through habitat modifications, on any species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

In 2008, The Draft TEIR incorrectly stated that the proposed project is not within the jurisdiction of the County-wide Habitat Conservation Plan/Natural Communities Conservation Plan (HCP/NCCP) adopted by the Yolo County Habitat Conservation Joint Powers Agency. If this is still the case, impacts on biological resources need to be considered.

a) Have a substantial adverse effect on any off-reservation riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

The water management plan must address such potential impacts, including reduction of riparian area from water extraction in Cache Creek, both on-site and downstream.

b) Have a substantial adverse effect on federally protected off- reservation wetlands as defined by Section 404 of the Clean Water Act?

See b above

c) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Among other impacts, nighttime lighting and glare can impact wildlife movement and behavior, and should be addressed.

e) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

see a above

Cultural Resources

Would the project:

a) Cause a substantial adverse change in the significance of an off-reservation historical or archeological resource?

Capay Valley has a significant historical resource in having been and continuing to be a well-known and appreciated rural valley with small diverse farms of great scenic beauty. The impact on this resource of an expanding casino and associated traffic and pollutants can only erode the value of such a resource. The TEIR should consider how future development could minimize such impacts, in particular in building a road directly to the casino from 505 so that Highway 16 retains its rural scenic road character.

Water Resources

In the fifth year of drought, impact on water resources in Capay, Yolo County and the state of California is a paramount concern to all, and should be a factor on which expansion should be seriously assessed, with the viable alternative that no expansion and reductions in water use would serve the community well.

Would the project:

. a) Violate any water quality standards or waste discharge requirements?

Suggest the TEIR begins with water use, and ends this section with waste water issues, as the one depends on the other.

The 2008 Draft TEIR was insufficient in addressing even current groundwater quality impacts and Cache Creek surface water impacts.

. b) Substantially deplete off-reservation groundwater supplies or interfere substantially with groundwater recharge such that there should be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?

As California enters a new period of groundwater management, (and the Tribe has indicated its willingness to completely engage within the process) this TEIR will be an opportunity to adequately understand the current impacts of the casino on groundwater and water availability in the country, and the implications of future development. As impacts will extend to all non-tribal wells, the Tribe should contribute all such wells to the overall groundwater well monitoring systems.

The 2008 TEIR had a very insufficient analysis of water budgets, impacts on Cache Creek flows, drawdown in off-site wells, simulated pumpage from Casino wells, etc. and all these insufficiencies should not occur in the analysis provided in the current TEIR.

Noise and Vibrations

Would the project result in:

. c) A substantial permanent increase in ambient noise levels in the off-reservation vicinity of the project?

The cumulative impacts of all casino expansion on noise impacts must be thoroughly considered: noise impacts not just from the expansion of hotel rooms and ballroom events, but also from increased traffic along highway 16, and impacts on roadside business and residences should be addressed

Mitigation measures should be provided for residences and businesses exposed to these excessive project-generated traffic noise levels. Mitigation measures that must be considered, for sound pollution, should include a direct road to the casino from Highway 505, or the commitment to building the Park and Ride facility as promised in 2002.

Population and Housing

The Proposed Project would be constructed entirely on Trust land, and would not displace any existing housing. The Proposed Project would provide new employment opportunities; however, it is likely to have a less than significant impact on off-reservation housing because the majority of the new employees would likely already reside within commuting distance of the Proposed Project. The TEIR will assess the Proposed Project's impact on off-reservation population growth, and will identify mitigation measures to address any potentially significant impacts.

The text above does not seem to recognize that the substantial expansion of the facility's operation will significantly increase the need for housing for facility employees, and based on the low wage scale paid to the majority of casino workers, this housing is of a particular kind that is difficult to find within

commuting distance of the casino. Implications include either greater low-income housing (generally subsidized by the state, and one might ask, why the state should subsidize this clear benefit to the Casino?) or greater traffic congestion.

Public Services Facilities

Would the project:

a) Result in substantial adverse physical impacts associated with the provision of new or physically altered off-reservation governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the off-reservation public services:

Fire protection? Police protection? Schools?

Parks?

Other public facilities?

In addition to the obvious increased demand on fire protection personnel and equipment, delays in emergency vehicle response for residents and businesses with increased congestion along State Route 16, increased demands on law enforcement personnel and equipment, the increased demand on the county's criminal justice system needs to be thoroughly analyzed. It is well documented in the public record that the presence of a Casino attracts crime related to drugs, prostitution, drunk driving and theft. Criminal violations then become the responsibility of the county, no matter where the criminals may reside, and the burden on the county may last for years for each violation.

Increased demand on the County's Health Care system needs to be addressed; expansion of the casino and increased low-income populations will result in increased demand for all Public Health services, including that portion of the population for whom the Casino permits them to pursue addictions related to gambling. In the County comments on the 2008 draft TEIR, it was noted that the previous expansion of the casino has had substantial impacts on the Yolo County Alcohol, Drug and Mental Health Department workload.

See text below as well on second-hand smoke.

Transportation and Traffic

Would the project:

a) Cause an increase in off-reservation traffic, which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)?

To Capay Valley Coalition and other residents of the Valley this remains the largest and most objectionable impact, turning a small scenic country highway into a stream of cars, forcing residents – including farmers needing to more farm equipment - to have to contend with reckless, speeding drivers wanting to get to the casino as quickly as possible. It is where the community meets the casino, with trouble for all. We would like to ask that finally a perfect solution is found for all, preserving the rural character of the Valley while ensuring that the Casino clients arrive safely: that the Tribe constructs a road directly off of Highway 505 to the casino. The revenues from the casino can easily pay for this once and for all solution that will

relieve the great grief and antagonism on all sides.

In many other developments within the state, under the current concern with Climate Change, the proposers agree to take action to reduce greenhouse gas emissions. This standard should be one that the Tribe holds itself to as well. With respect to transportation, this can only be done by the introduction of some means of a transportation alternative. At a minimum, the park and ride facility that was agreed between the County and Tribe- but has never been built – must be a part of any solution that does not include a direct road to the casino. Other forms of mass transit- a train or tram – should also be considered amongst alternatives.

The 2008 Draft TEIR analysis for trip expansion was extremely faulty, and we would suggest that the independent study which had to be commissioned by the County serve as the standard of analysis from the beginning.

. b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated off-reservation roads or highways?

Cumulative impacts must be the basis, as the current traffic issues are beyond what is tolerable, before considering doubling the size of the hotel and adding additional event facilities such as a ballroom.

Utility and Service Systems

Would the project:

. a) Exceed off-reservation wastewater treatment requirements of the applicable Regional Water Quality Control Board?

A similar question occurs under the section on water. There are considerable concerns about wastewater management brought up in the County response to the 2008 draft TEIR that should be addressed in full, including impacts of leach fields on groundwater, elevated levels of nitrates in water (with serious health impacts for those accessing the groundwater, or for water utilities downstream being required to remove the nitrates), and the possibilities of wastewater discharge into Cache Creek or other lands)

. d) Result in a determination by an off-reservation wastewater treatment provider (if applicable), which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

see comment above: impacts on water utilities downstream.

Cumulative Effects

The TEIR will analyze whether, with respect to each of the items or categories listed in the Off-Reservation Impact Checklist, the Proposed Project will cause any "cumulatively considerable" off-reservation impacts. Under the Compact, "cumulatively considerable" off-reservation environmental impacts of the Proposed Project will be those that are considerable when viewed in connection with past, current, or probable future projects.

Cumulative Effects should not be a separate category; it applies to each and every category listed in the NOP.

Other impacts not yet listed in the NOP:

Expansion of low-income employment:

In industries where the majority of employees are paid minimum wage (and the casino is one of these), often more than half of the workers must depend on public assistance to make ends meet[1]. It is estimated for example that each Olive Garden restaurant costs taxpayers $200,000 annually in public assistance for workers. The same analysis should be applied to the societal value of expanding low-income employment through the Casino expansion.

Smoking and second-hand smoke

The health impacts of smoking, but moreoever of second hand smoke on casino employees, in this one business in Yolo County that allows smoking within the building are well-known and are profound. According to the American Lung Association:

- There is no risk-free level of exposure to secondhand smoke and even short-term exposure potentially can increase the risk of heart attacks.
- Secondhand smoke contains hundreds of chemicals known to be toxic or carcinogenic, including formaldehyde, benzene, vinyl chloride, arsenic ammonia and hydrogen cyanide.2
- Secondhand smoke can cause heart attacks; even relatively brief exposure can trigger a heart attack, according to a report by the Institute of Medicine.
- The health of nonsmokers exposed to secondhand smoke at work is at increased risk. Levels of secondhand smoke in restaurants and bars were found to be two- to five-times higher than in residences with smokers, and two- to six-times higher than in office workplaces.
- Casino workers in particular are exposed to hazardous levels of toxic secondhand smoke at work, including tobacco-specific carcinogens that increased in their bodies as their work shifts progressed, according to a report from the National Institute for Occupational Safety and Health.

The costs of the health care that must be borne as the result of the Casino's policy on smoking and proposed expansion (exposing more people to second hand smoke) must be reflected in the report, as well as who is to pay for debilitating illness and health care. Largely, it can be expected to fall on those least prepared to deal with It, the low income employees of the Casino, or public health facilities within the County. Will the health coverage given to casino employees today cover their health costs many years later, when no longer employees? This calculation should enter into the report.

Child Care- as employment is expanded

Impacts of problem and pathological gambling

Energy use, effects on electrical service in Capay Valley

As with transportation, and in many other developments within the state, under the current concern with Climate Change, the proposers agree that all energy must come from renewable

[1] ROC United, Picking Up the National Restaurant Association's Tab: The Public Cost of Low Wages in the Restaurant Industry (New York, NY: Restaurant Opportunities Centers United, 2015)."

resources or be compensated with carbon offsets. This standard should be one that the Tribe holds itself to as well.

Sincerely,

Barbara Gemmill Herren
For Capay Valley Coalition

APPENDIX D

TRAFFIC IMPACT STUDY (REVISED)

TRAFFIC IMPACT STUDY

Cache Creek Hotel Expansion Project

PREPARED FOR:

ANALYTICAL ENVIRONMENTAL SERVICES

NOVEMBER 2016 | FINAL

Prepared By:

Kimley»Horn

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EXECUTIVE SUMMARY

Kimley-Horn and Associates, Inc. (KHA) was retained by Analytical Environmental Services to prepare an off-reservation traffic impact study for the proposed Cache Creek Casino Resort (CCCR) Hotel Expansion Project (Project) located near Brooks, California. The CCCR is owned and operated by the Yocha Dehe Wintun Nation (Tribe). Two project scenarios were evaluated: the Project and the Project Alternative.

Project

The Project includes a hotel expansion that would add 459 rooms to the site, as well as ancillary uses including a hotel lobby bar/lounge. The Project also includes 178 net new restaurant seats and a new ballroom facility with seating capacity of 1,325 seats, thereby increasing the net number of seats by 596 seats. The proposed new ballroom facility would only be open when the Tribe's existing entertainment venue (known as Club 88) is not open, thus only the net increase in seats was analyzed. Approximately 144 additional Friday PM peak-hour vehicle trips and 161 additional Saturday PM-peak hour vehicle trips would enter or exit the CCCR parking lots as a result of the Project and potentially affect nearby intersections and roadway segments.

These project trips were added to the Near-term (2019) condition volumes and the Long-term (2035) condition volumes to determine the Project's potential significant impacts during opening day and in the cumulative scenario.

Significant findings of this study include:

Near-Term Plus Project Off-Reservation Impacts and Mitigations

No significant impacts due to the Project were determined to occur in the Near-term (2019) scenario at any study intersections.

Potential significant impacts due to the Project were determined to occur in the Near-term (2019) scenario at the following four (4) study segments.

- Segment #1 – SR-16 between CCCR and CR-85 (westbound and eastbound)
  - Impact: Operates at LOS D without the Project and the Project would worsen to LOS E in the eastbound direction for the Saturday PM peak; operates at LOS E without the Project, and the Project would decrease the average speed in the westbound direction for the Saturday PM peak.
  - Mitigation: Add a slow-vehicle turnout; the Tribe would be responsible for its fair share of the mitigation's cost as determined in consultation with Caltrans.
- Segment #4 – SR-16 between Esparto Town Limits and CR-89 (westbound)
  - Impact: Operates at LOS E without the Project, and the Project would decrease the average speed in the westbound direction for the Saturday PM peak.

  - Mitigation: Add a slow-vehicle turnout; the Tribe would be responsible for its fair share of the mitigation's cost as determined in consultation with Caltrans.

- Segment #5 – SR-16 between CR-89 and I-505 (westbound)
  - Impact: Operates at LOS E without the Project, and the Project would decrease the average speed for the westbound direction in the Saturday PM peak.
  - Mitigation: Add a slow-vehicle turnout; the Tribe would be responsible for its fair share of the mitigation's cost as determined in consultation with Caltrans.
- Segment #6 – SR-16 between I-505 and SR-98 (westbound and eastbound)
  - Impact: Operates at LOS E without the Project, and the Project would decrease the average speed for the westbound and eastbound directions in the Friday PM and Saturday PM peaks.
  - Mitigation: Add a slow-vehicle turnout; the Tribe would be responsible for its fair share of the mitigation's cost as determined in consultation with Caltrans.
- Construction Impacts –
  - Impact: Project would generate an increased number of construction employee and truck trips.
  - Mitigation: Prepare and implement a traffic control plan.

Implementation of the specified mitigation measures would reduce impacts to less-than-significant levels.

Long-Term Plus Project Off-Reservation Impacts and Mitigations

Potential significant impacts due to the Project were determined to occur in the Long-term (2035) scenario at the following study intersection.

- Intersection #18 – SR-16/CR-94B
  - Impact: Operates at LOS F without the Project, and the Project would increase the delay.
  - Mitigation: Install a refuge lane along SR-16 for northbound left turn users and southbound left turn users; the Tribe would be responsible for its fair share of the mitigation's cost.

Potential significant impacts due to the Project were determined to occur in the Long-term (2035) scenario at the same four (4) study segments as in the Near-term (2019) scenario. Additionally, the eastbound direction is impacted for both Segments #4 and #5. The same mitigations determined from the near-term analysis would apply, with the addition of a slow-vehicle turnout in the eastbound direction for Segments #4 and #5. Implementation of the specified mitigation measures would reduce impacts to less-than-significant levels.

Project Alternative

The Project Alternative includes a hotel expansion that would add 399 rooms to the site, as well as ancillary uses including a hotel lobby bar/lounge. The Project Alternative also includes the same 178 net new restaurant seats and the same new ballroom facility with seating capacity of 1,325 seats, thereby increasing the net number of seats by 596 seats. The proposed new ballroom facility would only be open when the Tribe's existing entertainment venue (known as Club 88) is not open, thus only the net increase in seats was analyzed. Approximately 135 additional Friday PM peak-hour vehicle trips and 150 additional Saturday PM-peak hour vehicle trips would enter or exit the CCCR parking lots as a result of the Project Alternative and potentially affect nearby intersections and roadway segments.

These Project Alternative trips were added to the Near-term (2019) condition volumes and the Long-term (2035) condition volumes to determine the Project Alternative's potential significant impacts during opening day and in the cumulative scenario.

Significant findings of this study include:

Near-Term Plus Project Alternative Off-Reservation Impacts and Mitigations

No significant impacts due to the Project Alternative were determined to occur in the Near-term (2019) scenario at any study intersections.

Potential significant impacts due to the Project Alternative were determined to occur in the Near-term (2019) scenario at the following four (4) study segments.

- Segment #1 – SR-16 between CCCR and CR-85 (westbound and eastbound)
    - Impact: Operates at LOS D without the Project Alternative and the Project Alternative would worsen to LOS E in the eastbound direction for the Saturday PM peak; operates at LOS E without the Project Alternative, and the Project Alternative would decrease the average speed in the westbound direction for the Saturday PM peak.
    - Mitigation: Add a slow-vehicle turnout; the Tribe would be responsible for its fair share of the mitigation's cost as determined in consultation with Caltrans.
- Segment #4 – SR-16 between Esparto Town Limits and CR-89 (westbound)
    - Impact: Operates at LOS E without the Project Alternative, and the Project Alternative would decrease the average speed in the westbound direction for the Saturday PM peak.
    - Mitigation: Add a slow-vehicle turnout; the Tribe would be responsible for its fair share of the mitigation's cost as determined in consultation with Caltrans.

- Segment #5 – SR-16 between CR-89 and I-505 (westbound)
    - Impact: Operates at LOS E without the Project Alternative, and the Project Alternative would decrease the average speed for the westbound direction in the Saturday PM peak.
    - Mitigation: Add a slow-vehicle turnout; the Tribe would be responsible for its fair share of the mitigation's cost as determined in consultation with Caltrans.
- Segment #6 – SR-16 between I-505 and SR-98 (westbound and eastbound)
    - Impact: Operates at LOS E without the Project Alternative, and the Project Alternative would decrease the average speed for the westbound and eastbound directions in the Friday PM and Saturday PM peaks.
    - Mitigation: Add a slow-vehicle turnout; the Tribe would be responsible for its fair share of the mitigation's cost as determined in consultation with Caltrans.
- Construction Impacts –
    - Impact: Project Alternative would generate an increased number of construction employee and truck trips.
    - Mitigation: Prepare and implement a traffic control plan.

Implementation of the specified mitigation measures would reduce impacts to less-than-significant levels.

Long-Term Plus Project Alternative Off-Reservation Impacts and Mitigations

Potential significant impacts due to the Project Alternative were determined to occur in the Long-term (2035) scenario at the following study intersection.

- Intersection #18 – SR-16/CR-94B
    - Impact: Operates at LOS F without the Project Alternative, and the Project Alternative would increase the delay.
    - Mitigation: Install a refuge lane along SR-16 for northbound left turn users and southbound left turn users; the Tribe would be responsible for its fair share of the mitigation's cost.

Potential significant impacts due to the Project Alternative were determined to occur in the Long-term (2035) scenario at the same four (4) study segments as in the Near-term (2019) scenario. Additionally, the eastbound direction is impacted for both Segments #4 and #5. The same mitigations determined from the near-term analysis would apply, with the addition of a slow-vehicle turnout in the eastbound direction for Segments #4 and #5. Implementation of the specified mitigation measures would reduce impacts to less-than-significant levels.

INTRODUCTION

Kimley-Horn and Associates, Inc. was retained by Analytical Environmental Services to prepare a traffic impact study for the Cache Creek Casino Resort (CCCR) Hotel Expansion Project (Project) located near Brooks, California. It is proposed that the Project be completed by 2019. CCCR is owned and operated by the Yocha Dehe Wintun Nation (Tribe).

The purpose of this study is to address the off-reservation traffic and transportation effects of the Project, a 459-room hotel expansion (along with its ancillary uses including a hotel lobby bar/lounge). The expansion also includes 178 net new restaurant seats and a new ballroom facility with seating capacity of 1,325 seats, thereby increasing the net number of seats by 596 seats. The proposed new ballroom facility would only be open when Club 88 is not open, thus only the net increase in seats was analyzed. This study also addresses an alternative project scenario that represents a reduced intensity for the Project. The Project Alternative includes a 399-room hotel expansion (a reduction in 60 hotel rooms from the Project), and the same 178 net new restaurant seats and 1,325-seat ballroom facility. This traffic study was prepared based on discussions with, and criteria set forth by, Yolo County, the City of Woodland, the California Department of Transportation (Caltrans), and the Tribe.

Study Methodology

This traffic study was based on relevant information from the Yolo County General Plan (adopted June 2009), the Esparto General Plan (adopted 2007), the Woodland General Plan (adopted 2002), and Caltrans[1], as well as data collected from the Project area.

Development Conditions

The traffic study was based on the following study scenarios:

- Existing (2016) Conditions – evaluates current off-reservation traffic counts, existing off-reservation roadway geometry, and existing off-reservation development conditions.

- Near-Term (2019) Conditions – evaluates existing off-reservation traffic volumes with the addition of off-reservation planned projects and roadway improvements that are programmed, funded, and scheduled to be completed by 2019.

- Near-Term (2019) Plus Project Conditions – evaluates the effects of traffic from the Project on 2019 off-reservation traffic operations.

[1] Information includes the *SR-16 Safety Improvement Project* report, *SR-16 Transportation Concept Report*, heavy vehicle percentages, SR-16 roadway segment classification, and signal timing.

- Near-Term (2019) Plus Project Alternative Conditions – evaluates the effects of traffic from the Project Alternative on 2019 off-reservation traffic operations.

- Long-Term (2035) Conditions – evaluates build-out conditions in the off-reservation area projected for 2035 using the forecast from the Yolo County General Plan and the Sacramento Area Council of Governments (SACOG) Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) travel forecast model.

- Long-Term (2035) Plus Project Conditions – evaluates effects of traffic from the Project on 2035 Long-Term off-reservation traffic operations.

- Long-Term (2035) Plus Project Alternative Conditions – evaluates effects of traffic from the Project Alternative on 2035 Long-Term off-reservation traffic operations.

Operating Conditions and Criteria

Operating conditions experienced by drivers are described in terms of Level of Service (LOS), which is a qualitative measure of factors such as delay, speed, travel time, freedom to maneuver, and driving comfort and convenience. Levels of service are represented by a letter scale from LOS A to LOS F, with LOS A representing the best performance and LOS F representing the poorest performance.

Table 1 relates the operational characteristics associated with each level of service category for both signalized and unsignalized intersections. **Table 2** lists the level of service thresholds for roadway segments which is based on both average travel speed and the percent time spent following on two-lane highways. Level of service on Class I facilities is defined in terms of average travel speed as well as percent time-spent-following (where mobility is critical). Percent time-spent-following is defined as the average percent of total travel time that vehicles must travel in platoons behind slower vehicles due to inability to pass on a two-lane highway. The level of service on Class II facilities is based only on the percent time-spent-following.

Table 3 summarizes the local off-reservation level of service standards. Unacceptable levels of service at on-reservation locations do not constitute significant impacts.

In accordance with Caltrans requirements, traffic analysis was completed using Traffix software at all intersections and Highway Capacity Software (HCS) at roadway segments. Both software platforms are based on the methodology of the *Highway Capacity Manual* and are approved by Caltrans for use in preparation of traffic impact studies.

Table 1 – Intersection Level of Service Definitions

Level of Service	Description	Signalized (Avg. control delay per vehicle)	Unsignalized (Avg. control delay per vehicle)	Volume to Capacity
A	Free flow with no delays. Users are virtually unaffected by others in the traffic stream	<= 10	<= 10	And <= 1.0
B	Stable traffic. Traffic flows smoothly with few delays.	> 10 – 20	> 10 – 15	And <= 1.0
C	Stable flow but the operation of individual users becomes affected by other vehicles. Modest delays.	> 20 – 35	> 15 – 25	And <= 1.0
D	Approaching unstable flow. Operation of individual users becomes significantly affected by other vehicles. Delays may be more than one cycle during peak hours.	> 35 – 55	> 25 – 35	And <= 1.0
E	Unstable flow with operating conditions at or near the capacity level. Long delays and vehicle queuing.	> 55 – 80	> 35 – 50	And <= 1.0
F	Forced or breakdown flow that causes reduced capacity. Stop and go traffic conditions. Excessive long delays and vehicle queuing.	> 80	> 50	Or > 1.0

Source: Transportation Research Board, *Highway Capacity Manual 2010*, National Research Council, 2010.

Table 2 – Roadway Segment Level of Service Thresholds: Two-Lane Highway

Level of Service	Class I[a] Percent Time Spent Following (%)	Class I[a] Average Travel Speed (mph)	Class II[b] Percent Time Spent Following (%)
A	<= 35	=> 55	<= 40
B	> 35 – 50	> 50 – 55	> 40 – 55
C	> 50 – 65	> 45 – 50	> 55 – 70
D	> 65 – 80	> 40 – 45	> 70 – 85
E	> 80	<= 40	> 85

Source: Transportation Research Board, *Highway Capacity Manual 2010*, National Research Council, 2010.

[a]Class I: Highways on which motorists expect to travel at relatively high speeds, including major intercity routes, primary arterials, and daily commuter routes.

[b]Class II: Highways on which motorists do not necessarily expect to travel at high speeds, including access routes, scenic and recreational routes that are not primarily arterials, and routes through rugged terrain.

LOS F applies whenever the flow rate exceeds the segment capacity.

Table 3 – Local Level of Service Standards

Jurisdiction	Satisfactory Criteria	Significance Criteria
Yolo County	LOS D – SR-16 between CCCR and I-505 LOS E – SR-16 between CR-85B and CR-21A LOS C – all other County Roads	Project causes LOS to fall below LOS D or any increase in delay to intersections already operating unacceptably
Woodland	LOS C	Project causes LOS to fall below LOS C
Caltrans	LOS D – signalized intersections and highways	Project causes LOS to fall below LOS D at intersections and highways If LOS already below criteria, the existing LOS and related measure of effectiveness (i.e. delay, percent time-spent-following, and average speed) are to be maintained.
Sources: Yolo County 2035 Countywide General Plan, 2009 Woodland General Plan Policy Document, 2002 Guide for the Preparation of Traffic Impact Studies, Caltrans, December 2002		

Typically, the Caltrans standard would be LOS C or better for off-reservation intersections and roadway segments (per Caltrans' Guide for the Preparation of Traffic Impact Studies); however, in the State Route 16 Transportation Concept Report, Caltrans indicated that a lower level of service (i.e. LOS D) was acceptable before mitigation would be required[2].

Intersections Included in Analysis

The Project would generate new vehicular trips that would increase traffic volumes on the nearby off-reservation street network. To assess changes in off-reservation traffic conditions associated with the Project, the following study intersections were selected based on relevance to the Project and previous discussions with Caltrans, Yolo County, and the Tribe *Project*[3]. **Figure** 1 illustrates the study intersections:

1. SR-16/ North Casino Entrance
2. SR-16/ Central Casino Entrance

[2] *State Route 16 Transportation Concept Report*, Caltrans District 3 Office of Advance and System Planning, December 2004.
[3] *See Traffic Impact Study for the Cache Creek Casino Resort Event Center Project*, Kimley-Horn and Associates, Inc., June 2010.

3. SR-16/ South Casino Entrance
4. SR-16/ County Road 85
5. SR-16/ County Road 85B
6. SR-16/ Woodland Avenue
7. SR-16/ Capay Street
8. SR-16/ Madison Street
9. SR-16/ Plainfield Street
10. SR-16/ County Road 21A
11. County Road 85B/ County Road 21A
12. Country Villa Estates/ County Road 21A
13. Fremont Street/ County Road 21A
14. SR-16/ County Road 89
15. SR-16/ I-505 SB Ramps
16. SR-16/ 1-505 NB Ramps
17. SR-16/ Wildwing Drive
18. SR-16/ County Road 94B
19. SR-16/ County Road 95
20. SR-16/ County Road 98
21. SR-16/ W. Kentucky Avenue

Roadway Segments Included in Analysis

Off-reservation roadway segments were selected for study in consultation with Yolo County and Caltrans. **Figure 4** illustrates the roadway segments studied.

- SR-16 between CCCR and County Road 85
- SR-16 between County Road 85 and Esparto Town Limits
- SR-16 through the Town of Esparto
- SR-16 between Esparto Town limits and County Road 89
- SR-16 between County Road 89 and I-505
- SR-16 between I-505 and County Road 98
- County Road 21A between County Road 85B and SR-16
- County Road 85B between SR-16 and County Road 21A

EXISTING (2016) CONDITIONS

Existing Site Uses

The existing CCCR currently provides approximately 94,505 square feet of gaming floor area, 2,400 slot machines, approximately 1,120 table game seats, a 200-room hotel, a spa, a 729-seat event center (Club 88), eight restaurants, and roughly 3,787 parking spaces.

Existing Uses in Vicinity of Site

Land areas north, south, and west of the existing CCCR are principally used for rural agricultural purposes and are not expected to change in the next 20 years, based on the Yolo County General Plan. Directly north of the site is the Brooks Fire Station and US Post Office. East of the site is the Yocha Dehe Golf Club.

Existing Roadways

Below is a description of the off-reservation roadway facilities and roadway segments included in this study.

Off-Reservation Roadway Facilities

Capay Street – is a two-lane roadway with curbs, gutters, and on-street parking. The road runs east-west, connecting Alpha Street and Omega Street. Capay Street is located within the town limits of Esparto.

Country Villa Estates – is a two-lane roadway. The road runs north-south, connecting residential housing to County Road 21A.

County Road 21A (CR-21A) – is a major two-lane undivided county road. It runs east-west connecting County Road 85B and State Route 16.

County Road 85 (CR-85) – is a minor two-lane undivided county road. It runs north-south connecting County Road 8 and State Route 16.

County Road 85B (CR-85B) – is a major two-lane undivided county road between State Route 16 and County Road 21A, and a minor two-lane undivided county road between County Road 21A and County Road 23. It runs north-south connecting County Road 23 and State Route 16.

County Road 89 (CR-89) – is a minor two-lane undivided county road. It runs north-south connecting State Route 16 and the City of Winters.

County Road 94B (CR-94B) – is a minor two-lane undivided county road. It runs north-south connecting County Road 19 and County Road 24.

County Road 95 (CR-95) – is a minor two-lane undivided county road. It runs north-south connecting State Route 16 and County Road 31.

County Road 98 (CR-98) – is a two-lane undivided roadway. CR-98 runs contiguous with SR-16 from Interstate 5 to W. Main Street. The road is classified as a principal arterial and is designated as a truck route in the City of Woodland's General Plan. It is classified as a major two-lane county road south of the City of Woodland.

Fremont Street – is a two-lane roadway. The road runs north-south connecting State Route 16 to County Road 21A. Fremont Street is located within the city limits of Esparto.

Interstate 505 (I-505) – is a four-lane freeway running north and south connecting Interstate 5 in the north near the Yolo-Colusa County line and Interstate 5 in Vacaville to the south. Interstate 505 passes through the city of Winters.

Madison Street – is a two-lane roadway with curbs, gutters and on-street parking. The road runs east-west connecting Alpha Street and Omega Street, and is directly north of Esparto High School. Madison Street is located within the town limits of Esparto.

Plainfield Street – is a two-lane roadway with curbs, gutters, and on-street parking. The road runs east-west connecting Alpha Street and Omega Street, and is directly north of Esparto Middle School. Plainfield Street is located within the town limits of Esparto.

State Route 16 (SR-16) – is a rural two-lane highway connecting State Route 20 to the northwest and Interstate 5 to the east. This highway passes through Cache Creek Regional Park, several towns (including Brooks, Capay, Esparto and Madison), and the city of Woodland. The posted speed limit on SR-16 is generally 55 mph, but is as low as 25 mph through town limits.

West Kentucky Avenue – is a two-lane undivided roadway near the study area. The road is classified as a minor arterial in the City of Woodland's General Plan. West Kentucky Avenue, east of CR-98, is classified as a truck route in the City of Woodland's General Plan. West of CR-98, West Kentucky Avenue becomes CR-20.

Wildwing Drive – is a two-lane roadway with curbs and gutters. The road runs north-south, providing access to the Wild Wings neighborhood and golf course from State Route 16.

Off-Reservation Roadway Segments

SR-16 between CCCR and County Road 85 – is one lane in each direction with no median and a two-foot shoulder for the majority of the segment. It is a Class I Highway with rolling terrain for a portion of the segment. The posted speed limit is 55 mph for the majority of the segment.

SR-16 between County Road 85 and Esparto Town Limits – is one lane in each direction with no median and a two-foot shoulder for the majority of the segment. It is a Class II Highway with level terrain for a majority of the segment. The posted speed limit is 35 mph for the majority of the segment.

SR-16 through the Town of Esparto – is one lane in each direction with no median and a two-foot shoulder for the majority of the segment. It is a Class II Highway with level terrain for the majority of the segment. The posted speed limit is 25 mph for the majority of the segment.

SR-16 between Esparto Town limits and County Road 89 – is one lane in each direction with no median and a four-foot shoulder for the majority of the segment. It is a Class I Highway with level terrain for the majority of the segment. The posted speed limit is 50 mph for the majority of the segment.

SR-16 between County Road 89 and I-505 – is one lane in each direction with no median and a four-foot shoulder for the majority of the segment. It is a Class I Highway with level terrain for the majority of the segment. The posted speed limit is 55 mph for the majority of the segment.

SR-16 between to I-505 and County Road 98 – is one lane in each direction with no median and a two-foot shoulder for the majority of the segment. It is a Class I Highway with level terrain for the majority of the segment. The posted speed limit is 55 mph.

County Road 21A between County Road 85B and SR-16 – is one lane in each direction with no median and a two-foot shoulder for the majority of the segment. It is a Class II Highway on level terrain for the majority of the segment. The posted speed limit is 35 mph for the majority of the segment.

County Road 85B between SR-16 and County Road 21A – is one lane in each direction with no median and a two-foot shoulder for the majority of the segment. It is a Class II Highway with rolling terrain for a portion of the segment. There is no posted speed limit.

Existing Off-Reservation Lane Configurations and Traffic Control

Existing off-reservation intersection lane configurations and traffic control at study intersections are illustrated in **Figure 2**. Traffic signals are located at four of the study intersections. The figure also shows the right and left-turn bays when present.

Existing Off-Reservation Traffic Turning Movement Volumes

Friday and Saturday off-reservation intersection turning movement volumes were manually collected in January 2016 at all project study area intersections, and are shown in **Figure 3**. Volumes were collected during the PM peak period, from 5:00 PM to 7:00 PM on both Friday and Saturday, when the combination of background and CCCR traffic is at its highest levels[4].

[4] Seasonal variation information was not available from Caltrans; however, traffic counts collected from the previous Kimley-Horn study in January 2010 were compared to the counts collected in August 2007 for the Abrams Associates report. The average volume for the intersections and study segments differed by less than 1%, and therefore, no seasonal adjustment was deemed necessary.

Off-reservation traffic volume data sheets are included in the **Appendix**.

Existing Off-Reservation Pedestrian and Bicycle Facilities

There are currently no existing off-reservation bicycle facilities in the project study area.

According to the Yolo County General Plan, Class II bicycle lanes are planned for SR-16 between I-505 and Esparto, as well as on CR-89 from south of SR-16 to Winters, on CR-90 from south of SR-16 to CR-24, and on CR-24 from CR-90 to CR-98. A Class III bikeway (i.e. signed bike route) is also planned along SR-16 from Esparto to north of the CCCR.

According to the Woodland General Plan, West Kentucky Avenue west of CR-98 is designated as a Class III bike route.

Existing Transit Service

Transit service is provided by the Yolo County Transportation District (YCTD). YCTD operates YoloBus Route 215, connecting the communities of Woodland, Madison, Esparto, Capay, and Brooks to the CCCR on SR-16. Buses operate from approximately 5:00 AM to 10:00 AM in the morning, 1:00 PM to 6:00 PM in the afternoon, and 9:00 PM to 1:00 AM at night. Headways[5] are roughly 50 to 60 minutes, but at approximately 7:00 AM, 3:00 PM, and 11:00 PM there is an additional bus added to the schedule with a headway of 10 minutes prior to the next scheduled bus. YoloBus also has routes providing service to both Sacramento County and Solano County. Paratransit service is also provided by YCTD through YoloBus Special. YoloBus Special provides service door-to-door for the elderly and disabled.

In addition, CCCR sponsors and funds increased transit (van) service to and from CCCR. Providing van services is an effective transportation demand management (TDM) tool used to reduce the vehicle trips to and from CCCR. In addition, educational programs informing the employees and patrons of tis service, improve the awareness and effectiveness of the program.

There is a separate program, an incentive, whereby all employees are eligible to receive an incentive based on participation in carpooling. This is separate and apart from the vanpooling and is also widely used by a large percentage of the employees. Incentive based programs have historically been the most effective means of reducing vehicle trips.

In addition to YCTD service, CCCR sponsors daily charter bus service between CCCR and large population areas in northern California. These charter buses originate from locations including Sacramento, Oakland, San Francisco, Pittsburg, San Mateo, and

[5] Headways are defined as the time between successive buses servicing the same stop.

San Jose. The average number of patrons per bus is 45, with the average number of buses per day ranging as noted below[6]:

- Monday – 14
- Tuesday – 17
- Wednesday – 17
- Thursday – 19
- Friday – 16
- Saturday – 21
- Sunday – 16

The robust charter bus service removes approximately 7,060 vehicles from the local road system each month[7]. With the Project, the number of buses would remain the same or increase slightly.

Existing Farm Vehicle Movement

SR-16 is a principle route for the transportation of farm-related vehicles and provides connections to a County network of agricultural truck transportation corridors that facilitate farm-to-market connectivity.

The Yolo County General Plan identifies three purposes of the County road network in relation to farming:

- Movement of produce from farm to market
- Movement of harvesting equipment
- Movement of farm workers

Within the project study area, the following roadways are intended to facilitate farm-to-market transport.

- County Road 21A
- County Road 85
- County Road 85B
- County Road 89
- County Road 94B
- County Road 95

The majority of the project study roadways also function as the main trucking corridors throughout the County.

[6] Information provided by Cache Creek Casino Resort, April 2016.
[7] Total of 21,600 charter bus passengers based on 120 buses per week, multiplied by 4 weeks per month, multiplied by 45 passengers per bus. Charter bus passenger count converted to passenger vehicles removed from the road, based on 21,600, divided by 3.06 passengers per personal vehicle.

According to Policy CI-7.3 of the General Plan, "By attracting truck trips to targeted corridors, other roadways throughout the County are more available for movement of agricultural vehicles (including over-sized and slower moving equipment critical to harvest) and farm workers thus supporting more efficient and safe agricultural operations countywide."

Existing County Road Maintenance

The pavement of existing County roads is in varying conditions. Based on field observations, SR-16 throughout the study area is in good condition. According to the Yolo County General Plan, the following roadways are farm-to-market trucking corridors and are on the priority list for improvements:

- County Road 21A
- County Road 85
- County Road 85B
- County Road 89
- County Road 94B
- County Road 95

Existing Carpool and Vanpool Service

Carpool and vanpool information was provided by CCCR in April 2016. CCCR sponsors and encourages employees to drive together using carpools and vanpools. There are 290 people enrolled in the carpool program. Based on an average round trip distance of 80 miles, these carpools represent 5.8 million miles traveled per year. In addition, carpools require three (3) or more people to register for the additional gas discount.

The carpools are in addition to the 415 employees who use the Yolo Bus Route 215 for their commute. Based on a 50-mile round trip, these riders represent 5.2 million commuter miles per year.

CCCR also provides a vanpool program in which 65 to 80 employees who reside in Marysville and Yuba City area each month. This equates to 1.9 million to 2.3 million commuter miles per year. These employees are spread over five (5) vehicles, resulting in 145,000 actual miles traveled per year.

Existing Off-Reservation Collision History

California Highway Patrol provided Kimley-Horn with a computer-generated report summarizing off-reservation accidents that occurred between 2013 and 2015 at the project study intersections. The report provided information about each accident, including the direction of travel and the time of day. The data is helpful in determining any trends that may exist in the traffic accidents that have occurred over the three-year

reporting period. The identification of such trends is crucial for an initial analysis of potential improvements to an off-reservation intersection.

Study Intersections:

SR-16/CCCR.

Accident Type	Number of Accidents
Pedestrian/Vehicle	0
Bicycle/Vehicle	0
Vehicle/Vehicle	1
Other/Vehicle	1
	2

The accidents at this intersection involved an overturned vehicle due to improper driving and a rear-end collision caused by traveling at unsafe speeds.

SR-16/County Road 85.

Accident Type	Number of Accidents
Pedestrian/Vehicle	0
Bicycle/Vehicle	1
Vehicle/Vehicle	3
Object/Vehicle	2
	6

Accidents at this intersection include rear-end collisions and hitting an object caused by unsafe speed.

SR-16/Woodland Avenue.

Accident Type	Number of Accidents
Pedestrian/Vehicle	0
Bicycle/Vehicle	0
Vehicle/Vehicle	1
	1

There was one head-on collision due to improper turning.

SR-16/Capay Street.

Accident Type	Number of Accidents
Pedestrian/Vehicle	1
Bicycle/Vehicle	0
Vehicle/Vehicle	0
	1

There was one pedestrian violation accident at this intersection.

SR-16/Madison Street.

Accident Type	Number of Accidents
Pedestrian/Vehicle	0
Bicycle/Vehicle	1
Vehicle/Vehicle	1
	2

There was one rear-end accident with a vehicle and one bicycle accident at this intersection, each caused by improper right of way by the vehicle.

SR-16/County Road 21A.

Accident Type	Number of Accidents
Pedestrian/Vehicle	0
Bicycle/Vehicle	0
Vehicle/Vehicle	1
Other/Vehicle	2
	3

Accidents at this intersection included an overturned vehicle caused by improper turning, hitting a fixed object due to alcohol, and a broadside collision due to signage.

SR-16/County Road 89.

Accident Type	Number of Accidents
Pedestrian/Vehicle	0
Bicycle/Vehicle	0
Vehicle/Vehicle	11
Other/Vehicle	2
	13

The prevailing accident trend at this intersection is rear-end collisions caused by traveling at unsafe speeds.

SR-16/I-505 SB Ramps.

Accident Type	Number of Accidents
Pedestrian/Vehicle	0
Bicycle/Vehicle	0
Vehicle/Vehicle	4
	4

Accidents at this intersection consisted of broadside and sideswipe collisions caused by signage and traveling at unsafe speeds.

SR-16/I-505 NB Ramps.

Accident Type	Number of Accidents
Pedestrian/Vehicle	0
Bicycle/Vehicle	0
Vehicle/Vehicle	5
	5

The prevailing accident trend at this intersection is rear-end collisions caused by traveling at unsafe speeds.

SR-16/Wildwing Drive.

Accident Type	Number of Accidents
Pedestrian/Vehicle	0
Bicycle/Vehicle	0
Vehicle/Vehicle	1
Object/Vehicle	1
	2

Accidents at this intersection included a rear-end collision caused by traveling at unsafe speeds.

SR-16/County Road 95.

Accident Type	Number of Accidents
Pedestrian/Vehicle	0
Bicycle/Vehicle	0
Vehicle/Vehicle	2
Object/Vehicle	3
	5

There were multiple incidents which included vehicles overturning, rear-end collisions and side swipes caused by alcohol consumption improper turning, and unsafe speeds.

SR-16/County Road 98.

Accident Type	Number of Accidents
Pedestrian/Vehicle	0

Bicycle/Vehicle	0
Vehicle/Vehicle	8
Object/Vehicle	2
	10

The prevailing accident trend at this intersection is rear-end collisions caused by traveling at unsafe speeds.

SR-16/W. Kentucky Avenue.

Accident Type	Number of Accidents
Pedestrian/Vehicle	0
Bicycle/Vehicle	0
Vehicle/Vehicle	4
Object/Vehicle	0
	4

Accidents at this intersection occurred primarily due to improper passing, resulting in sideswipe and broadside collisions.

There were no reported accidents at the following intersections during the three years analyzed:

- SR-16/Central Casino Entrance
- SR-16/South Casino Entrance
- SR-16/County Road 85B
- SR-16/Plainfield Street
- County Road 85B/County Road 21A
- Country Villa Estates/County Road 21A
- Fremont Street/County Road 21A
- SR-16/County Road 94B

In addition to the collisions reported at study intersections on SR-16, the following additional collisions were reported on SR-16 roadway segments during the three years analyzed.

SR-16 between Cache Creek Casino and County Road 85.

Accident Type	Number of Accidents
Pedestrian/Vehicle	1
Bicycle/Vehicle	1
Vehicle/Vehicle	6
Other/Vehicle	23
	31

The prevailing accident trend within this segment is hitting objects caused by improper turning.

SR-16 between County Road 85 and the Esparto Town Limits.

Accident Type	Number of Accidents
Pedestrian/Vehicle	0
Bicycle/Vehicle	0
Vehicle/Vehicle	3
Object/Vehicle	3
Other/Vehicle	2
	8

The prevailing accident trend within this segment is hitting objects caused by improper turning.

SR-16 through the Town of Esparto.

Accident Type	Number of Accidents
Pedestrian/Vehicle	1
Bicycle/Vehicle	1
Vehicle/Vehicle	7
Object/Vehicle	7
	16

The prevailing accident trends within this segment are broadside, rear-end and hitting objects caused by traveling at unsafe speeds and improper turning.

SR-16 between Esparto Town Limits and County Road 89.

Accident Type	Number of Accidents
Pedestrian/Vehicle	0
Bicycle/Vehicle	0
Vehicle/Vehicle	15
Object/Vehicle	7
Other/Vehicle	3
	25

The prevailing accident trends within this segment are sideswipe, rear-end, and hitting objects caused by traveling at unsafe speeds and improper turning and passing.

SR-16 between County Road 89 and I-505.

Accident Type	Number of Accidents
Pedestrian/Vehicle	0
Bicycle/Vehicle	0
Vehicle/Vehicle	5
Other/Vehicle	10
	15

The prevailing accident trends within this segment are broadside and rear-end caused by traveling at unsafe speeds and alcohol consumption.

SR-16 between I-505 and County Road 98.

Accident Type	Number of Accidents
Pedestrian/Vehicle	1
Bicycle/Vehicle	0
Vehicle/Vehicle	24
Other/Vehicle	1
Object/Vehicle	12
	38

The prevailing accident trends within this segment are rear-end and hitting objects caused by traveling at unsafe speeds and improper turning.

There were no reported accidents on the roadway segment of County Road 21A between County Road 85B and SR-16 during the three years analyzed.

There were no reported accidents on the roadway segment of County Road 85B between SR-16 and County Road 21A during the three years analyzed.

Off-Reservation Existing Levels of Service at Study Intersections

Traffic operations were evaluated under existing traffic conditions. As noted previously, LOS D or better is established as the criteria for satisfactory operation at off-reservation intersections along SR-16, with the exception of the following study area intersections that are permitted to operate at LOS E[9] as shown in **Table 3**.

- #6 – SR-16/Woodland Avenue
- #7 – SR-16/Capay Street
- #8 – SR-16/Madison Street
- #9 – SR-16/Plainfield Street

[9] Transportation Impact Study Guidelines, County of Yolo, February 2010.

LOS C or better is established as the criteria for satisfactory operation at off-reservation intersections within Yolo County, including the following study intersections.

- #11 – County Road 85B/County Road 21A
- #12 – Country Villa Estates/County Road 21A
- #13 – Fremont Street/County Road 21A

Results of the analysis are presented in **Table 4**, along with the jurisdictional standard for acceptable level of service (as previously described in Operating Conditions and Criteria). The method of intersection control is listed as Signal for a signalized intersection, AWSC for an all-way stop-controlled intersection and TWSC for a two-way stop-controlled intersection. The overall level of service is reported for signalized intersections and all-way stop-controlled intersections. Only the worst approach is reported in the table for TWSC intersections per the methodology of the *Highway Capacity Manual*. Additional detail of the analysis is provided in the **Appendix**. Results of the analysis indicate that all of the existing study area intersections currently operate at acceptable levels of service based on established significance criteria.

Table 4 – Existing Intersection Level of Service Summary

	Intersection	Intersection Control	Criteria	Friday PM Peak		Saturday PM Peak	
				LOS	Delay	LOS	Delay
1	SR-16/ North Casino Entrance	Signal	D	A	6.9	A	5.3
2	SR-16/ Central Casino Entrance	Uncontrolled	D	A	0.0	A	0.0
3	SR-16/ South Casino Entrance	TWSC	D	B	13.9	C	18.5
4	SR-16/ County Road 85	TWSC	D	B	10.7	B	14.9
5	SR-16/ County Road 85B	TWSC	D	A	8.5	B	12.8
6	SR-16/ Woodland Avenue	AWSC	E	A	4.1	A	4.9
7	SR-16/ Capay Street	TWSC	E	B	12.9	C	16.4
8	SR-16/ Madison Street	TWSC	E	B	13.7	B	11.6
9	SR-16/ Plainfield Street	TWSC	E	B	14.7	C	18.6
10	SR-16/ County Road 21A	AWSC	D	A	9.7	B	10.5
11	County Road 85B/ County Road 21A	TWSC	C	A	9.2	A	8.9
12	Country Villa Estates/ County Road 21A	TWSC	C	A	9.8	A	9.9
13	Fremont Street/ County Road 21A	TWSC	C	A	9.7	A	9.9
14	SR-16/ County Road 89	AWSC	D	C	19.4	D	31.2
15	SR-16/ I-505 SB Ramps	TWSC	D	B	13.9	C	16.8
16	SR-16/ I-505 NB Ramps	Signal	D	A	9.2	B	11.8
17	SR-16/ Wildwing Drive	TWSC	D	C	15.4	B	14.2
18	SR-16/ County Road 94B	TWSC	D	C	18.2	B	13.7
19	SR-16/ County Road 95	TWSC	D	C	17.0	C	15.6
20	SR-16/ County Road 98	Signal	D	C	25.3	C	24.4
21	SR-16/ W. Kentucky Avenue	Signal	D	B	19.9	B	19.4

Existing Conditions Traffic Signal Warrant Analysis

Traffic signals may be justified when traffic operations fall below acceptable thresholds and when one or more signal warrants are satisfied.

Existing off-reservation traffic volumes at the unsignalized study intersections were compared against the peak-hour warrant in the *California Manual of Uniform Traffic Control Devices*, November, 2014. Traffic Signal Warrant #3 – Peak-Hour Volume Warrant is satisfied when traffic volumes on the major and minor approaches exceed thresholds for one hour of the day.

This warrant is generally the first warrant to be satisfied. The warrant applies to off-reservation traffic conditions during a one-hour peak that are sufficiently high such that minor street traffic experiences excessive delay in entering and crossing the main street due to the high traffic volumes on the main street. The results of a signal warrant analysis are not indicative of impacts, but are provided as information. When intersections satisfy the peak-hour volume warrant, it does not necessarily mean that a signal will or should be installed. For example, in some instances, the intersection may operate at an acceptable level even though volumes satisfy one or more signal warrants such as at a right in/out driveway.

Results of the analysis show that the following intersections currently satisfy Traffic Signal Warrant #3:

- #6 – SR-16/Woodland Avenue
- #10 – SR-16/CR-21A

Other warrants such as for minimum vehicle volumes, interruption of continuous traffic, and traffic progression were not evaluated because they generally require higher traffic volumes to be satisfied. A copy of the analysis summary for Traffic Signal Warrant #3 is included in the **Appendix**.

Existing Levels of Service on Study Roadway Segments

Existing traffic volumes on the off-reservation roadway segments in the study area were collected at intersections on either end of the roadway segments in January 2016 when schools were in session, representing a typical day, and are shown in **Figure 4**. The highway classifications used were the same as in the June 2010 study.

Traffic analyses were completed to evaluate the existing PM peak hour of Friday and Saturday operation of the study segments. Results of the analyses are presented in **Table 5**.

Table 5 – Existing Roadway Segment Level of Service Summary

#	Roadway Segment	Highway Class	LOS Criteria	Existing											
				Friday PM Peak						Saturday PM Peak					
				Northbound/Westbound			Southbound/Eastbound			Northbound/Westbound			Southbound/Eastbound		
				LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)
1	SR-16 between Cache Creek Casino and CR-85	I	D	D	63.7	41.9	D	67.3	41.9	D	77.2	40.3	D	64.2	41.1
2	SR-16 between CR-85 and Esparto Town Limits	II	D	C	57.2	-	C	64.9	-	D	77.3	-	C	56.5	-
3	SR-16 through the Town of Esparto	II	E	C	68.2	-	B	54.1	-	D	77.1	-	B	50.5	-
4	SR-16 between Esparto Town limits and CR-89	I	D	D	70.9	42.9	D	65.1	42.9	**E**	**81.7**	**41.2**	D	61.3	42.3
5	SR-16 between CR-89 and I-505	I	D	D	72.8	42.4	D	65.3	42.4	D	79.9	41.3	D	60.7	42.2
6	SR-16 between I-505 and CR-98	I	D	**E**	**58.0**	**33.8**	**E**	**71.6**	**33.7**	**E**	**64.9**	**35.0**	**E**	**59.9**	**35.0**
7	County Road 21A between CR-85B and SR-16	II	C	A	24.8	-	A	35.7	-	A	32.7	-	A	36.0	-
8	County Road 85B between SR-16 and CR-21A	II	C	A	25.5	-	B	49.7	-	A	38.8	-	B	44.8	-

Note: Locations operating unacceptably are bolded.

Results of the analysis indicate that all of the study roadway segments currently operate at acceptable levels of service based on established significance criteria, except for the following:

- **SR-16 between Esparto Town Limits and CR-89:** The existing westbound direction of this roadway segment in the Saturday PM peak operates at LOS E, with 84.7 percent of time spent following and a 41.2 mph average travel speed. This segment does not meet the LOS D criteria. It should be noted that this is an existing deficiency, without the Project traffic added.

- **SR-16 between I-505 and CR-98:** Both the existing westbound and eastbound directions of this roadway segment in the Friday PM and Saturday PM peaks operate at LOS E. This segment does not meet the LOS D criteria. It should be noted that this is an existing deficiency, without the Project traffic added.

NO-ACTION ALTERNATIVE (BASELINE CONDITIONS)

The No-Action Alternative represents the evaluation of off-reservation traffic conditions without the Project. Off-reservation traffic conditions were evaluated for the Near-Term (2019) and the Long-Term (2035). Year 2019 analysis corresponds with the proposed opening year of the Project. Year 2035 analysis represents cumulative off-reservation traffic conditions for the area based upon available traffic forecasts from the SACOG travel forecast model consistent with the Yolo County General Plan.

The No-Action Alternative serves as a baseline for comparison to the Project.

Proposed Roadway Projects in Vicinity of Site

Several projects are planned in the future that may affect traffic conditions in the study area. These projects are planned to be completed regardless of the Project.

There are safety projects along SR-16 that Caltrans will have completed by the Near-term (2019). This includes adding a TWLTL along SR-16 between Esparto and 0.2 miles west of I-505. This will result in a change to the intersection of SR-16/County Road 89 (Intersection #14). **Figure 5** shows this improvement for the Near-Term (2019) lane geometry.

Per previous discussions with Caltrans, the improvements included in the *State Route 16 Safety Improvement Project*[10] (SIP) in Segments 2 through 6 will be completed by 2035[11]. As stated in the SIP, improvements already made to SIP Segment 1 have

[10] *State Route 16 Safety Improvement Project Final Environmental Impact Report/Environmental Assessment with Finding of No Significant Impact*, Caltrans, December 2009.
[11] Meeting with Caltrans, March 10, 2010.

reduced the number of collisions in that segment. Due to a reduction of collisions along SIP Segment 1 in the last few years, safety improvements are no longer warranted and Caltrans no longer plans to implement the additional improvements previously identified for that segment[12]. There are no specific improvements identified for SIP Segments 2 through 4 that would affect study intersections for this Project. In SIP Segment 5, the improvements include realigning CR-85B to the east to improve site distance and safety as well as adding a northbound left-turn lane at the intersection of SR-16/CR-85B (Intersection #5).

Previously, in SIP Segment 6, proposed improvements included signalizing the intersection of SR-16/CR-89 (Study Intersection #14) and making additional lane improvements. An updated SIP[13] in February 2015 details improvements at three locations along SR-16. Location #3 mentions similar safety improvements as the previous SIP. This includes a TWLTL to be constructed from 560 feet west of CR-86A to 570 feet east of CR-86A and from 100 feet west of Tutt Street to CR-90. This document also mentions three potential intersection controls for the intersection of SR-16/SR-89: signalization, installing a roundabout, or maintaining the all-way stop-control. After coordination with Caltrans, it was confirmed that the roundabout option was selected and it will be completed in 2019[14].

Approved and Pending Development Projects in Vicinity of Site

A number of development projects in the study area are in various stages of planning, approval, or development. Projects considered for this traffic study were identified by Yolo County, the City of Woodland, and the Tribe as having been approved (but not yet completed or fully occupied), or having a development application submitted, or being otherwise reasonably foreseeable at the time the Project is proposed to open in 2019. There are no proposed development projects in the City of Woodland expected to be completed by early 2019. In the Town of Esparto, the County identified multiple developments, but the only development with an improvement plan or a final map is the Mercy Housing project. This project has already built out 40 units, and will build 40 more units. The Tribe also plans to build 25 residential units and 84.6 KSF of office in the project vicinity. The approved and pending projects to be included in the traffic study are listed in **Table 6**.

Approved and pending projects assumed in this analysis scenario are presented in **Table 6**, and their locations relative to the project site are illustrated in **Figure 6**. Trip generation assumptions for these approved projects, based on the land use information provided, are included in the **Appendix**.

[12] *State Route 16 Safety Improvement Project Final Environmental Impact Report/Environmental Assessment with Finding of No Significant Impact*, Caltrans, December 2009, page 2.
[13] *State Route 16 Safety Improvement Project Initial Study and Proposed Mitigation Negative Declaration*, Caltrans, February 2015.
[14] Email from Caltrans project manager Sergio Aceves, March 29, 2016.

Table 6 – Proposed Development Projects

Project	Size[1]
Esparto Family Apartments Mercy Housing – Esparto	40 DU
Yocha Dehe Tribal Lands Project (N/O CCCR on SR-16)	25 DU[2] 84.6 KSF Office

[1]DU = Dwelling Units, KSF = Thousand Square Feet
[2]Although residential development will be phased, all units are considered to be occupied by 2019 for this analysis.

Near-Term Off-Reservation Traffic Volumes

Near-term off-reservation traffic volumes were generated by adding vehicle trips expected to be generated by the approved and pending development projects discussed previously. **Figure 7** shows the Near-Term off-reservation traffic volumes at the study intersections. These volumes represent anticipated traffic levels in the year 2019, without the Project. **Figure 8** shows the Near-Term directional roadway segment volumes. It is worth noting that this represents a fairly conservative estimate of near-term conditions. For context, Year 2016 traffic counts were lower than Year 2010 traffic counts, indicating that average volume for intersections within the study area has decreased in recent years.

Long-Term Off-Reservation Lane Configurations and Traffic Control

Additional off-reservation roadway improvements are expected within the project study area by the year 2035 including the signalization of the intersection of SR-16/CR-89. **Figure 9** illustrates the intersection geometry and traffic control assumed in the Long-Term analysis.

Long-Term Forecast

Additional development projects in the study area are expected to be completed by the year 2035 and will contribute to a cumulative increase in off-reservation background traffic even without the Project. The Long-Term forecast for this study is based on the year 2035 directional link off-reservation volumes from the SACOG MTP/SCS travel forecast model. Information from the SACOG travel forecast model was also used for the two study intersections located within the City of Woodland. Approach volumes were then converted to turning movement volumes using a Furness process. Lastly, some turn movements were manually adjusted to balance traffic between intersections or correct for forecast model inconsistencies. **Figure 10** shows the Long-Term traffic volumes. **Figure 11** shows the Long-Term directional roadway segment volumes.

LOS Conditions and Impacts at Intersections

Off-reservation traffic operations were evaluated under the following development conditions:

- Near-Term (2019) conditions without Project

- Long-Term (2035) conditions without Project

Results of the analysis are presented in **Table 7**. Additional detail is provided in the **Appendix**. As seen in the results, all the off-reservation intersections meet the LOS threshold in the Near-term (2019) conditions. The following off-reservation intersection will fail to meet acceptable level of service thresholds in the Long-Term (2035) scenario based on established significance criteria, regardless of the Project. (Results shown as bold in the table do not meet operational standards.)

2035 Intersection Operating Deficiently

- #18 – SR-16/CR-94B

It should be noted that at the intersection of SR-16/County Road 89 (Intersection #14), the level of service improves as a result of the installation of a roundabout at the intersection in the Near-term (2019) scenario.

Traffic Signal Warrant Analysis

Near-Term and Long-Term off-reservation traffic volumes at unsignalized study intersections were compared against the peak-hour warrant in the *2014 California Manual on Uniform Traffic Control Devices (MUTCD)*.

Results of the analysis showed that the following off-reservation intersections will satisfy Traffic Signal Warrant #3 by the year 2019 or 2035, regardless of the Project.

- #3 – SR-16/South Casino Entrance (2035)
- #5 – SR-16/CR-85B (2035)
- #6 – SR-16/Woodland Avenue (2019 and 2035)
- #10 – SR-16/CR-21A (2019 and 2035)
- #14 – SR-16/CR-89 (2019)
- #18 – SR-16/CR-94B (2035)

Other warrants, such as minimum vehicle volumes, interruption of continuous traffic, and traffic progression, were not evaluated because they generally require higher traffic volumes to be satisfied. A copy of the analysis summary for Traffic Signal Warrant #3 is included in the **Appendix**.

Table 7 – Baseline Conditions Intersection Level of Service Summary

	Intersection	Intersection Control	Criteria	Existing (2016)				Near-Term (2019)				Long-Term (2035)			
				Friday PM Peak		Saturday PM Peak		Friday PM Peak		Saturday PM Peak		Friday PM Peak		Saturday PM Peak	
				LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1	SR-16/ North Casino Entrance	Signal	D	A	6.9	A	5.3	B	11.3	A	6.9	B	11.9	A	9.0
2	SR-16/ Central Casino Entrance	Uncontrolled	D	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0
3	SR-16/ South Casino Entrance	TWSC	D	B	13.9	C	18.5	C	16.8	C	20.1	C	17.3	D	26.1
4	SR-16/ County Road 85	TWSC	D	B	10.7	B	14.9	B	11.5	C	15.5	B	13.0	C	21.4
5	SR-16/ County Road 85B	TWSC	D	A	8.5	B	12.8	A	9.3	B	13.6	A	9.3	C	16.6
6	SR-16/ Woodland Avenue	AWSC	E	A	4.1	A	4.9	A	4.4	A	3.9	A	4.5	A	5.8
7	SR-16/ Capay Street	TWSC	E	B	12.9	C	16.4	C	15.1	C	17.9	C	17.4	D	25.5
8	SR-16/ Madison Street	TWSC	E	B	13.7	B	11.6	C	16.0	B	12.1	C	17.0	C	22.9
9	SR-16/ Plainfield Street	TWSC	E	B	14.7	C	18.6	C	17.1	C	19.9	C	20.3	D	31.9
10	SR-16/ County Road 21A	AWSC	D	A	9.7	B	10.5	B	11.6	B	11.1	C	16.7	C	23.6
11	County Road 85B/ County Road 21A	TWSC	C	A	9.2	A	8.9	A	9.3	A	8.9	A	9.3	A	9.0
12	Country Villa Estates/ County Road 21A	TWSC	C	A	9.8	A	9.9	A	9.8	A	9.9	A	9.9	A	10.0
13	Fremont Street/ County Road 21A	TWSC	C	A	9.7	A	9.9	A	9.7	A	9.9	A	9.8	B	10.1
14	SR-16/ County Road 89	AWSC[1]	D	C	19.4	D	31.2	A	6.7	A	6.9	A	7.4	A	8.4
15	SR-16/ I-505 SB Ramps	TWSC	D	B	13.9	C	16.8	B	15.0	C	17.3	C	20.2	D	27.2
16	SR-16/ I-505 NB Ramps	Signal	D	A	9.2	B	11.8	A	9.3	B	12.2	B	10.1	B	16.5
17	SR-16/ Wildwing Drive	TWSC	D	C	15.4	B	14.2	C	17.5	C	15.1	D	27.9	C	23.9
18	SR-16/ County Road 94B	TWSC	D	C	18.2	B	13.7	C	20.9	B	14.4	**F**	**253.9**	**F**	**59.9**
19	SR-16/ County Road 95	TWSC	D	C	17.0	C	15.6	C	18.8	C	16.4	C	24.4	C	20.7
20	SR-16/ County Road 98	Signal	D	C	25.3	C	24.4	C	25.5	C	24.7	C	25.7	C	24.6
21	SR-16/ W. Kentucky Avenue	Signal	D	B	19.9	B	19.4	B	19.4	B	19.2	C	20.2	B	19.0

Note: Locations operating unacceptably are **bolded**.

[1]Becomes a roundabout beginning in the Near-Term (2019)

Off-Reservation LOS Conditions and Impacts on Roadway Segments

Year 2019 and year 2035 off-reservation roadway segment volumes were determined from the turning movement approach volumes at the study intersections within the study area.

Results of the Near-Term analysis are presented in **Table 8**. Results of the Long-Term analysis are presented in **Table 9**. (Results shown as bold in the table do not meet operational standards.)

As shown in **Table 8**, the off-reservation roadway segments are expected to operate at acceptable levels of service based on established significance criteria in the Near-Term, except at the following segments:

- SR-16 (WB) between CCCR and CR-85 (Saturday PM peak)
- SR-16 (WB) between the Esparto Town Limits and CR-89 (Saturday PM peak)
- SR-16 (WB) between CR-89 and I-505 (Saturday PM peak)
- SR-16 (WB and EB) between I-505 and CR-98 (Friday and Saturday PM peaks)

As shown in **Table 9**, the off-reservation roadway segments are expected to operate at acceptable levels of service based on established significance criteria in the Long-Term, except at the following segments:

- SR-16 (WB and EB) between CCCR and CR-85 (Saturday PM peak)
- SR-16 (WB and EB) between the Esparto Town Limits and CR-89 (Friday and Saturday PM peaks)
- SR-16 (WB and EB) between CR-89 and I-505 (Friday and Saturday PM peaks)
- SR-16 (WB and EB) between I-505 and CR-98 (Friday and Saturday PM peaks)

Table 8 – Near-Term (2019) Roadway Segment Level of Service Summary

#	Roadway Segment	Highway Class	LOS Criteria	Near-term (2019)											
				Friday PM Peak						Saturday PM Peak					
				Northbound/Westbound			Southbound/Eastbound			Northbound/Westbound			Southbound/Eastbound		
				LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)
1	SR-16 between Cache Creek Casino and CR-85	I	D	D	63.6	41.3	D	73.1	40.7	**E**	**79.2**	**39.9**	D	65.3	40.7
2	SR-16 between CR-85 and Esparto Town Limits	II	D	C	56.4	-	C	69.4	-	D	78.3	-	C	59.3	-
3	SR-16 through the Town of Esparto	II	E	C	68.8	-	C	64.9	-	D	79.6	-	B	54.0	-
4	SR-16 between Esparto Town limits and CR-89	I	D	D	73.4	42.1	D	71.9	42.1	**E**	**83.0**	**40.6**	D	64.1	41.8
5	SR-16 between CR-89 and I-505	I	D	D	75.1	41.2	D	73.8	41.2	**E**	**82.4**	**40.5**	D	63.4	41.6
6	SR-16 between I-505 and CR-98	I	D	**E**	**61.6**	**33.4**	**E**	**77.9**	**33.1**	**E**	**68.6**	**34.3**	**E**	**64.5**	**34.3**
7	County Road 21A between CR-85B and SR-16	II	C	A	25.1	-	A	36.1	-	A	36.0	-	A	32.9	-
8	County Road 85B between SR-16 and CR-21A	II	C	A	25.5	-	B	50.4	-	A	39.2	-	B	44.8	-

Note: Locations operating unacceptably are bolded.

Table 9 – Long-Term (2035) Roadway Segment Level of Service Summary

#	Roadway Segment	Highway Class	LOS Criteria	Long-term (2035)											
				Friday PM Peak						Saturday PM Peak					
				Northbound/Westbound			Southbound/Eastbound			Northbound/Westbound			Southbound/Eastbound		
				LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)
1	SR-16 between Cache Creek Casino and CR-85	I	D	D	64.1	40.9	D	73.0	40.7	**E**	**79.0**	**38.9**	**E**	**72.3**	**39.5**
2	SR-16 between CR-85 and Esparto Town Limits	II	D	C	56.4	-	D	73.4	-	D	80.2	-	C	67.9	-
3	SR-16 through the Town of Esparto	II	E	D	78.1	-	D	70.3	-	E	88.8	-	C	69.6	-
4	SR-16 between Esparto Town limits and CR-89	I	D	**E**	**81.9**	**39.4**	**E**	**77.5**	**39.6**	**E**	**90.2**	**36.8**	**E**	**77.0**	**37.5**
5	SR-16 between CR-89 and I-505	I	D	**E**	**76.0**	**39.6**	**E**	**82.0**	**39.3**	**E**	**84.5**	**38.6**	**E**	**78.6**	**38.9**
6	SR-16 between I-505 and CR-98	I	D	**E**	**74.2**	**31.9**	**E**	**77.8**	**31.7**	**E**	**79.9**	**32.5**	**E**	**62.1**	**33.3**
7	County Road 21A between CR-85B and SR-16	II	C	A	39.1	-	A	27.6	-	A	37.0	-	B	40.5	-
8	County Road 85B between SR-16 and CR-21A	II	C	A	28.3	-	B	50.0	-	B	43.0	-	B	45.3	-

Note: Locations operating unacceptably are bolded.

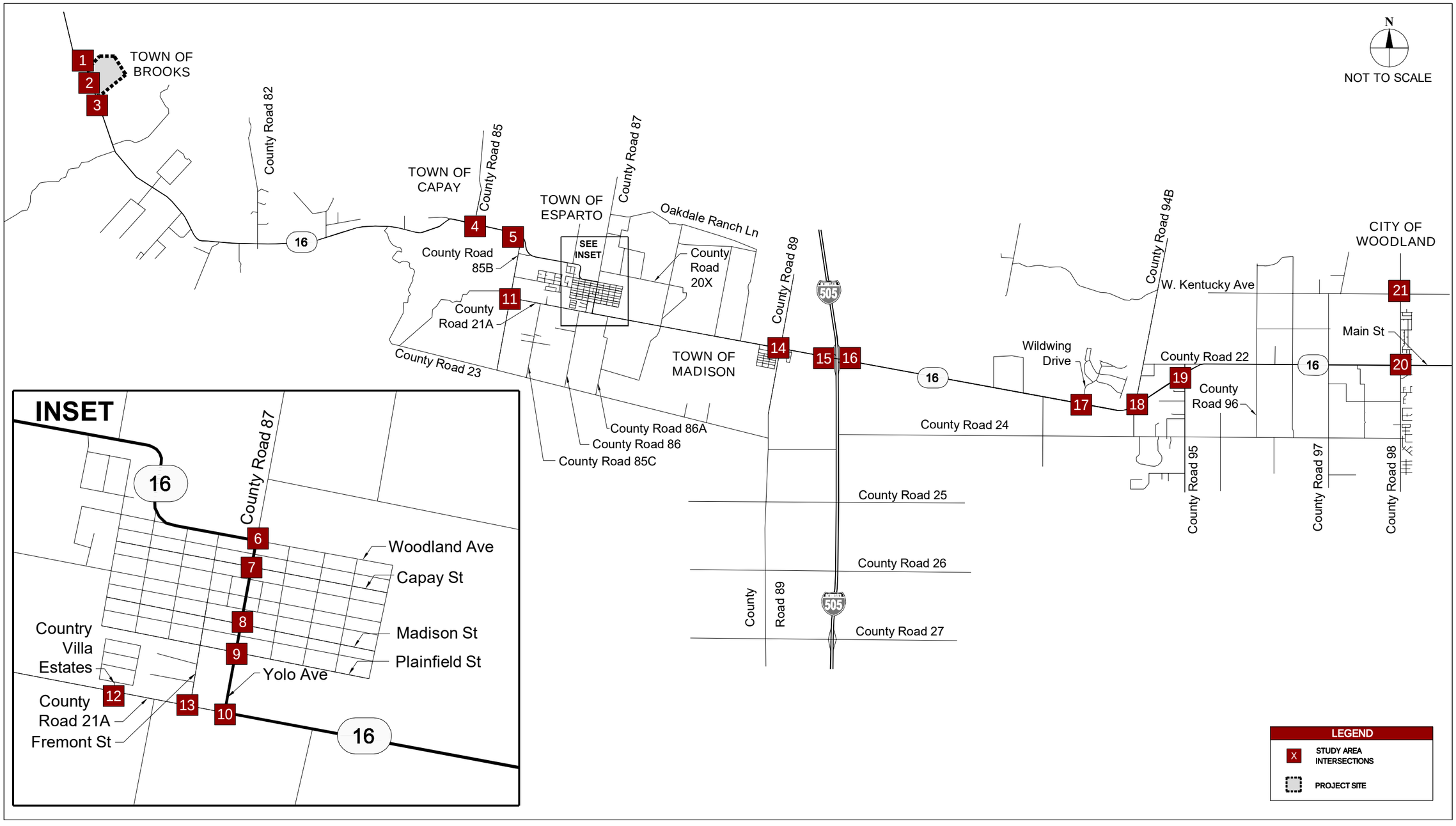

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FIGURE 1
PROJECT LOCATION AND STUDY INTERSECTIONS
CACHE CREEK CASINO RESORT HOTEL EXPANSION PROJECT

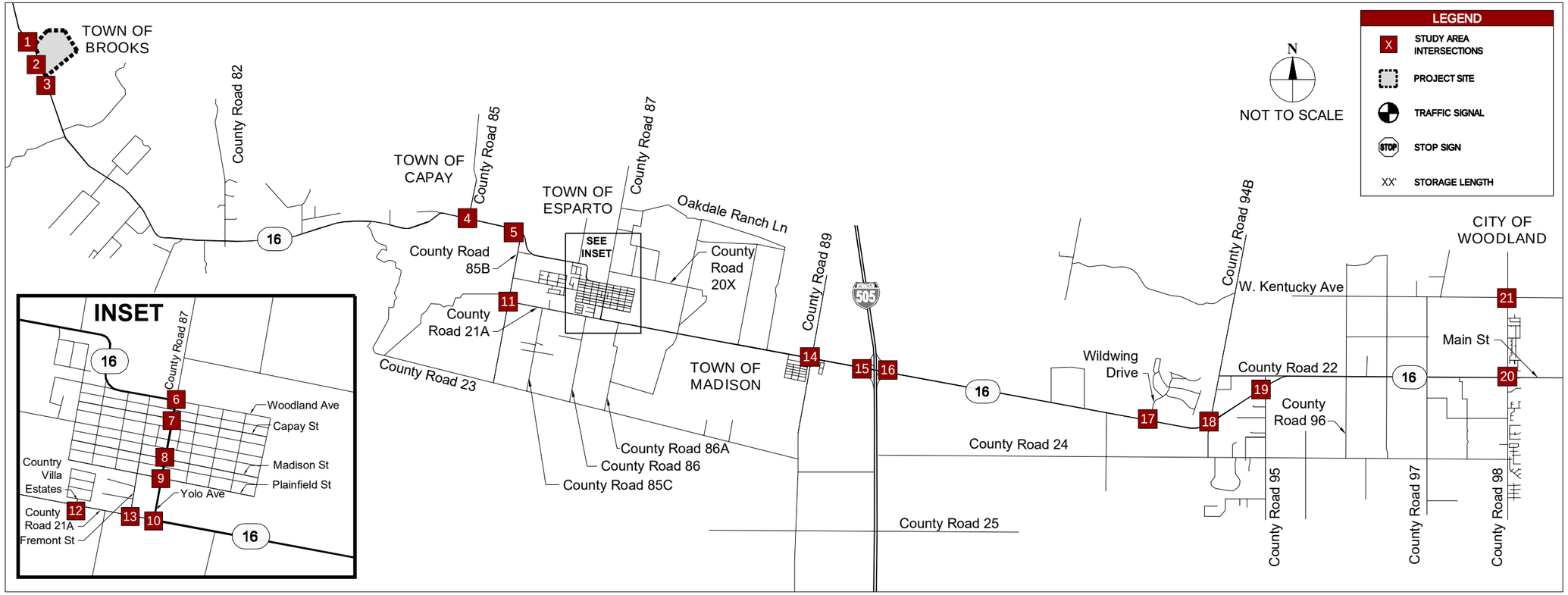

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FIGURE 2
EXISTING LANE GEOMETRY AND TRAFFIC CONTROL
CACHE CREEK CASINO RESORT HOTEL EXPANSION PROJECT

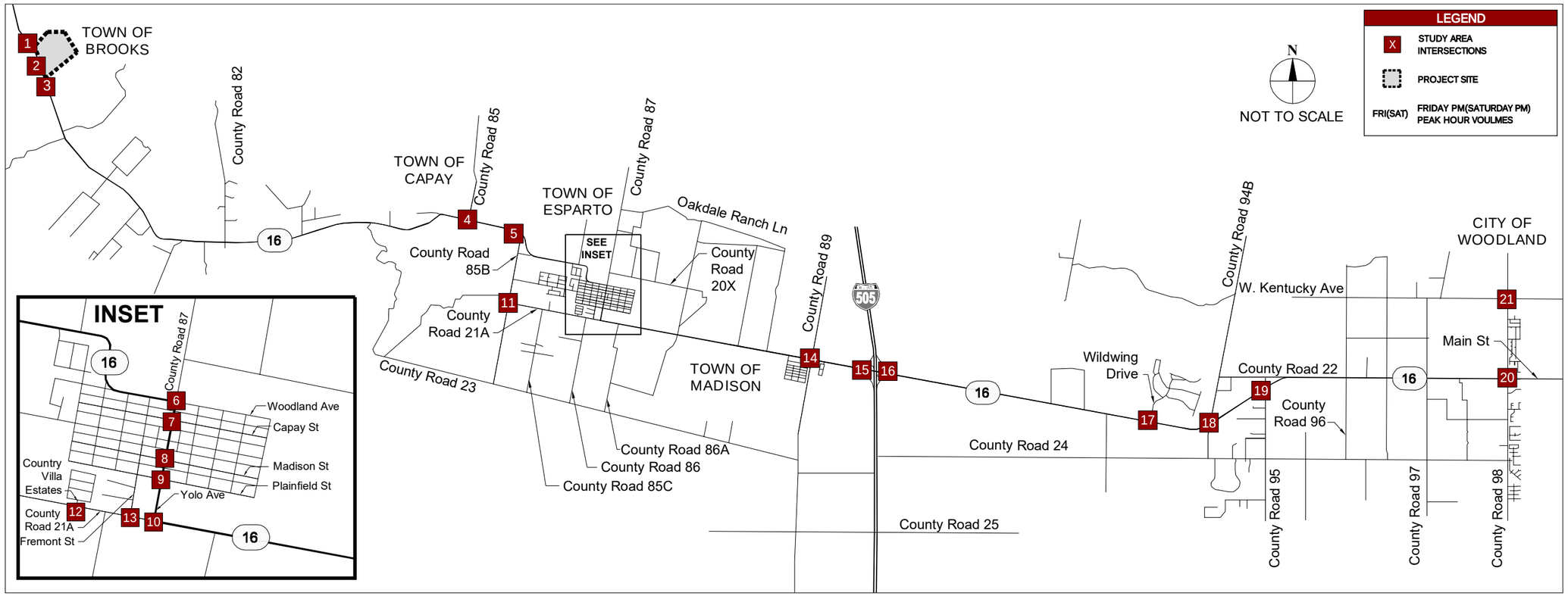

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FIGURE 3
EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES

CACHE CREEK CASINO RESORT HOTEL EXPANSION PROJECT

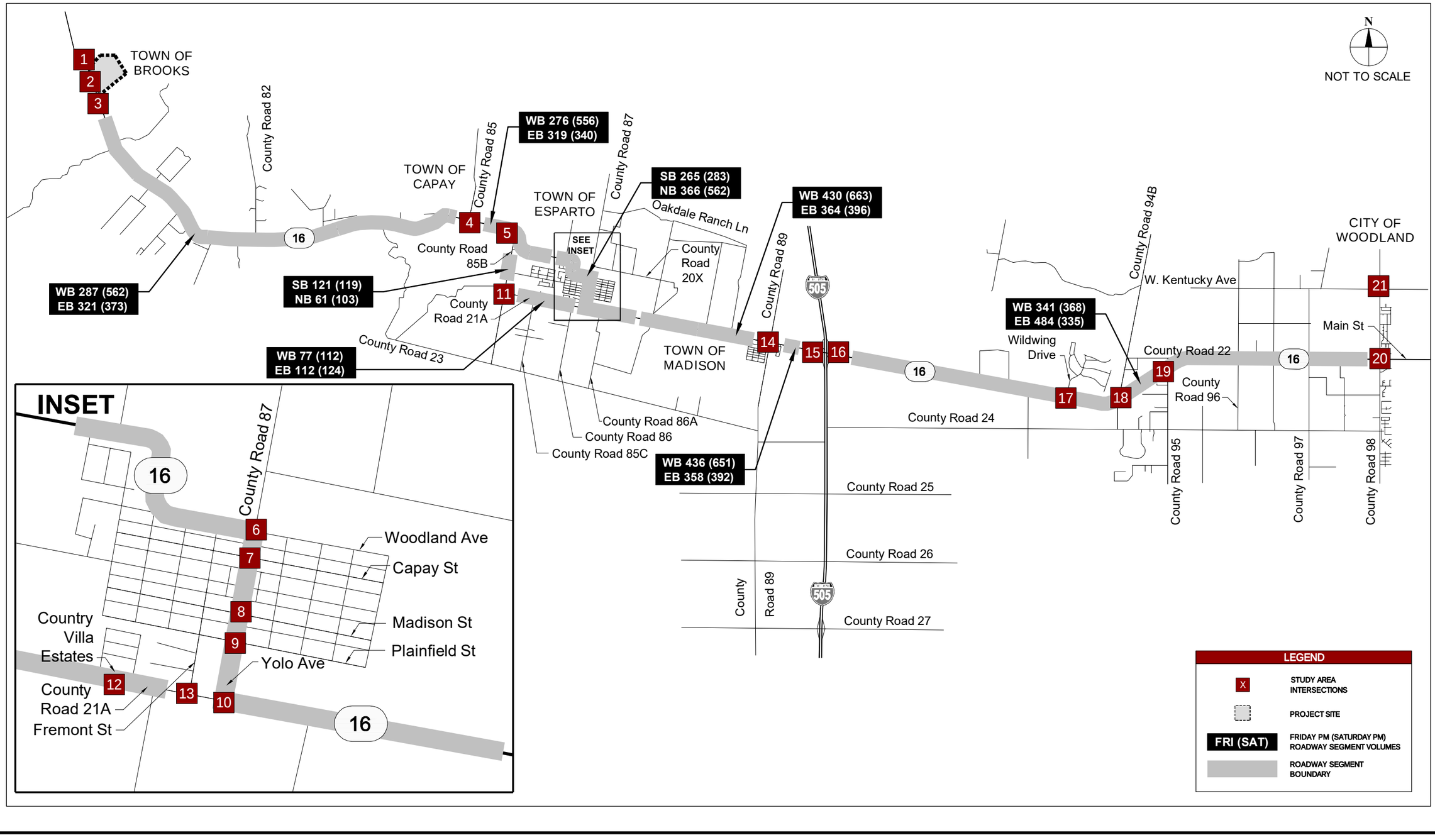

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FIGURE 4
EXISTING PEAK HOUR DIRECTIONAL ROADWAY SEGMENT TRAFFIC VOLUMES
CACHE CREEK CASINO RESORT HOTEL EXPANSION PROJECT

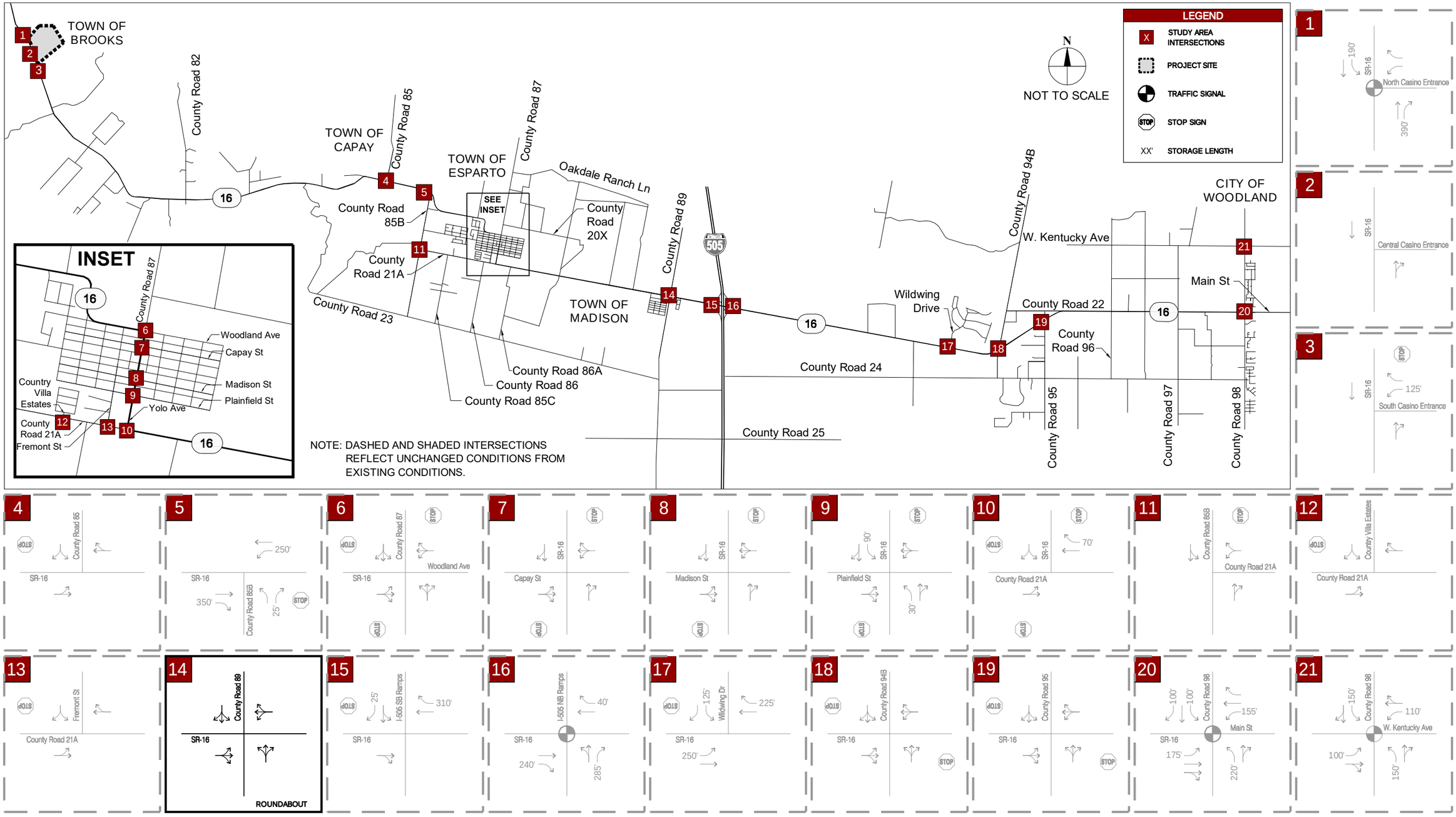

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FIGURE 5
NEAR-TERM 2019 LANE GEOMETRY AND TRAFFIC CONTROL
CACHE CREEK CASINO RESORT HOTEL EXPANSION PROJECT

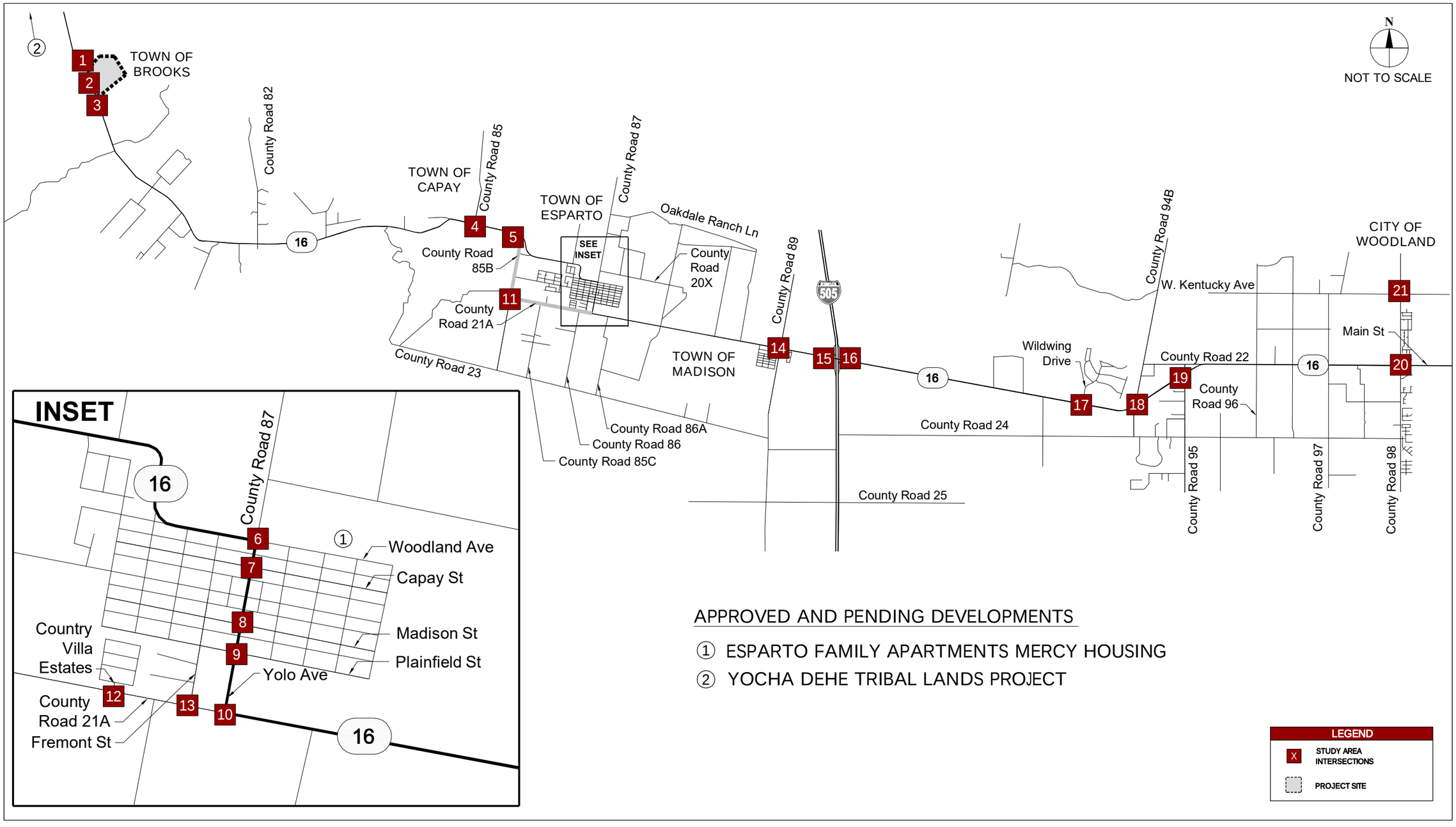

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FIGURE 6
APPROVED AND PENDING DEVELOPMENT LOCATIONS
CACHE CREEK CASINO RESORT HOTEL EXPANSION PROJECT

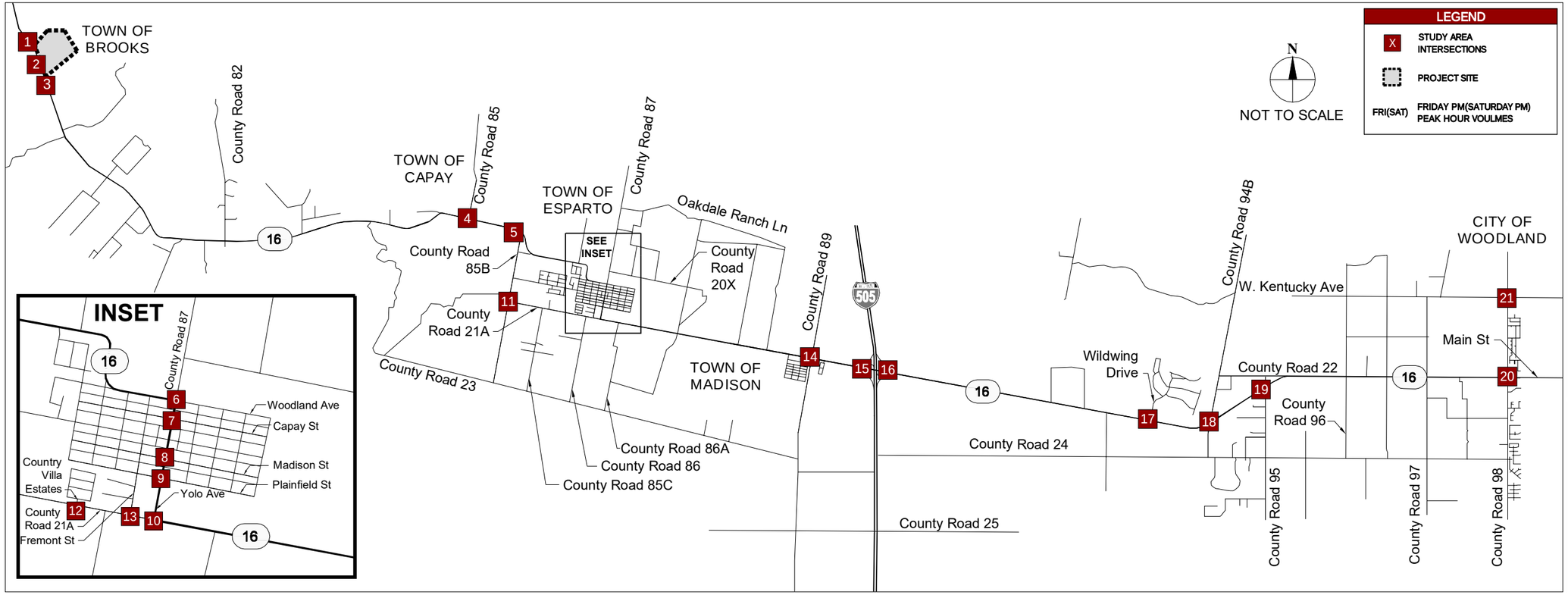

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FIGURE 7
NEAR-TERM 2019 PEAK HOUR TURNING MOVEMENT VOLUMES
CACHE CREEK CASINO RESORT HOTEL EXPANSION PROJECT

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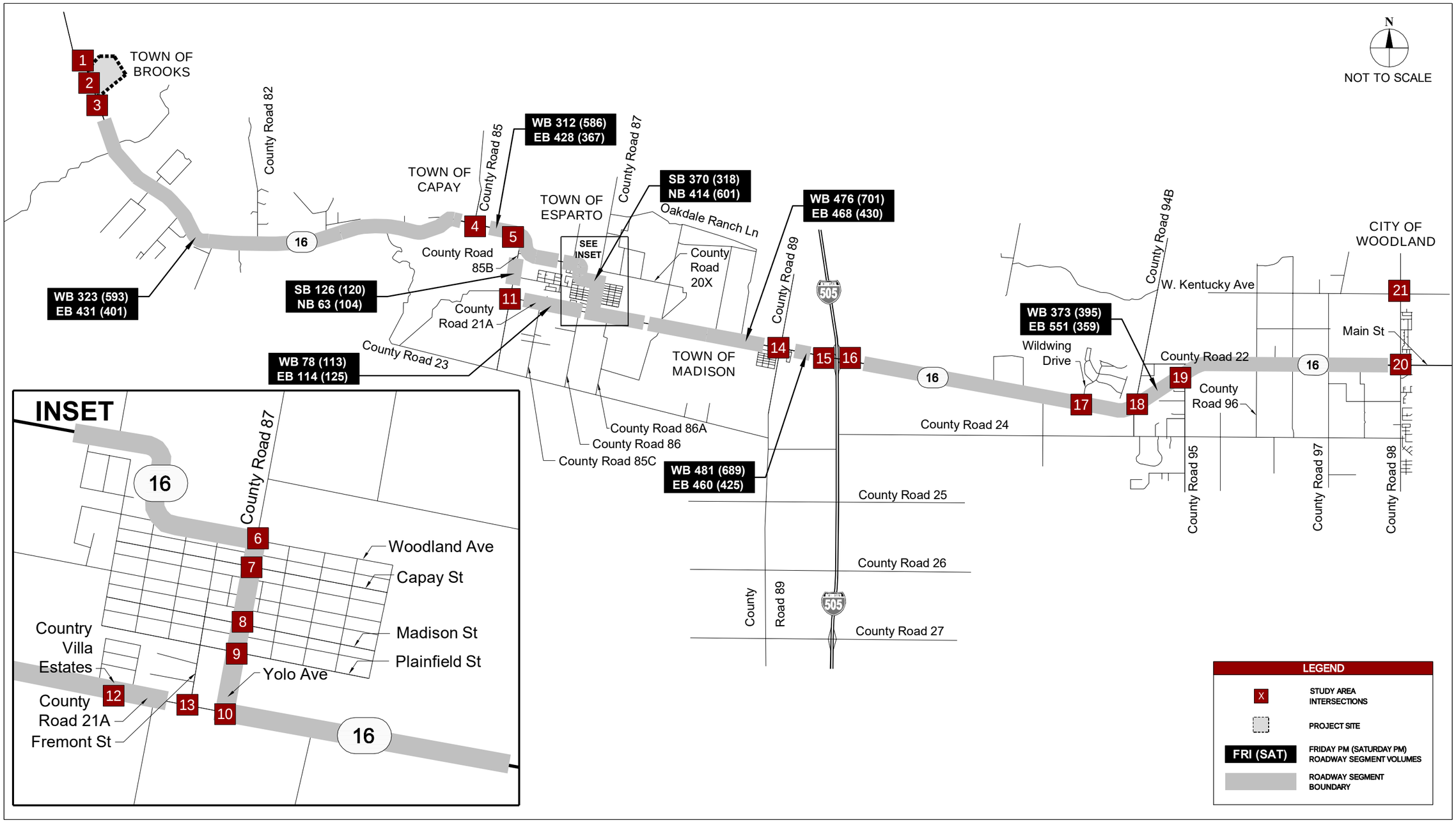

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FIGURE 8
NEAR-TERM 2019 DIRECTIONAL ROADWAY SEGMENT TRAFFIC VOLUMES
CACHE CREEK CASINO RESORT HOTEL EXPANSION PROJECT

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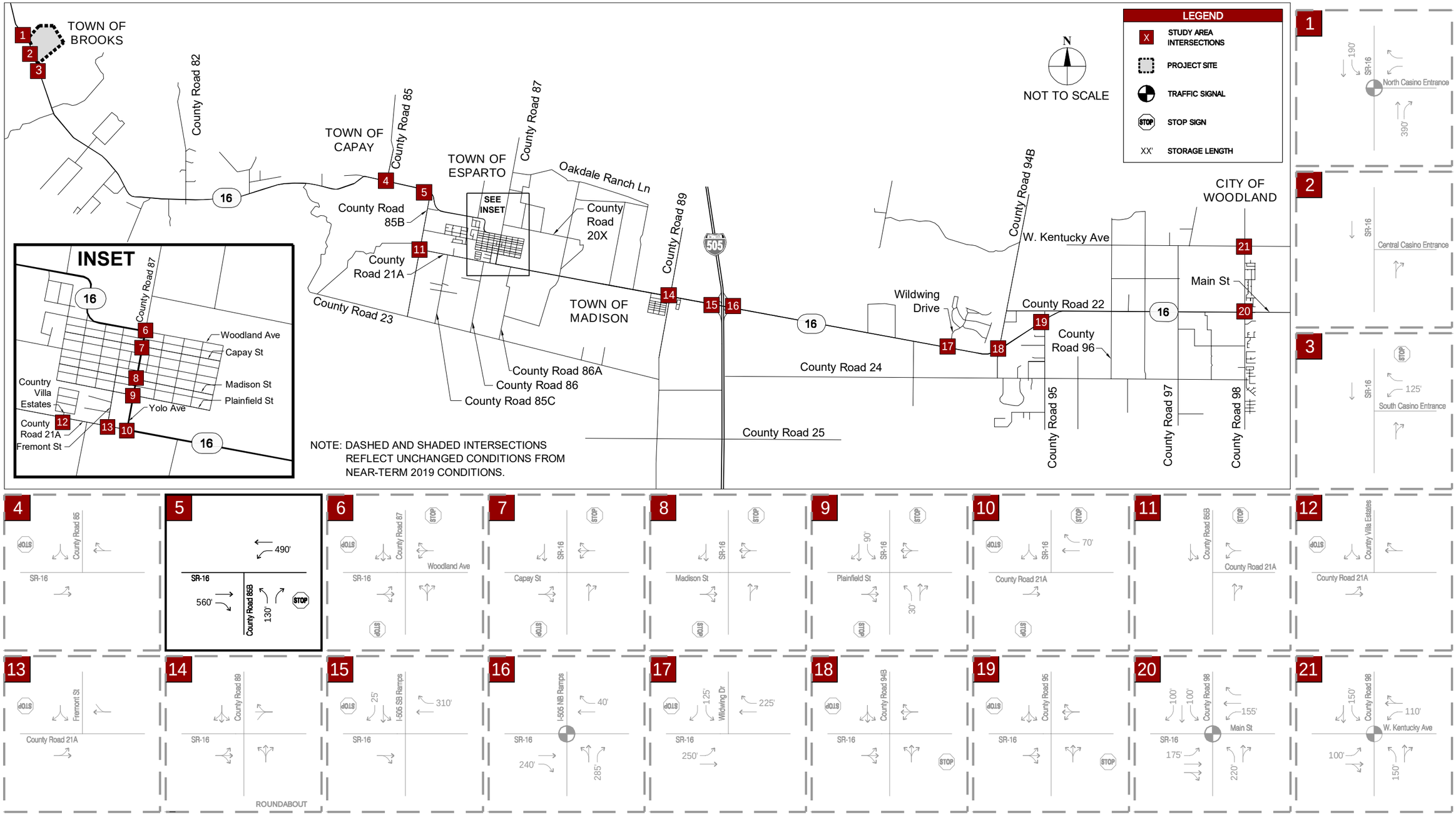

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FIGURE 9
LONG-TERM 2035 LANE GEOMETRY AND TRAFFIC CONTROL
CACHE CREEK CASINO RESORT HOTEL EXPANSION PROJECT

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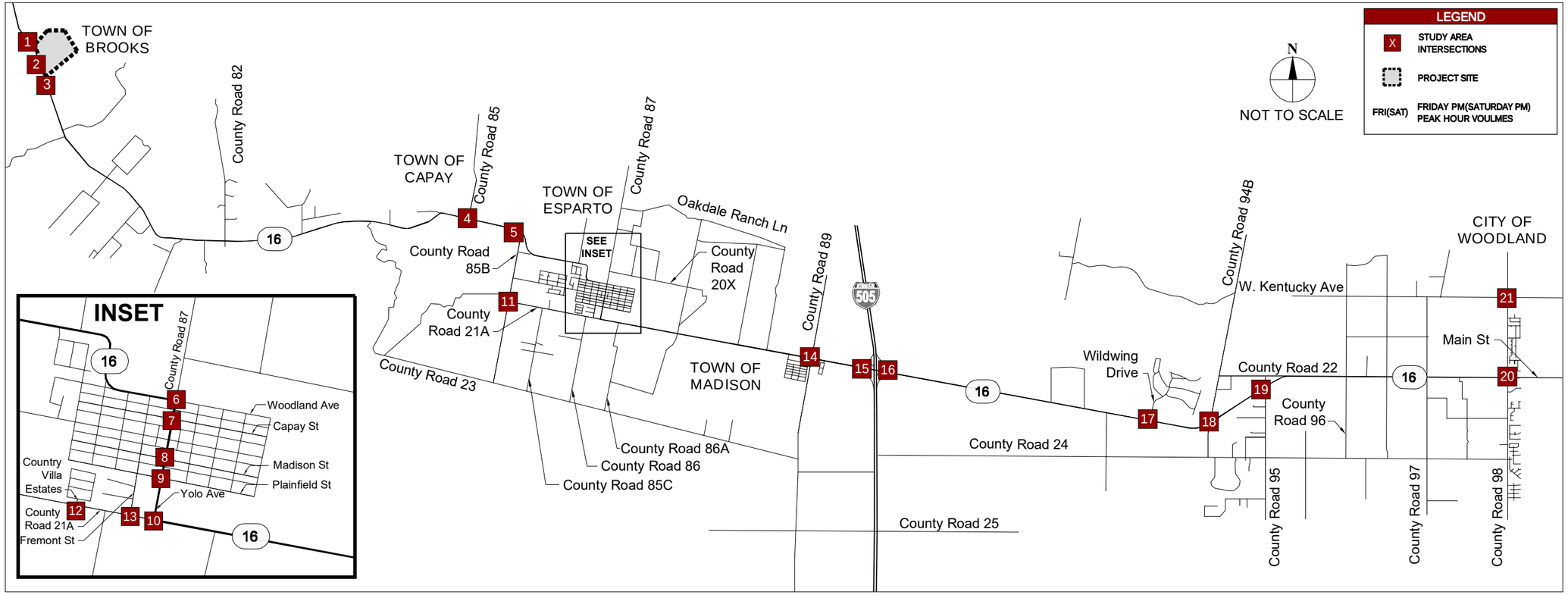

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FIGURE 10
LONG-TERM 2035 PEAK HOUR TURNING MOVEMENT VOLUMES

CACHE CREEK CASINO RESORT HOTEL EXPANSION PROJECT

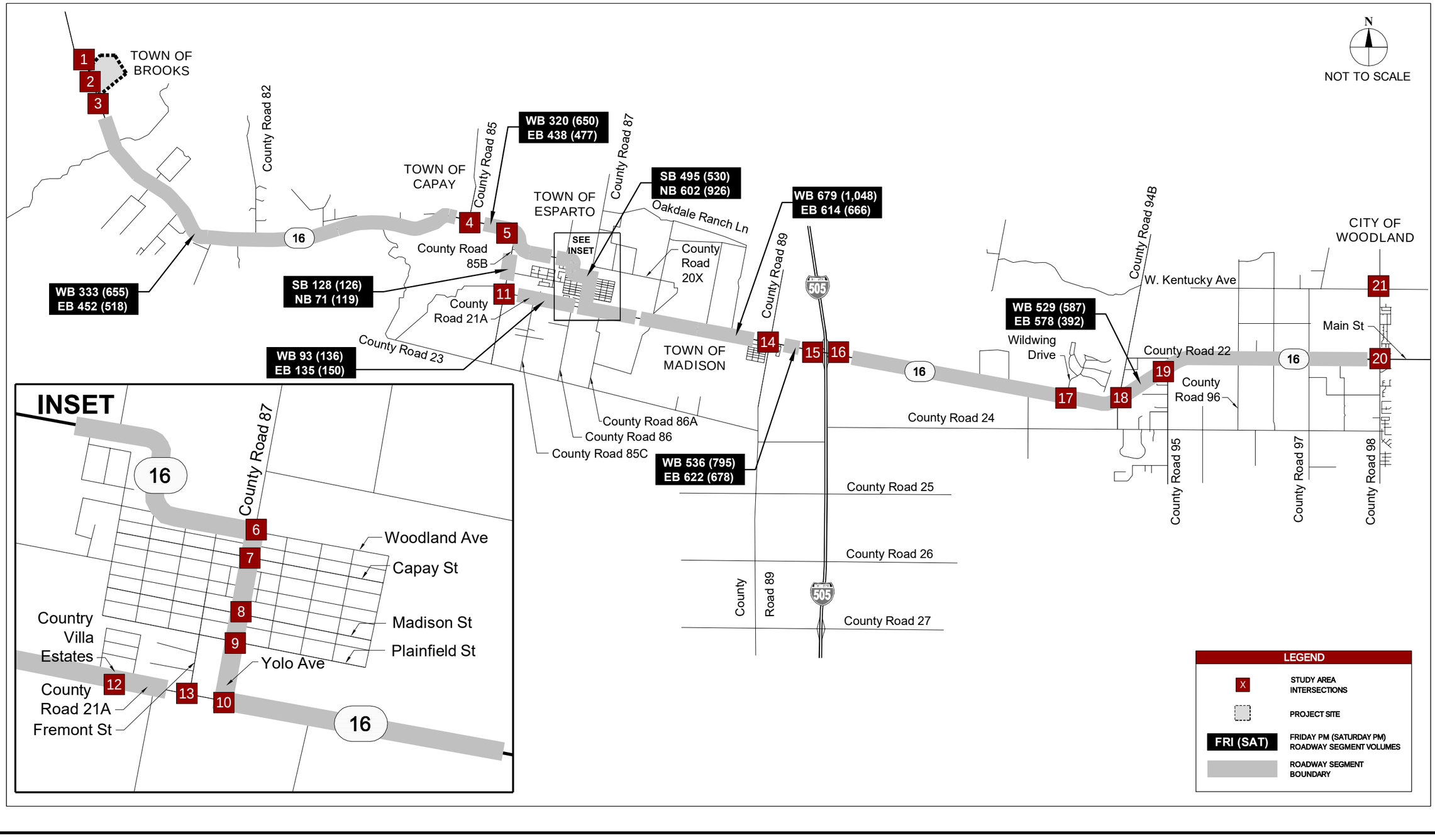

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FIGURE 11
LONG-TERM 2035 DIRECTIONAL ROADWAY SEGMENT TRAFFIC VOLUMES
CACHE CREEK CASINO RESORT HOTEL EXPANSION PROJECT

PROPOSED PROJECT – CACHE CREEK HOTEL EXPANSION

The site layout as shown in **Figure 12** includes a hotel expansion that would add 459 rooms to the site, as well as ancillary uses including a hotel lobby bar/lounge. The expansion also includes 178 net new restaurant seats and a new ballroom facility that would increase entertainment seating capacity by 596 seats. The proposed ballroom for Cache Creek would only be open when the existing Club 88 ballroom is closed. Therefore, the net increase of 596 seats correctly represents the plus Project scenario.

Site Access

The main access points to the Project are located on SR-16. The north access at Winners Way operates as a full-movement driveway with no turn limitations. The central driveway operates as an ingress-only driveway with a southbound left-turn prohibition. The south driveway also has a southbound left-turn prohibition but allows all other movements. Only the Winners Way access is signalized.

Project Scenarios

The following scenarios will be evaluated with the Project:

- **Near-Term Plus Project** – This near-term scenario includes trips associated with the Project. New off-reservation traffic follows current patterns with most traffic continuing to travel on SR-16 downtown through Esparto.
- **Long-Term Plus Project** – This long-term scenario includes trips associated with the Project. New off-reservation traffic follows current patterns with most traffic continuing to travel on SR-16 downtown through Esparto.

Project Trip Generation

Trip generation for tribal gaming facilities generally peaks on Saturday evenings. However, background traffic on adjacent streets is typically lower on Saturdays than during peak weekday periods. As a result, the overall number of vehicles on the road during the tribal gaming facilities' peak periods is typically no worse than the traditional weekday peak-hour conditions. In addition, because these casino facilities are typically open 24 hours per day, 7 days per week, they do not experience pronounced peak periods like other uses. Instead, casino traffic follows a smoother daily traffic profile that builds steadily from early morning until approximately 7:00 PM, after which traffic levels slowly decline. Based on existing traffic volume information and expected trip generation from the Project, it was determined that the Friday and Saturday PM peak periods represent the worst-case periods during which to evaluate the Project. It is during these periods that the combination of background traffic and CCCR traffic are anticipated to be at the highest levels.

Restaurant
Casino trip generation rates commonly include patrons to the slot machines and table games, hotel guests, event center attendees, as well as ancillary uses such as restaurants, bars, meeting spaces, back-of-house, employees arriving and departing on a shift change, and all of the general activities occurring at the facility during the peak hours. As such, separate calculations for the non-casino functions are typically not necessary. Nevertheless, in an effort to appropriately quantify trips associated with one of the proposed ancillary uses, specific trip generation for the new restaurants was developed. The Project is understood to include a total of 274 new restaurant seats (excluding bar seats), partially offset by 96 seats in the existing restaurant (also excluding bar seats) that would be removed as part of the Project. As a result, 178 net new restaurant seats (274-96) are assumed to be included with the Project. Accordingly, trip generation for the Project's new restaurants was calculated based on data from the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 9th Edition*, but was also adjusted with the reasonable assumption that most restaurant patrons would also be casino patrons. Because casinos with on-site restaurant facilities primarily cater to casino patrons, these restaurants are not considered to generate a significant number of additional vehicle trips. Therefore, the ITE "quality restaurant" trip generation rate was conservatively reduced by 3/4 to account for internal capture to and from CCCR. The reduced rate is primarily based on professional judgment and experience with other tribal casino facilities.

Ballroom
Ticket counts for Club 88 (the existing event center) events which occurred between January 2015 and December 2015 were provided by CCCR, as well as total facility daily in and out person counts during the same period. The person counts were collected by automatic counters at the multiple entrances to the facility. Only count stations at entrances to the facility were considered, while data collected at internal cordon entrances (e.g. Club 88, hotel, etc.) were omitted to avoid double counting.

The top sixteen (16) drawing events which occurred on Fridays or Saturdays were selected to represent the sample of event days. For each day included in the sample, daily patron counts from the automatic counters were used to calculate an average total daily patron count on event days. Of the sixteen samples, the average number of attendees (total number of tickets sold) at Club 88 events was 732 (equating to a sell-out with more tickets sold than the number of seats). This count was compared to the average facility patron count from a sampling of the most recent Saturdays when there was not an event at Club 88. If people attending Club 88 events did not participate in gaming activities during their same visit, the increase in the daily patron count on event days would be equal to the average attendance (732) at the Club 88 events considered. However, the actual difference in person counts visiting the facility as a whole on event-days versus non-event days was 216 people. Thus 516 people (732–216), or 70 percent of the Club 88 capacity would have visited the facility even without an event. The remaining 30 percent of the Club 88 patrons represents new trips that would not be expected to occur without the event venue.

A prior report by Abrams Associates[15] found vehicle occupancy of 2.6 passengers per vehicle based on surveys of event patrons of CCCR. Based on feedback received from CCCR staff, it was agreed that this vehicle occupancy ratio remains appropriate and reliable for CCCR. It was conservatively assumed that of the "new" trips generated by the proposed ballroom, 85 percent of the patrons would arrive in the PM peak hour before the event would start, leaving 15 percent of the patrons to arrive after the PM peak hour just prior the start of the event.

Applying this logic to the trip generation of the proposed ballroom, the additional 596 seats would be anticipated to equate to 58 new peak-hour trips entering the site, calculated as follows:

- 596 seats, multiplied by 0.3 (percentage of attendees that would be "new" patrons) = 179 new patrons.
- 179 new patrons, divided by 2.6 people per vehicle, multiplied by 0.85 (percentage of vehicles entering during the peak hour) = 58 new peak-hour trips entering the site.

Conservatively, 10 percent of these inbound trips were added as exiting trips during the peak hour to reflect potential drop-off/pick-up activities and short duration site visits. This results in six outbound trips from the 596 seats.

Hotel
Similar to the restaurant use, the effects of the interaction between the casino gaming floor, event center/ballroom, and hotel are commonly captured in the casino trip generation rates. This is particularly true for hotel-casino-event facilities in rural locations, where patrons engage in relatively few "in-and-out" trips after arriving at the facility (as compared to standard hotels for which stand-alone trip generation rates are used). In order to present the most conservative analysis, however, we have elected to treat the Project's hotel component separately. This approach layers the new hotel trips on the site's trip generation characteristics. Accordingly, trip generation for the proposed hotel component (the new 459 rooms) was calculated based on data from the ITE *Trip Generation Manual, 9th Edition*, but was also adjusted with the reasonable assumption that most guests at the hotel would also be guests of the casino. Typically, casinos with on-site hotel facilities implement a pricing structure for the rooms that favors casino guests. Therefore, because casino hotels primarily accommodate casino patrons, they are not considered to generate a significant number of new vehicle trips; further, considering the occupancy rate of the existing Cache Creek Hotel, it could be argued that the proposed hotel may actually reduce casino related trips by allowing patrons to stay on site, versus making multiple trips to the site to visit the casino on consecutive days. Therefore, the ITE hotel trip generation rate was conservatively reduced by 3/4 to account for internal capture to and from the casino. Reducing the rate is based on

[15] Cache Creek Destination Resort Project Traffic Impact Study, Abrams Associates, April 2008.

professional judgment, and is generally consistent with the hotel trip generation adjustments demonstrated in the traffic studies for other Northern California gaming facilities, such as Red Hawk Casino (previously referred to as Shingle Springs Casino) and Graton Rancheria Casino, as well as the adjustments documented for on-site hotel uses at tribal gaming facilities in the San Diego region.

Trip generation estimates for Project are summarized in **Table 10**. As reflected, the Project is conservatively estimated to result in 144 new Weekday (Friday) peak-hour and 161 new Saturday peak-hour trips.

Table 10 – Project Trip Generation

Land Use	ITE Code	Quantity	Unit	Weekday PM Peak Hour			Saturday Peak Hour		
				In	Out	Total	In	Out	Total
Quality Restaurant	931	178	# Seats	8	4	12	9	6	15
Ballroom		596	# New Seats	58	6	64	58	6	64
Proposed Hotel	310	459	# Rooms	35	34	69	46	37	83
Net New Vehicle Trips:				101	43	**144**	113	48	**161**

Notes:

- Land use accounts for the net number of new restaurant seats associated with the Proposed Project. Trip rates for Quality Restaurant based on ITE *Trip Generation Manual*, *9th Edition.* Trip generation rate reduced by 75% to account for internal capture to/from casino.

- Trip rates for Hotel based on ITE *Trip Generation Manual*, *9th Edition.* Trip generation rate reduced by 75% to account for internal capture to/from casino.

Project Trip Distribution and Assignment

The same project trip distribution from the 2010 traffic study was used. In that study, Kimley-Horn reviewed the Project's use in proximity to the surrounding population centers. Because of the nature of the Project, customers and employees are expected to travel from nearby locations and beyond. Much of the trips are expected to travel to/from I-505 and I-5. The location of the San Francisco Bay Area population in relation to the project site, as well as peak-hour turning movement volumes at the study intersections, the likely customer and employee base for the site, major connections to highways, and potential access limitations, were evaluated in order to estimate the likely distribution of project traffic.

Trip generation and distribution for the Project includes a mixture of passenger cars, trucks, and RVs, and was evaluated based on the assumption that five percent[16] of the vehicles on roads accessing the site would be trucks or RVs.

Based on the factors discussed above, it was determined that approximately 31% of the Project traffic would be distributed to destinations north of the site, with the remaining 69% distributed south of the site. To be conservative, only a nominal percentage of Project traffic was assumed to be generated or attracted in the immediate vicinity of the Project site. The Project traffic distribution is shown in **Figure 13**. **Figure 14** illustrates Project off-reservation traffic assigned to the study intersections, based on the assumed trip distribution. **Figure 15** illustrates the Project off-reservation traffic assigned to the study roadway segments.

[16] Caltrans Traffic and Vehicle Data System, http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/, 2008 Truck Traffic reports 7.8% heavy vehicles with 3+ axles. For the peak hours evaluated, 5% heavy vehicles were assumed because the percentage of heavy vehicles is typically less during the peak hours.

Near-Term Plus Project Off-Reservation Traffic Volumes

Near-Term (2019) off-reservation traffic volumes were combined with vehicle trips expected to be generated by the Project. **Figure 16** illustrates the Near-Term Plus Project off-reservation turning movement volumes at the study intersections. **Figure 17** illustrates the Near-Term Plus Project directional roadway segment off-reservation traffic volumes.

Long-Term Plus Project Off-Reservation Traffic Volumes

Long-Term 2035 off-reservation traffic volumes were combined with vehicle trips expected to be generated by the Project. **Figure 18** illustrates the Long-Term Plus Project off-reservation turning movement volumes at the study intersections. **Figure 19** illustrates the Long-Term Plus Project directional roadway segment off-reservation traffic volumes.

Project Off-Reservation LOS Conditions and Impacts at Intersections

Off-reservation traffic operations were evaluated under the following development conditions:

- Near-Term (2019) conditions plus Project
- Long-Term (2035) conditions plus Project

Off-reservation study intersections currently operating below the County standard are considered to be potentially significantly impacted if the average delay per vehicle increases as a result of the Project.

Results of the analysis are presented in **Table 11**. (Results shown as bold in the table do not meet operational standards and significant project impacts are highlighted.) Additional detail is provided in the **Appendix**.

As shown in the results, all off-reservation intersections would meet the acceptable level of service thresholds based on established significance criteria and with the addition of project-related traffic in the Near-Term (2019) scenario.

Only one (1) off-reservation intersection would fail to meet acceptable level of service thresholds in the Long-term (2035) scenario based on established significance criteria and with the addition of project-related traffic create a potentially significant impact.

2035 Intersection Operating Deficiently

- #18 – SR-16/CR-94B

The intersection of SR-16/South Casino Entrance operates at LOS E in the Saturday PM peak, but this is not a significant impact since the approach operating deficiently is the westbound approach, which occurs on the Project site.

Table 11 – Project Intersection Level of Service Summary

	Intersection	Intersection Control	Criteria	Near-Term (2019)				Near-Term (2019) + Project				Long-Term (2035)				Long-Term (2035) + Project			
				Friday PM Peak		Saturday PM Peak		Friday PM Peak		Saturday PM Peak		Friday PM Peak		Saturday PM Peak		Friday PM Peak		Saturday PM Peak	
				LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1	SR-16/ North Casino Entrance	Signal	D	B	11.3	A	6.9	B	10.2	A	6.5	B	11.9	A	9.0	B	10.8	A	8.4
2	SR-16/ Central Casino Entrance	Uncontrolled	D	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0
3	SR-16/ South Casino Entrance	TWSC	D	C	16.8	C	20.1	C	20.7	D	25.7	C	17.3	D	26.1	C	21.4	**E**	**35.5**
4	SR-16/ County Road 85	TWSC	D	B	11.5	C	15.5	B	12.6	C	17.5	B	13.0	C	21.4	B	14.4	D	25.3
5	SR-16/ County Road 85B	TWSC	D	A	9.3	B	13.6	B	10.3	C	16.7	A	9.3	C	16.6	B	10.3	D	25.2
6	SR-16/ Woodland Avenue	AWSC	E	A	4.4	A	3.9	A	4.6	A	4.5	A	4.5	A	5.8	A	4.6	A	8.0
7	SR-16/ Capay Street	TWSC	E	C	15.1	C	17.9	C	16.3	C	19.4	C	17.4	D	25.5	C	19.3	D	29.1
8	SR-16/ Madison Street	TWSC	E	C	16.0	B	12.1	C	15.4	B	13.8	C	17.0	C	22.9	C	18.6	D	25.5
9	SR-16/ Plainfield Street	TWSC	E	C	17.1	C	19.9	C	19.1	C	22.6	C	20.3	D	31.9	C	22.7	E	37.8
10	SR-16/ County Road 21A	AWSC	D	B	11.6	B	11.1	B	12.4	B	12.0	C	16.7	C	23.6	C	19.0	D	29.6
11	County Road 85B/ County Road 21A	TWSC	C	A	9.3	A	8.9	A	9.3	A	9.1	A	9.3	A	9.0	A	9.3	A	9.2
12	Country Villa Estates/ County Road 21A	TWSC	C	A	9.8	A	9.9	B	10.1	B	10.1	A	9.9	A	10.0	B	10.1	B	10.2
13	Fremont Street/ County Road 21A	TWSC	C	A	9.7	A	9.9	A	9.9	B	10.2	A	9.8	B	10.1	A	10.0	B	10.3
14	SR-16/ County Road 89	Roundabout	D	A	6.7	A	6.9	A	7.5	A	7.8	A	7.4	A	8.4	A	8.3	A	9.7
15	SR-16/ I-505 SB Ramps	TWSC	D	B	15.0	C	17.3	C	16.3	C	19.0	C	20.2	D	27.2	C	22.6	D	30.8
16	SR-16/ I-505 NB Ramps	Signal	D	A	9.3	B	12.2	B	10.2	B	13.9	B	10.1	B	16.5	B	11.3	C	21.9
17	SR-16/ Wildwing Drive	TWSC	D	C	17.5	C	15.1	C	18.6	C	16.1	D	27.9	C	23.9	D	30.2	D	26.2
18	SR-16/ County Road 94B	TWSC	D	C	20.9	B	14.4	C	22.3	C	15.2	**F**	**253.9**	**F**	**59.9**	**F**	**309.3**	**F**	**73.8**
19	SR-16/ County Road 95	TWSC	D	C	18.8	C	16.4	C	19.8	C	17.3	C	24.4	C	20.7	D	25.7	C	21.8
20	SR-16/ County Road 98	Signal	D	C	25.5	C	24.7	C	25.6	C	24.9	C	25.7	C	24.6	C	25.9	C	24.8
21	SR-16/ W. Kentucky Avenue	Signal	D	B	19.4	B	19.2	B	19.2	B	18.7	C	20.2	B	19.0	C	20.0	B	18.6

Note: Locations operating unacceptably are bolded and significant project impacts are highlighted.

Project Traffic Signal Warrant Analysis

Near-Term Plus Project and Long-Term Plus Project off-reservation traffic volumes at unsignalized study intersections were compared against the peak-hour warrant in the *2014 California Manual on Uniform Traffic Control Devices (MUTCD)*.

Results of the analysis showed that the following off-reservation intersections would satisfy Traffic Signal Warrant #3 by year 2019 and 2035.

- #3 – SR-16/South Casino Entrance (2019 and 2035)
- #5 – SR-16/CR-85B (2019 and 2035)
- #6 – SR-16/Woodland Avenue (2019 and 2035)
- #10 – SR-16/CR-21A (2019 and 2035)
- #14 – SR-16/CR-89 (2019)
- #17 – SR-16/Wildwing Drive (2035)
- #18 – SR-16/CR-94B (2035)

It should be noted that these same intersections meet the Traffic Signal Warrant in the No Build scenarios as well. Other warrants such as for minimum vehicle volumes, interruption of continuous traffic, and traffic progression were not evaluated because they generally require higher traffic volumes to be satisfied. A copy of the analysis summary for Traffic Signal Warrant #3 is included in the **Appendix**.

Project Off-Reservation LOS Conditions and Impacts on Roadway Segments

Project trips generated by the Project were added to the year 2019 and 2035 forecast off-reservation roadway segment volumes.

Traffic analyses were completed to evaluate the operation of the study roadway segments in the year 2019 and 2035, with the addition of the Project.

Results of the Near-Term Plus Project analysis are presented in **Table 12**. (Results shown as bold in the table do not meet operational standards and significant project impacts are highlighted.)

Results of the Long-Term Plus Project analysis are presented in **Table 13**. (Results shown as bold in the table do not meet operational standards and significant project impacts are highlighted.)

Table 12 – Project Near-Term Roadway Segment Level of Service Summary

#	Roadway Segment	Highway Class	LOS Criteria	Near-term (2019) Plus Project											
				Friday PM Peak						Saturday PM Peak					
				Northbound/Westbound			Southbound/Eastbound			Northbound/Westbound			Southbound/Eastbound		
				LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)
1	SR-16 between Cache Creek Casino and CR-85	I	D	D	70.2	40.6	D	74.3	40.3	**E**	**81.2**	**38.9**	**E**	**67.2**	**39.8**
2	SR-16 between CR-85 and Esparto Town Limits	II	D	C	65.4	-	D	71.7	-	D	83.1	-	C	62.5	-
3	SR-16 through the Town of Esparto	II	E	D	72.2	-	C	64.5	-	D	81.9	-	C	56.4	-
4	SR-16 between Esparto Town limits and CR-89	I	D	D	76.7	41.0	D	73.0	41.3	**E**	**85.3**	**39.8**	D	65.7	41.1
5	SR-16 between CR-89 and I-505	I	D	D	79.5	40.1	D	74.6	40.4	**E**	**85.0**	**39.8**	D	65.8	41.0
6	SR-16 between I-505 and CR-98	I	D	**E**	**64.7**	**33.0**	**E**	**78.7**	**32.3**	**E**	**69.9**	**33.7**	**E**	**64.6**	**34.0**
7	County Road 21A between CR-85B and SR-16	II	C	A	28.4	-	A	37.2	-	A	36.6	-	A	38.2	-
8	County Road 85B between SR-16 and CR-21A	II	C	A	31.7	-	B	50.9	-	B	45.0	-	B	46.9	-

Note: Locations operating unacceptably are **bolded** and significant impacts are highlighted in yellow.

Table 13 – Project Long-Term Roadway Segment Level of Service Summary

#	Roadway Segment	Highway Class	LOS Criteria	Long-term (2035) Plus Project											
				Friday PM Peak						Saturday PM Peak					
				Northbound/Westbound			Southbound/Eastbound			Northbound/Westbound			Southbound/Eastbound		
				LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)
1	SR-16 between Cache Creek Casino and CR-85	I	D	D	69.6	40.4	D	75.0	40.1	**E**	**82.9**	**38.1**	**E**	**73.1**	**38.7**
2	SR-16 between CR-85 and Esparto Town Limits	II	D	C	66.4	-	D	71.7	-	D	83.7	-	C	69.7	-
3	SR-16 through the Town of Esparto	II	E	D	81.1	-	D	70.8	-	E	89.4	-	D	71.3	-
4	SR-16 between Esparto Town limits and CR-89	I	D	**E**	**84.5**	**38.4**	**E**	**79.2**	**39.1**	**E**	**91.7**	**35.8**	**E**	**79.2**	**36.4**
5	SR-16 between CR-89 and I-505	I	D	**E**	**80.2**	**38.6**	**E**	**82.9**	**38.5**	**E**	**86.5**	**37.7**	**E**	**79.8**	**38.0**
6	SR-16 between I-505 and CR-98	I	D	**E**	**75.9**	**31.6**	**E**	**78.2**	**31.0**	**E**	**80.0**	**32.2**	**E**	**63.7**	**33.0**
7	County Road 21A between CR-85B and SR-16	II	C	A	31.1	-	B	40.6	-	B	40.6	-	B	42.8	-
8	County Road 85B between SR-16 and CR-21A	II	C	A	34.5	-	B	50.8	-	B	48.4	-	B	47.5	-

Note: Locations operating unacceptably are **bolded** and significant impacts are highlighted in yellow.

Project traffic would add to the background congestion on the off-reservation roadway segments. In the Near-Term Plus Project condition, the following off-reservation segments operate at unacceptable levels of service with the addition of the project:

- SR-16 (WB and EB) between CCCR and CR-85 (Saturday PM Peak)
- SR-16 (WB) between the Esparto Town Limits and CR-89 (Saturday PM Peak)
- SR-16 (WB) between CR-89 and I-505 (Saturday PM Peak)
- SR-16 (WB and EB) between I-505 and CR-98 (Friday and Saturday PM Peaks)

In the Long-Term Plus Project condition, the following off-reservation segments operate at unacceptable levels of service with the addition of the Project:

- SR-16 (WB and EB) between CCCR and CR-85 (Saturday PM Peak)
- SR-16 (WB and EB) between the Esparto Town Limits and CR-89 (Friday and Saturday PM Peaks)
- SR-16 (WB and EB) between CR-89 and I-505 (Friday and Saturday PM Peaks)
- SR-16 (WB and EB) between I-505 and CR-98 (Friday and Saturday PM Peaks)

Project Mitigations

The evaluation disclosed that the following off-reservation intersection and roadway segment improvements as shown in **Table 14** are needed in the Near-Term (2019) and Long-Term (2035) to mitigate project impacts and are described below. **Table 14** also shows the project's fair share responsibility of the mitigation costs. The fair share percentage follows the Caltrans methodology for calculating equitable mitigation measures as outlined in the Caltrans *Guide for the Preparation of Traffic Impact Studies*[17]. This is calculated by taking the project trips and dividing it by the difference between the long-term volumes and the near-term volumes.

Off-Reservation Intersections

Off-reservation intersections with levels of service below established thresholds were investigated to determine the role of the Project traffic in the projected operating conditions at those intersections.

Impact #1 – Long-Term (2035): SR-16/CR-94B – Intersection #18

The SR-16/CR-94B intersection will operate at LOS F on the side street approach during the Friday PM and Saturday PM peak hours under the Long-Term traffic condition without Project and would experience an increase in delay due to the Project. Since the Project traffic results in an increase in delay at an intersection which operates at unacceptable service levels without Project, this is a significant impact.

[17] *Guide for the Preparation of Traffic Impact Studies*, Caltrans, December 2002.

Table 14 – Project Summary of Mitigations

Mitigation #	Location	Impacted Scenario	Jurisdiction	Mitigation	Proportionate Share	Fair Share
1	#18 - SR-16/CR 94B	Long-Term (2035) + Project	Caltrans	A refuge lane shall be installed along SR-16 for northbound left turn users and southbound left turn users.	14%	14%
2	SR-16 between Cache Creek Casino and CR 85	Near-Term (2019) + Project	Caltrans	Add a slow-vehicle turnout in each direction along SR-16 between CCCR and CR-85.	91%	TBD in consultation w/ Caltrans
3	SR-16 between Esparto Town limits and CR 89	Near-Term (2019) + Project	Caltrans	Add a slow-vehicle turnout in the WB direction along SR-16 between the Esparto Town Limits and CR-89.	29%	TBD in consultation w/ Caltrans
4	SR-16 between CR 89 and I-505	Near-Term (2019) + Project	Caltrans	Add a slow-vehicle turnout in the WB direction along SR-16 between CR-89 and the I-505 ramps.	60%	TBD in consultation w/ Caltrans
5	SR-16 between I-505 and CR 98	Near-Term (2019) + Project	Caltrans	Add a slow-vehicle turnout in each direction along SR-16 between the I-505 ramps and CR-98.	29%	TBD in consultation w/ Caltrans
6	SR-16 between Cache Creek Casino and CR 85	Long-Term (2035) + Project	Caltrans	Implement Mitigation #2.	91%	TBD in consultation w/ Caltrans
7	SR-16 between Esparto Town limits and CR 89	Long-Term (2035) + Project	Caltrans	Add a slow-vehicle turnout in each direction along SR-16 between the Esparto Town Limits and CR-89.	29%	TBD in consultation w/ Caltrans
8	SR-16 between CR 89 and I-505	Long-Term (2035) + Project	Caltrans	Add a slow-vehicle turnout in each direction along SR-16 between CR-89 and the I-505 ramps.	60%	TBD in consultation w/ Caltrans
9	SR-16 between I-505 and CR 98	Long-Term (2035) + Project	Caltrans	Implement Mitigation #5.	29%	TBD in consultation w/ Caltrans

Mitigation #1

To mitigate the Project impacts expected to occur in the Long-Term, a refuge lane along SR-16 for northbound left turn users and southbound left turn users should be installed. This improvement would create a receiving lane for the side-street approach traffic to use, thereby reducing the delay to cross SR-16. Because the Project does not trigger the impact but adds to the unacceptable operation, the Project would be responsible for a proportionate share of the mitigation costs if and when the impact occurs. Modifying the intersection as proposed in this mitigation would reduce the impact to less than significant and improve the intersection to an acceptable LOS D and LOS C on the side street during the Friday PM and Saturday PM peak hours, respectively (see **Table 15**).

Table 15 summarizes the expected intersection levels of service with the identified mitigations in the Long-Term Plus Project conditions.

Table 15 – Long-Term Plus Project Mitigated Intersection Level of Service Summary

	Intersection	Intersection Control	Criteria	Long-Term (2035)				Long-Term (2035) + Project				Long-Term (2035) + Project (Mitigated)			
				Friday PM Peak		Saturday PM Peak		Friday PM Peak		Saturday PM Peak		Friday PM Peak		Saturday PM Peak	
				LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1	SR-16/ North Casino Entrance	Signal	D	B	11.9	A	9.0	B	10.8	A	8.4				
2	SR-16/ Central Casino Entrance	Uncontrolled	D	A	0.0	A	0.0	A	0.0	A	0.0				
3	SR-16/ South Casino Entrance	TWSC	D	C	17.3	D	26.1	C	21.4	**E**	**35.5**				
4	SR-16/ County Road 85	TWSC	D	B	13.0	C	21.4	B	14.4	D	25.3				
5	SR-16/ County Road 85B	TWSC	D	A	9.3	C	16.6	B	10.3	D	25.2				
6	SR-16/ Woodland Avenue	AWSC	E	A	4.5	A	5.8	A	4.6	A	8.0				
7	SR-16/ Capay Street	TWSC	E	C	17.4	D	25.5	C	19.3	D	29.1				
8	SR-16/ Madison Street	TWSC	E	C	17.0	C	22.9	C	18.6	D	25.5				
9	SR-16/ Plainfield Street	TWSC	E	C	20.3	D	31.9	C	22.7	E	37.8				
10	SR-16/ County Road 21A	AWSC	D	C	16.7	C	23.6	C	19.0	D	29.6				
11	County Road 85B/ County Road 21A	TWSC	C	A	9.3	A	9.0	A	9.3	A	9.2				
12	Country Villa Estates/ County Road 21A	TWSC	C	A	9.9	A	10.0	B	10.1	B	10.2				
13	Fremont Street/ County Road 21A	TWSC	C	A	9.8	B	10.1	A	10.0	B	10.3				
14	SR-16/ County Road 89	Roundabout	D	A	7.4	A	8.4	A	8.3	A	9.7				
15	SR-16/ I-505 SB Ramps	TWSC	D	C	20.2	D	27.2	C	22.6	D	30.8				
16	SR-16/ I-505 NB Ramps	Signal	D	B	10.1	B	16.5	B	11.3	C	21.9				
17	SR-16/ Wildwing Drive	TWSC	D	D	27.9	C	23.9	D	30.2	D	26.2				
18	SR-16/ County Road 94B	TWSC	D	**F**	**253.9**	**F**	**59.9**	**F**	**309.3**	**F**	**73.8**	D	34.2	C	22.3
19	SR-16/ County Road 95	TWSC	D	C	24.4	C	20.7	D	25.7	C	21.8				
20	SR-16/ County Road 98	Signal	D	C	25.7	C	24.6	C	25.9	C	24.8				
21	SR-16/ W. Kentucky Avenue	Signal	D	C	20.2	B	19.0	C	20.0	B	18.6				

Note: Locations operating unacceptably are bolded and significant project impacts are highlighted.

Off-Reservation Roadway Segments

Off-reservation roadway segments with levels of service below established thresholds were investigated to determine the role of the Project traffic in the projected operating conditions at those roadway segments.

Impact #2 – Near-Term (2019): SR-16 between CCCR and CR-85
The roadway segment of eastbound SR-16 between CCCR and CR-85 will operate at an acceptable LOS D during the Saturday PM peak hour under the Near-Term traffic condition without Project, and would degrade to LOS E with the addition of the Project. Since the Project traffic results in an unacceptable level of service on this roadway segment, this is a significant impact.

The westbound direction of SR-16 between CCCR and CR-85 will operate at LOS E during the Saturday PM peak hours under the Near-Term traffic condition without Project and would experience an increase in the percent time spent following and a decrease in average travel speed with the addition of the Project.

> **Mitigation #2**
> To mitigate the Project impacts expected to occur in the Near-Term, a slow vehicle turnout shall be installed in each direction on SR-16 between CCCR and CR-85. The Project's percentage of the mitigation costs shall be determined in consultation with Caltrans.

Impact #3 – Near-Term (2019): SR-16 between Esparto Town limits and CR-89
The roadway segment of westbound SR-16 between the Esparto Town limits and CR-89 will operate at LOS E during the Saturday PM peak hour under the Near-Term traffic condition without Project, and would experience an increase in the percent time spent following and a decrease in average travel speed with the addition of the Project. Since the Project traffic results in an increase in percent time spent following on a roadway segment which operates at unacceptable service levels without Project, this is a significant impact.

> **Mitigation #3**
> To mitigate the Project impacts expected to occur in the Near-Term, a slow-vehicle turnout shall be installed in the westbound direction on SR-16 between the Esparto Town limits and CR-89. The Project's percentage of the mitigation costs shall be determined in consultation with Caltrans.

Impact #4 – Near-Term (2019): SR-16 between CR-89 and I-505
The roadway segment of westbound SR-16 between CR-89 and I-505 will operate at LOS E during the Saturday PM peak hour under the Near-Term traffic condition without Project, and would experience an increase in the percent time spent following and a decrease in average travel speed with the addition of the Project. Since the Project traffic results in an increase in percent time spent following on a roadway segment

which operates at unacceptable service levels without Project, this is a significant impact.

Mitigation #4
To mitigate the Project impacts expected to occur in the Near-Term, a slow-vehicle turnout shall be installed in the westbound direction on SR-16 between CR-89 and the I-505 ramps. The Project's percentage of the mitigation costs shall be determined in consultation with Caltrans.

Impact #5 – Near-Term (2019): SR-16 between I-505 and CR-98
The roadway segment of SR-16 between I-505 and CR-98 will operate at LOS E during the Friday PM and Saturday PM peak hours under the Near-Term traffic condition without Project, and would experience an increase in the percent time spent following and a decrease in average travel speed with the addition of the Project. Since the Project traffic results in an increase in percent time spent following on a roadway segment which operates at unacceptable service levels without Project, this is a significant impact.

Mitigation #5
To mitigate the Project impacts expected to occur in the Near-Term, a slow-vehicle turnout shall be installed in both directions on SR-16 between CR-89 and the I-505 ramps. The Project's percentage of the mitigation costs shall be determined in consultation with Caltrans.

Impact #6 – Long-Term (2035): SR-16 between CCCR and CR-85
The roadway segment of SR-16 between CCCR and CR-85 will operate at an unacceptable LOS E in the Saturday PM peak hour under the Long-Term traffic condition without Project and would experience an increase in the percent time spent following and a decrease in average travel speed with the addition of the Project. Since the Project traffic results in an unacceptable level of service on this roadway segment, this is a significant impact.

Mitigation #6
To mitigate the Project impacts expected to occur in the Long-Term, Mitigation #2 shall be implemented. Mitigation #2 is to install a slow-vehicle turnout in each direction on SR-16 between CCCR and CR-85. The project's percentage of the mitigation costs shall be determined in consultation with Caltrans.

Impact #7 – Long-Term (2035): SR-16 between Esparto Town limits and CR-89
The roadway segment of SR-16 between the Esparto Town limits and CR-89 will operate at LOS E during the Friday PM and Saturday PM peak hours under the Long-Term traffic condition without Project, and would experience an increase in the percent time spent following and a decrease in average travel speed with the addition of the Project. Since the Project traffic results in an increase in percent time spent following on

a roadway segment which operates at unacceptable service levels without Project, this is a significant impact.

Mitigation #7
To mitigate the Project impacts expected to occur in the Long-Term, a slow-vehicle turnout shall be installed in both directions on SR-16 between the Esparto Town limits and CR-89. The Project's percentage of the mitigation costs shall be determined in consultation with Caltrans.

Impact #8 – Long-Term (2035): SR-16 between CR-89 and I-505
The roadway segment of SR-16 between CR-89 and I-505 will operate at LOS E during the Friday PM and Saturday PM peak hours under the Long-Term traffic condition without Project and would experience an increase in the percent time spent following and a decrease in average travel speed with the addition of the Project. Since the Project traffic results in an increase in percent time spent following on a roadway segment which operates at unacceptable service levels without Project, this is a significant impact.

Mitigation #8
To mitigate the Project impacts expected to occur in the Long-Term, a slow-vehicle turnout shall be installed in both directions on SR-16 between CR-89 and the I-505 ramps. The Project's percentage of the mitigation costs shall be determined in consultation with Caltrans.

Impact #9 – Long-Term (2035): SR-16 between I-505 and CR-98
The roadway segment of SR-16 between the I-505 and CR-98 will operate at LOS E during the Friday PM and Saturday PM peak hours under the Long-Term traffic condition without Project and would experience an increase in the percent time spent following and a decrease in average travel speed with the addition of the Project. Since the Project traffic results in an increase in percent time spent following on a roadway segment which operates at unacceptable service levels without Project, this is a significant impact.

Mitigation #9
To mitigate the Project impacts expected to occur in the Long-Term, Mitigation #5 shall be implemented. Mitigation #5 is to install a slow-vehicle turnout in each direction on SR-16 between the I-505 ramps and CR-98. The project's percentage of the mitigation costs shall be determined in consultation with Caltrans.

Project's Potential Effects on Bicycle and Pedestrian Mobility

Due to the lack of other land uses in the vicinity of the Project and the nature of the Project, it is unlikely that Project patrons or employees would walk or bicycle to the site. Furthermore, the Project is not expected to have a notable effect on current mobility for bicyclists and pedestrians nor would it conflict with applicable goals and policies for bicycles and pedestrians contained in the General Plan. Thus, the Project impact on off-reservation pedestrian or bicycle facilities is determined to be less than significant.

Project's Potential Effects on Transit Mobility

As noted earlier, Yolo County Transportation District (YCTD) operates the Yolo Bus Route 215, connecting the communities of Woodland, Madison, Esparto, Capay, and Brooks to CCCR.

According to the 2014 U.S. Census American Community Survey, 3.6 percent of Yolo County residents use transit to travel to work. This typically represents the highest level of transit ridership during the day. If it is conservatively assumed that 3.6 percent of employees or customers of the Project would use transit during the peak hours of the day, it represents approximately five transit patrons during the typical weekday PM peak period and approximately six additional transit patrons during the Saturday PM peak period. It should be noted that the estimated number of transit users has not been deducted from the Project traffic trip generation calculations.

The Tribe has previously provided funding to increase the capacity of the transit service to accommodate the expected increase in transit demand. Additional buses have been added to and from Cache Creek to reduce the headways for these bus routes and provide more frequent service. These additional buses would accommodate the increased ridership from the Project, as well as the increased promotion of transit use by existing employees and visitors. Therefore, the increase in transit demand should be addressed by the additional transit service that CCCR has already provided.

CCCR has also agreed to provide funding for a future park and ride for up to 125 parking spaces. The specific location of the park and ride has not been determined, but it would provide a location for employees and guests to park and take a shuttle or a bus to CCCR. The use of the park and ride would further remove vehicle trips along SR-16.

The Project would not conflict with applicable goals and policies for transit contained in the General Plan. Thus, the project impact on off-reservation transit service is determined to be less than significant.

Project's Potential Effects on County Road Maintenance

Pavement primarily fails due to fatigue, and failure rates exponentially increase with the axle load of the vehicles traveling upon it. Therefore, large trucks and buses generate the greatest effect on pavement fatigue. The effect of passenger cars, pickups, and

two-axle trucks are considered to be negligible.[18] This project is not expected to notably increase off-reservation truck or bus traffic, and in fact could actually decrease truck traffic because the expanded back-of-house area would permit more on-site storage. This in turn would reduce the frequency of trucks that currently bring supplies to the facility. Therefore, the increase in off-reservation traffic associated with the Project is considered to be less than significant with respect to county road maintenance.

Project's Potential Effects on Intersection Safety

Traffic volumes generated by the Project were reviewed in consideration of existing intersection collision history and the potential for increased accidents. According to collision data provided by the California Highway Patrol, accidents involving bicyclist and pedestrians are very rare. Many intersections did not report any collisions of this type during the reporting period. This suggests that bicycle and pedestrian volumes are relatively low and study intersections have minimal safety hazards for individuals biking or walking. Although the Project would introduce increased off-reservation traffic volumes at some intersections, bicyclists and pedestrians are expected to be able to travel through study intersections with similar levels of safety. Historically, casinos do not attract a significant amount of bicycle and pedestrian traffic. Therefore, the expected amount of pedestrian and bicycle traffic attributable to the Project is nominal and a significant increase in bicycle and pedestrian accidents is unlikely.

The potential for increased collisions between motorized vehicles was also considered. Collision frequency and severity are a function of many complex factors that vary depending on the location and type of intersection or roadway segment. Factors include traffic control such as signals or stop signs, lane and shoulder widths, grades, driveway densities, roadside hazards or obstacles, presence of left and right turn lanes, sight distance, congestion, and others.

Because of the number of and interrelationships between variables, accurate crash prediction is difficult. However, the Project would increase roadway congestion, a factor which could result in an increase in traffic collisions if left unmitigated. Other factors are expected to remain unaffected.

As noted previously, the purpose of this study is to address the traffic and transportation effects of the Project. This includes mitigation improvements to restore traffic operations to levels within acceptable standards or to levels as good as or better than without the Project. Potential increases in accidents due to project-related traffic could be offset by the implementation of off-reservation roadway improvements included as mitigation. Therefore, if mitigations are implemented as proposed in this study, no significant increase in daytime or nighttime collisions is expected.

The Project would increase off-reservation traffic on SR-16 and adjacent county roadways where farm vehicles operate. However, this increase in traffic would not

[18] Caltrans Highway Design Manual, Topic 613 – Traffic Considerations, July 1, 2008.

significantly impact or significantly increase the potential conflicts with nearby farm operations for a variety of reasons:

- There were no reported collisions (in the last three years) that included farm machinery or vehicles colliding with other highway traffic along any of the study segments or intersections.
- The area has a history of co-existence between CCCR and farm operations.
- Farm vehicles typically operate prior to the PM peak commute period and prior to when CCCR traffic levels are highest. Observations indicate farm workers and equipment are in the field shortly after sunrise and are winding down most activities prior to 5:00 PM. Large harvesting equipment is often moved during these same times to reduce conflicts with highway traffic.
- Volumes on the roads serving CCCR and farm uses would remain within the acceptable volumes for the road classifications, or be mitigated to a level at or less than the baseline condition.
- Intersections and roadway segments would be improved by mitigations, thereby allowing for traffic, including farm equipment, to move safely and efficiently through the study area.

As long as the traffic volumes continue to be consistent with the volumes of the roadway's classification, it is reasonable to assume that the roads can continue to sufficiently serve the uses that they were designed to accommodate. Therefore, an increase in off-reservation traffic volume attributable to the Project alone does not render the Project incompatible with the other agricultural and residential uses SR-16 serves. It is reasonable to conclude that a delay in exiting or entering a farm property does not rise to the level of a significant impact. Furthermore, potential increases in traffic due to the Project are potentially offset by the implementation of off-reservation roadway improvements included as mitigation. Therefore, if mitigations are implemented as proposed in this report, decreases in collisions with farm equipment are expected.

It is also noted that implementation of the future State Route 16 Safety Improvement Project (SIP) would result in improved sight distances, wider shoulders, and other improvements to increase safety on several segments of the state highway.

Esparto Middle School is located along County Road 21A approximately 0.4 miles west of SR-16. Nearly all middle school students live north of CR-21A. Some can reach the school by using interior neighborhood streets and a pedestrian connection to the school. However, some students use the shoulder on the north side of CR-21A as their most direct route to school. Since the predominant route to CCCR does not utilize CR-21A, the Project is not expected to impact the Esparto Middle School foot traffic.

Esparto High School is located along SR-16, just north of Plainfield Street. In this area, streets have sidewalks upon which to walk and marked crosswalks at major intersections. The Project is not expected to have a notable effect on current mobility or

safety for school children in this area. Thus, the Project impact on high school students is determined to be less than significant.

Project's Construction Traffic Impacts

The day-to-day construction operations for the construction of the Project would include off-reservation traffic impacts related to construction workers as well as construction material exportation and importation. There are not any off-reservation traffic impacts related to excavation activities because there would be no off-site disposal of excavated materials (other than trash) or import of required fill. The principal activities expected to generate traffic related to construction[19] are listed below:

- Construction import is based on the number of trucks required to deliver construction materials to the site, including building materials such as wood, steel, and masonry (no dirt).
- Construction worker trips are based on the number of construction workers estimated to be on site during different points throughout the Project. Each construction worker is assumed to drive to and from the site alone each day, and it is assumed that 20 percent of the workers leave and return to the site for various purposes during the day. (Yolo Bus usage and carpooling would be encouraged).
- Heavy equipment is based on the number of large construction vehicles expected during the project duration. The amount of heavy equipment expected as part of this project was estimated by the Tribe.

Using the expected traffic information described above, construction-related traffic generation was estimated. Each construction activity listed above would generate different volumes of traffic at different points in the Project. For example, the delivery and removal of heavy equipment to the project site would happen only a few times during the construction period. The construction-related off-reservation traffic is expected to remain relatively consistent throughout the Project construction.

It is estimated that it would take 22 months to complete construction of the Project.

Construction Material Export and Import – It is estimated that 30,000 cubic yards of earth would be required to be excavated to develop the site for the Project. The excavated earth would be hauled from a nearby area within the CCCR trust parcel. Because the excavation would occur entirely on site, it would not generate any traffic on the surrounding off-reservation roadways. The excavation and grading process is expected to last 12 to 15 weeks.

Once the site is graded, the Project would also require the importation of construction material including raw materials, concrete, and asphalt paving – resulting in a material

[19] Provided by Mark Wilson, Director of Development at CCCR and Tom Horgan, Civil Engineer, Laugenour and Meikle

importation of approximately 50 truckloads per week from SR-16 to the east via I-5 and I-505. A full haul truck, because of its larger size and slower operating characteristics, is equivalent to approximately four (4) passenger vehicles and an empty haul truck is equivalent to roughly two (2) passenger vehicles. The material importation via truck equates to 40 passenger car equivalent trips in per day and 20 passenger car equivalent trips out per day. For comparison, the number of construction importation trips is roughly equivalent to four percent of the Friday and Saturday daily project trips.

Because construction materials imported and exported would generate significantly less off-reservation traffic than the project's equivalent passenger car traffic generation (even when added to employee trips described below), and the vehicle path travels through generally uncongested intersection movements, it should not significantly impact the capacity of any off-reservation study intersection.

Construction workers – The weekday work would begin around 7:00 AM and end around 3:30 PM. The construction worker arrival peak occurs between 6:00 AM and 7:00 AM, and the departure peak occurs between 3:30 PM and 4:30 PM. This is generally prior to the area-wide commute peaks between 7:30 AM and 8:30 AM and between 5:00 PM and 6:00 PM. There would be 400 construction workers at most on site during construction, and none of them are expected to be on the roadway during the peak hours. During grading, there would be approximately 100 construction workers on site.

Workers would generate peak parking demand equivalent to roughly 400 vehicles during the peak construction period. Additionally, deliveries, visits, and other activities could generate peak non-worker parking demand of up to another 50 trucks and autos. Therefore, an approximate demand of 450 vehicle parking spaces would be required during the peak construction period for the construction employees. It is anticipated that this demand could be accommodated on site at CCCR.

The impacts of construction-related employee traffic and parking are considered less than significant because the construction commute peak and the area-wide commute peak would not overlap and the parking demand would be accommodated on site.

Heavy Equipment – A total of approximately 16 pieces of heavy equipment will be used based on wide-load permits necessary at various times over the course of the construction period. Delivery and removal of heavy equipment would occur outside of the area-wide commute peak, and equipment would be moved in and out of the site on different days. The periodic delivery during off-peak hours constitutes a minimal disruption of traffic.

The impacts of the periodic delivery and removal of heavy equipment during off-peak hours constitutes a minimal disruption of traffic, and thus is considered less than significant.

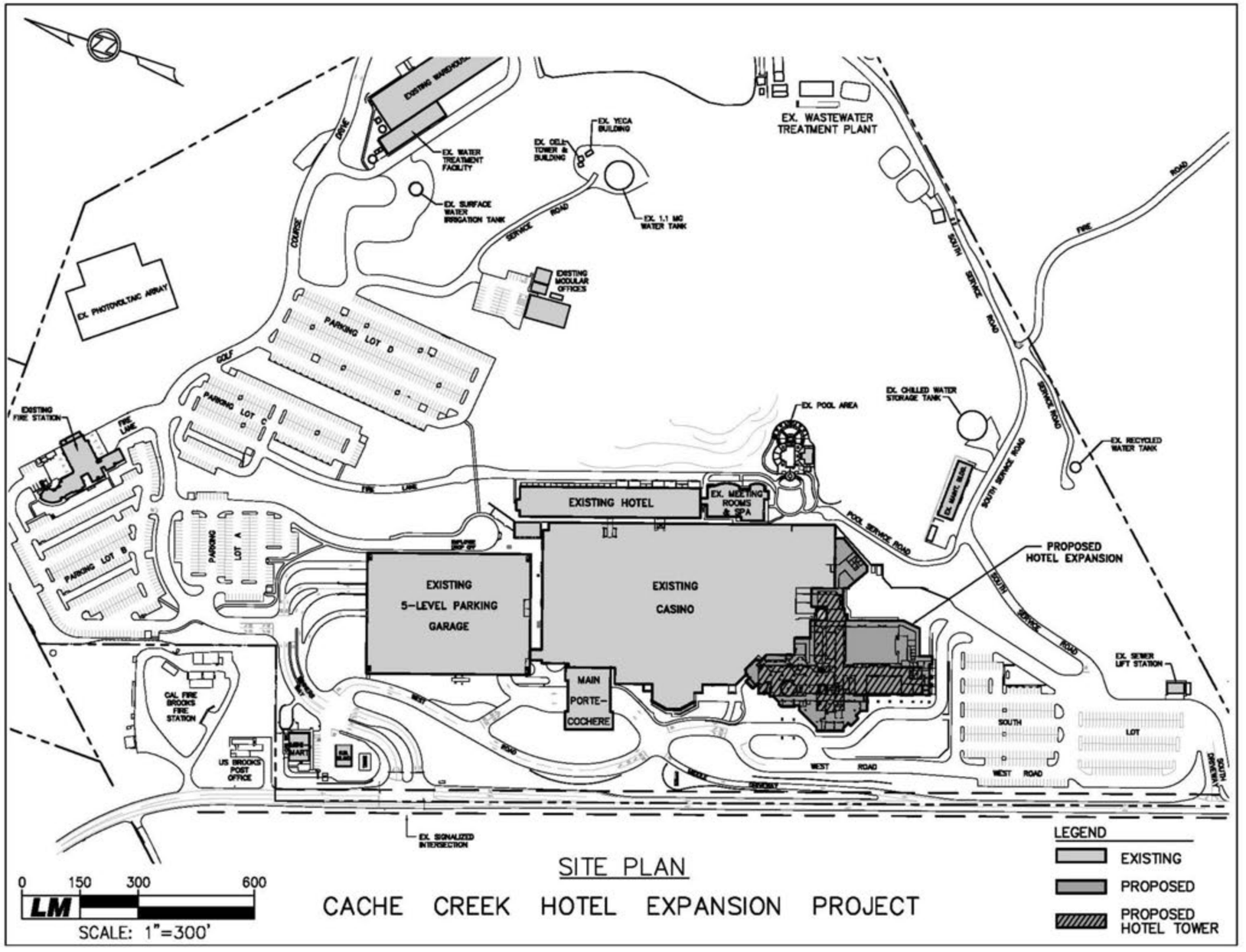
The following mitigation is recommended in relation to construction traffic, and is listed in **Table 16**.

Impact #10: Construction Traffic
The worst-case construction traffic for the Project would occur for a period of time when truck traffic would generate a large number vehicle trip ends per day in addition to construction employee trips and heavy equipment delivery to the project site. The presence of large and slow-moving vehicles and construction equipment on SR-16 in the project vicinity would result in potential safety hazards to motorists.

Mitigation #10
Prior to commencing each phase of project development, the applicant shall prepare a traffic control plan for construction of that phase, and shall obtain approval from Caltrans for implementation of such a plan. The traffic control plan shall be prepared in accordance with Caltrans requirements, and shall include information about times of construction, haul routes, delivery times for heavy equipment, and any other particulars as required by Caltrans. With the implementation of the traffic control plan, the impacts of project construction traffic would be reduced to less-than-significant levels.

Table 16 – Project Construction Traffic Summary of Mitigations

Mitigation #	Location	Impacted Scenario	Jurisdiction	Mitigation	Proportionate Share	Fair Share
10	Construction Traffic	Near-Term (2019) + Project	Caltrans	Prepare a traffic control plan	100%	100%



SITE PLAN

CACHE CREEK HOTEL EXPANSION PROJECT

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FIGURE 12
PROJECT SITE PLAN
CACHE CREEK CASINO RESORT HOTEL EXPANSION PROJECT

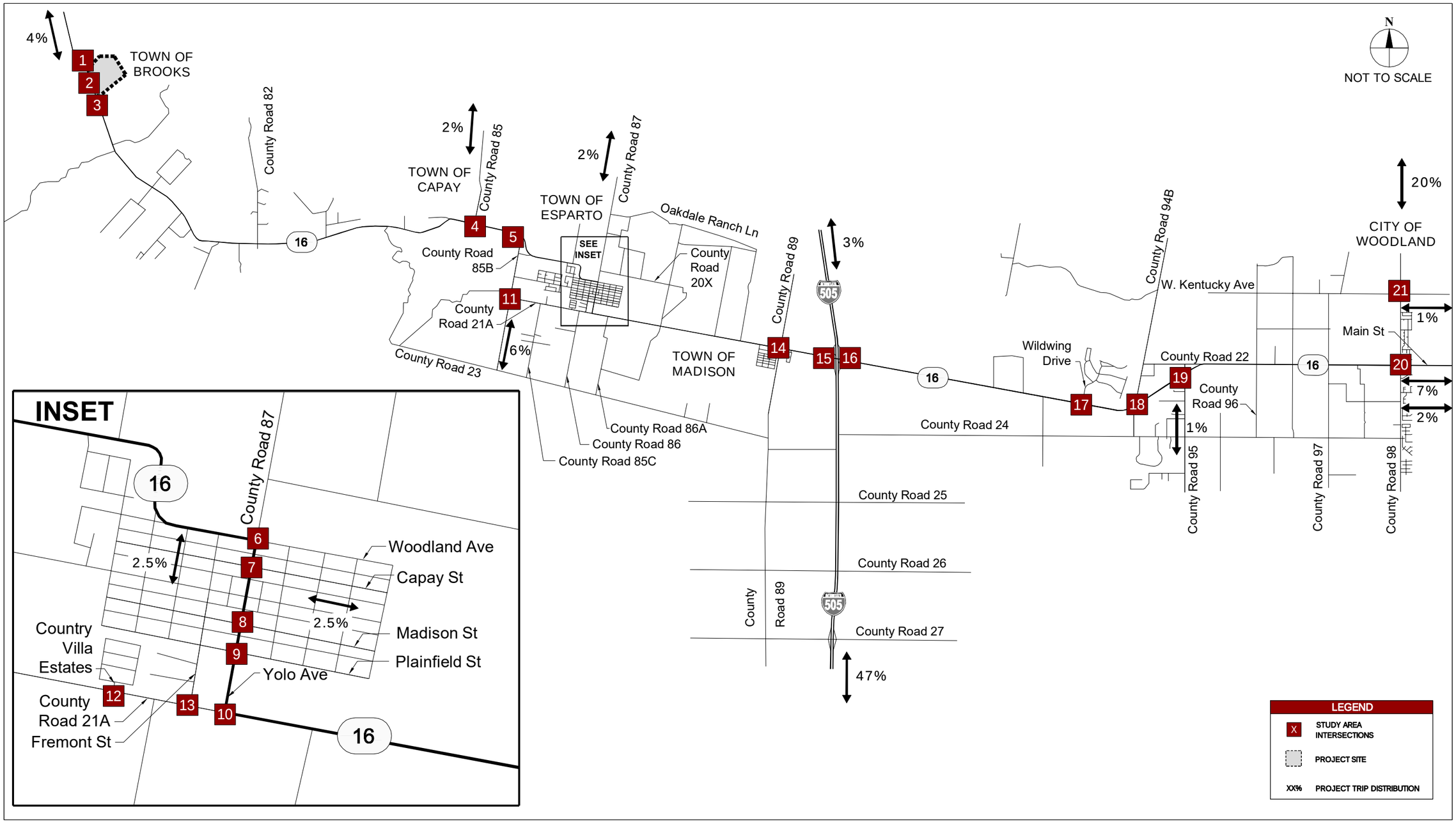

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FIGURE 13
PROJECT TRIP DISTRIBUTION

CACHE CREEK CASINO RESORT HOTEL EXPANSION PROJECT

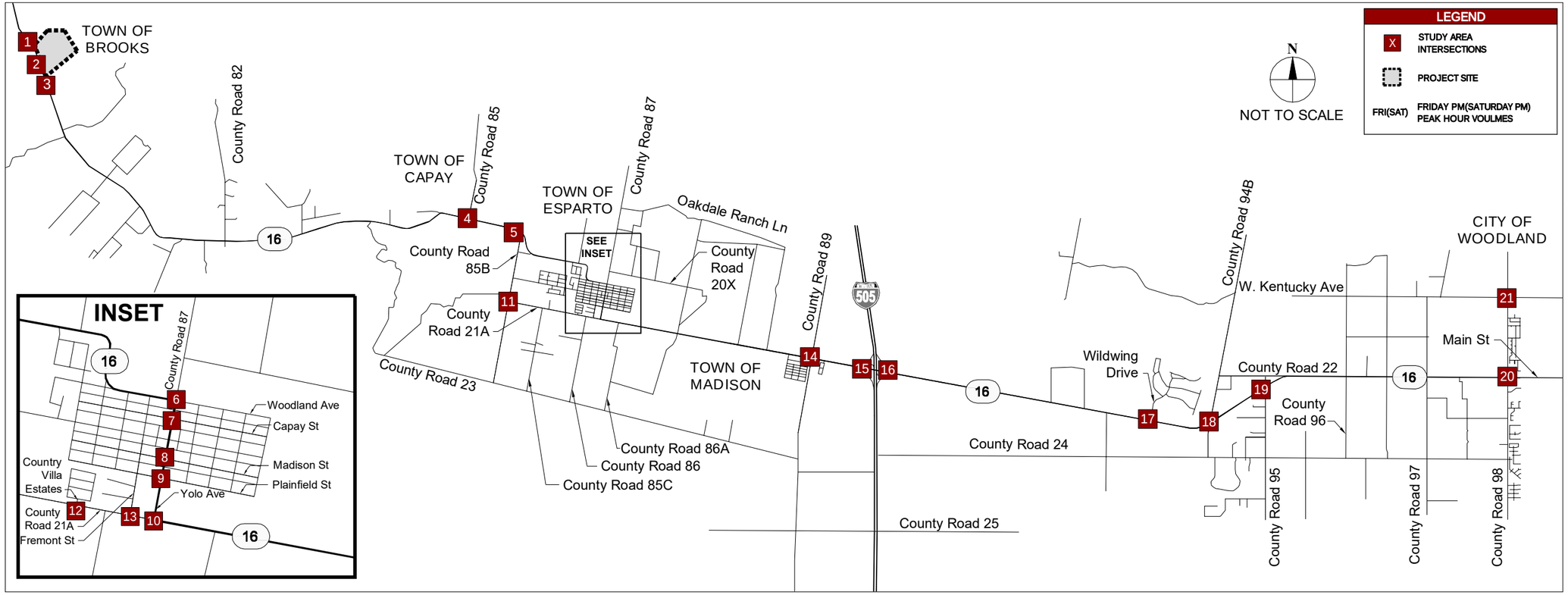

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FIGURE 14
PROJECT GENERATED PEAK HOUR TURNING MOVEMENT VOLUMES
CACHE CREEK CASINO RESORT HOTEL EXPANSION PROJECT

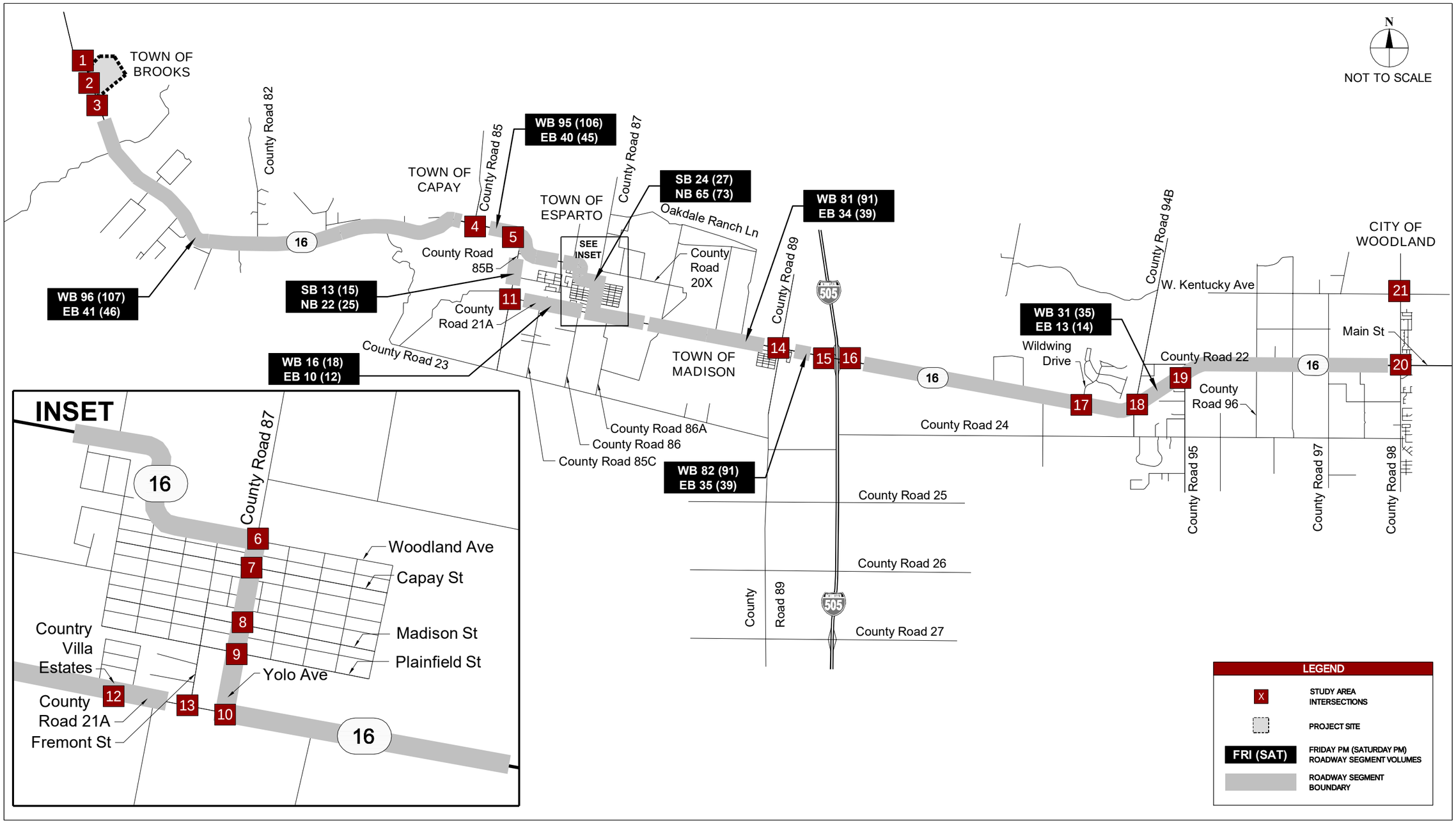

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FIGURE 15
PROJECT PEAK HOUR DIRECTIONAL ROADWAY SEGMENT TRAFFIC VOLUMES
CACHE CREEK CASINO RESORT HOTEL EXPANSION PROJECT

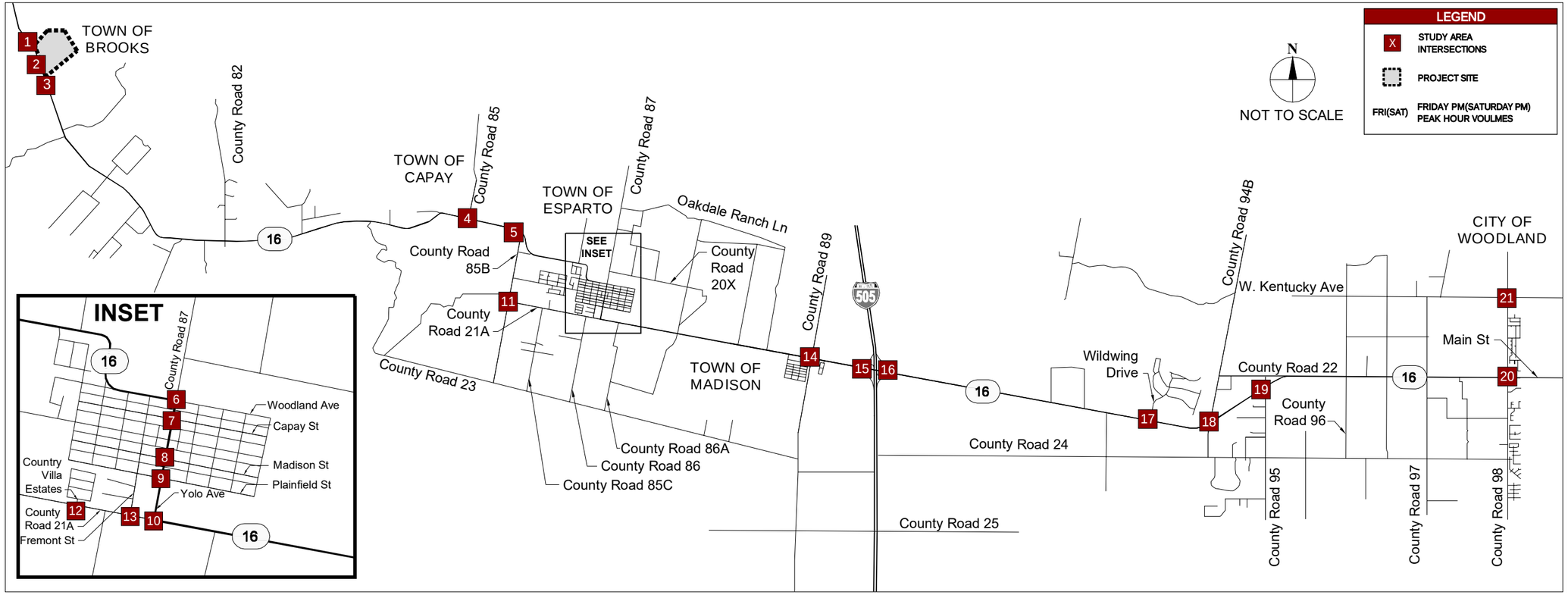

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FIGURE 16
NEAR-TERM 2019 PLUS PROJECT PEAK HOUR TURNING MOVEMENT VOLUMES

CACHE CREEK CASINO RESORT HOTEL EXPANSION PROJECT

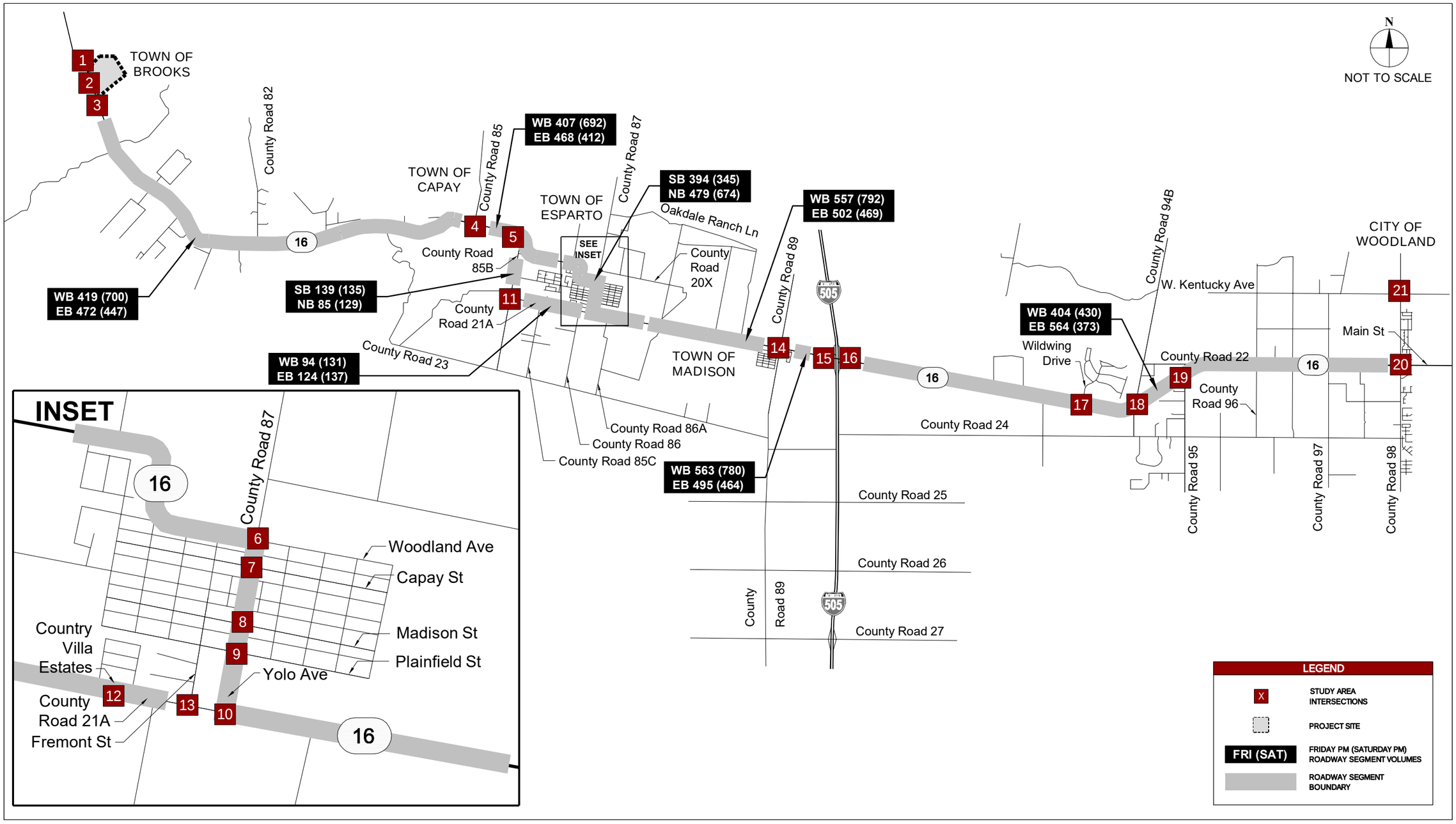

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FIGURE 17
NEAR-TERM 2019 PLUS PROJECT DIRECTIONAL ROADWAY SEGMENT TRAFFIC VOLUMES
CACHE CREEK CASINO RESORT HOTEL EXPANSION PROJECT

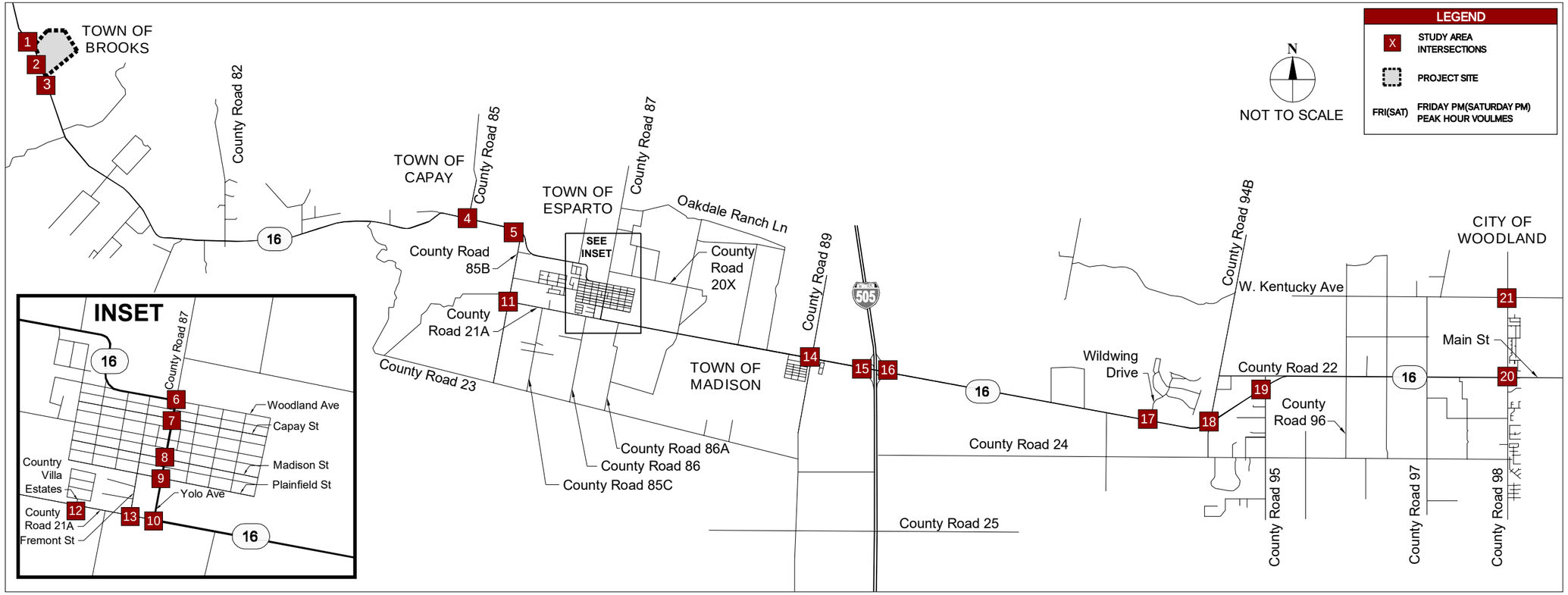

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FIGURE 18
LONG-TERM 2035 PLUS PROJECT PEAK HOUR TURNING MOVEMENT VOLUMES
CACHE CREEK CASINO RESORT HOTEL EXPANSION PROJECT

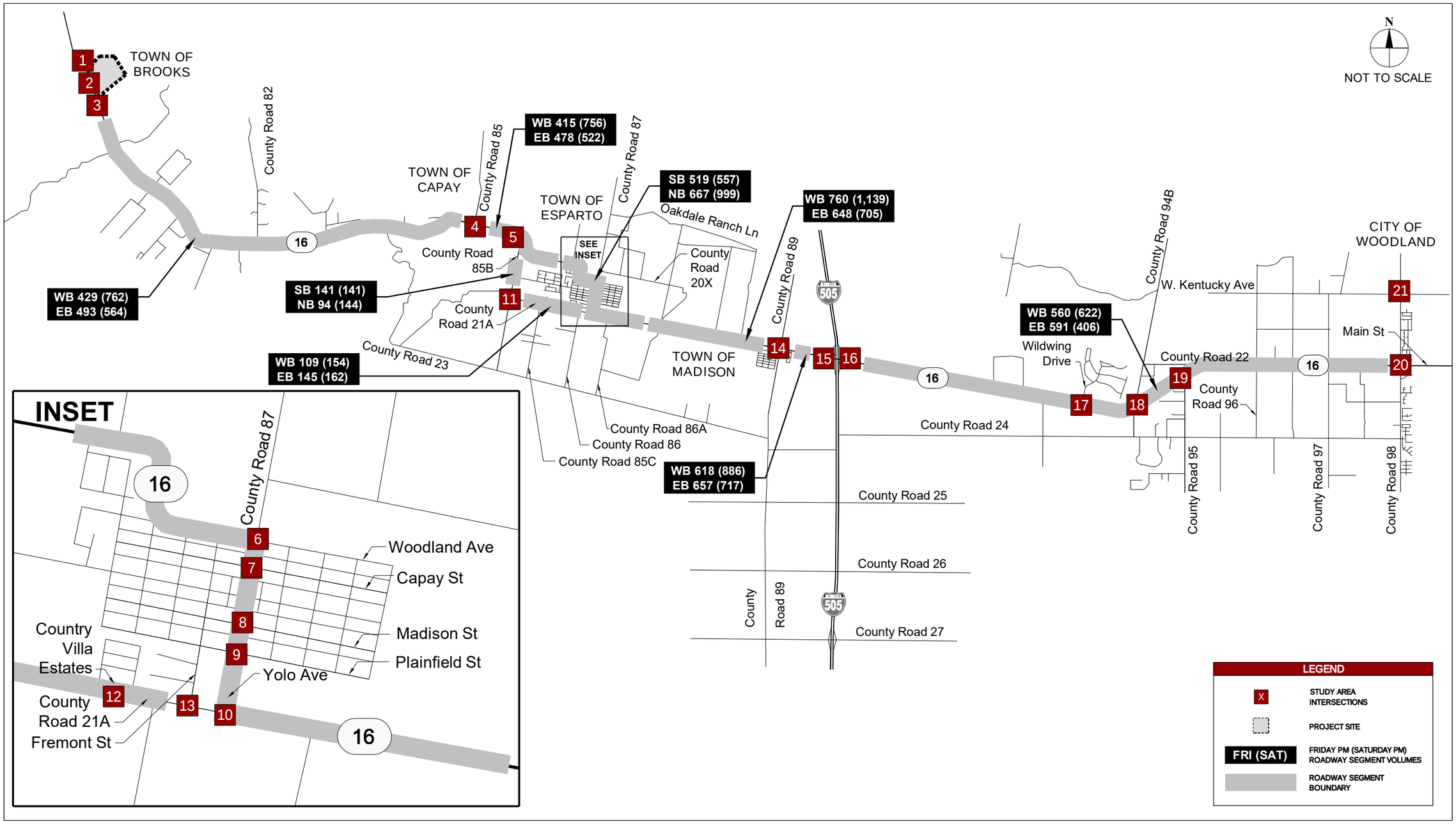

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FIGURE 19
LONG-TERM 2035 PLUS PROJECT DIRECTIONAL ROADWAY SEGMENT TRAFFIC VOLUMES
CACHE CREEK CASINO RESORT HOTEL EXPANSION PROJECT

PROJECT ALTERNATIVE – CACHE CREEK HOTEL EXPANSION

The Project Alternative includes a hotel expansion that would add 399 rooms to the site, as well as ancillary uses including a hotel lobby bar/lounge. The expansion also includes 178 net new restaurant seats and a new ballroom facility that would increase entertainment seating capacity by 596 seats. The proposed ballroom for Cache Creek would only be open when the existing Club 88 ballroom is closed. Therefore, the net increase of 596 seats correctly represents the plus Project Alternative scenario.

Site Access

The site access for the Project Alternative is the same as the Project. The main access points to the Project are located on SR-16. The north access at Winners Way operates as a full-movement driveway with no turn limitations. The central driveway operates as an ingress-only driveway with a southbound left-turn prohibition. The south driveway also has a southbound left-turn prohibition but allows all other movements. Only the Winners Way access is signalized.

Project Alternative Scenarios

The following scenarios will be evaluated with the Project Alternative:

- **Near-Term Plus Project Alternative** – This near-term scenario includes trips associated with the Project Alternative. New off-reservation traffic follows current patterns with most traffic continuing to travel on SR-16 downtown through Esparto.
- **Long-Term Plus Project Alternative** – This long-term scenario includes trips associated with the Project Alternative. New off-reservation traffic follows current patterns with most traffic continuing to travel on SR-16 downtown through Esparto.

Project Alternative Trip Generation

The Project Alternative will have a decrease in number of hotel rooms, but will keep the same number of restaurant and ballroom seats as the Project scenario. The Project Alternative trip generation estimated trips using the same assumption and methodology as the Project trip generation.

Trip generation estimates for Project Alternative are summarized in **Table 17**. As reflected, the Project Alternative is conservatively estimated to result in 135 new weekday (Friday) peak-hour and 150 new Saturday peak-hour trips.

Table 17 – Project Alternative Trip Generation

Land Use	ITE Code	Quantity	Unit	Weekday PM Peak Hour			Saturday Peak Hour		
				In	Out	Total	In	Out	Total
Quality Restaurant	931	178	# Seats	8	4	12	9	6	15
Ballroom		596	# New Seats	58	6	64	58	6	64
Proposed Hotel	310	399	# Rooms	31	29	60	40	32	72
Net New Vehicle Trips:				97	38	**135**	107	43	**150**

Notes:

- Land use accounts for the net number of new restaurant seats associated with the Proposed Project Alternative. Trip rates for Quality Restaurant based on ITE *Trip Generation Manual*, *9th Edition.* Trip generation rate reduced by 75% to account for internal capture to/from casino.

- Trip rates for Hotel based on ITE *Trip Generation Manual*, *9th Edition.* Trip generation rate reduced by 75% to account for internal capture to/from casino.

Project Alternative Trip Distribution and Assignment

The same trip distribution as the Project scenario was used, as shown in **Figure 13. Figure 20** illustrates Project Alternative off-reservation traffic assigned to the study intersections, based on the assumed trip distribution. **Figure 21** illustrates the Project Alternative off-reservation traffic assigned to the study roadway segments.

Near-Term Plus Project Alternative Off-Reservation Traffic Volumes

Near-Term (2019) off-reservation traffic volumes were combined with vehicle trips expected to be generated by the Project Alternative. **Figure 22** illustrates the Near-Term Plus Project Alternative off-reservation turning movement volumes at the study intersections. **Figure 23** illustrates the Near-Term Plus Project Alternative directional roadway segment off-reservation traffic volumes.

Long-Term Plus Project Alternative Off-Reservation Traffic Volumes

Long-Term (2035) off-reservation traffic volumes were combined with vehicle trips expected to be generated by the Project Alternative. **Figure 24** illustrates the Long-Term Plus Project Alternative off-reservation turning movement volumes at the study intersections. **Figure 25** illustrates the Long-Term Plus Project Alternative directional roadway segment off-reservation traffic volumes.

Project Alternative Off-Reservation LOS Conditions and Impacts at Intersections

Off-reservation traffic operations were evaluated under the following development conditions:

- Near-Term (2019) conditions plus Project Alternative
- Long-Term (2035) conditions plus Project Alternative

Off-reservation study intersections currently operating below the County standard are considered to be potentially significantly impacted if the average delay per vehicle increases as a result of the Project Alternative.

Results of the analysis are presented in **Table 18**. (Results shown as bold in the table do not meet operational standards and significant project impacts are highlighted.) Additional detail is provided in the **Appendix**.

As shown in the results, all off-reservation study intersections would meet the acceptable level of service thresholds based on established significance criteria and with the addition of Project Alternative-related traffic in the Near-Term (2019) scenario.

Only one (1) off-reservation intersection would fail to meet acceptable level of service thresholds in the Long-term (2035) scenario based on established significance criteria and with the addition of Project Alternative-related traffic creates a potentially significant impact.

2035 Intersection Operating Deficiently

- #18 – SR-16/CR-94B

Table 18 – Project Alternative Intersection Level of Service Summary

	Intersection	Intersection Control	Criteria	Near-Term (2019)				Near-Term (2019) + Project Alternative				Long-Term (2035)				Long-Term (2035) + Project Alternative			
				Friday PM Peak		Saturday PM Peak		Friday PM Peak		Saturday PM Peak		Friday PM Peak		Saturday PM Peak		Friday PM Peak		Saturday PM Peak	
				LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1	SR-16/ North Casino Entrance	Signal	D	B	11.3	A	6.9	B	10.2	A	6.5	B	11.9	A	9.0	B	10.8	A	8.5
2	SR-16/ Central Casino Entrance	Uncontrolled	D	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0
3	SR-16/ South Casino Entrance	TWSC	D	C	16.8	C	20.1	C	20.3	D	25.2	C	17.3	D	26.1	C	21.0	D	34.6
4	SR-16/ County Road 85	TWSC	D	B	11.5	C	15.5	B	12.5	C	17.4	B	13.0	C	21.4	B	14.3	C	25.0
5	SR-16/ County Road 85B	TWSC	D	A	9.3	B	13.6	B	10.2	C	16.4	A	9.3	C	16.6	B	10.3	C	24.7
6	SR-16/ Woodland Avenue	AWSC	E	A	4.4	A	3.9	A	4.3	A	3.9	A	4.5	A	5.8	A	5.4	A	6.6
7	SR-16/ Capay Street	TWSC	E	C	15.1	C	17.9	C	16.6	C	19.2	C	17.4	D	25.5	C	19.4	D	28.8
8	SR-16/ Madison Street	TWSC	E	C	16.0	B	12.1	C	17.5	B	13.7	C	17.0	C	22.9	C	18.7	D	25.3
9	SR-16/ Plainfield Street	TWSC	E	C	17.1	C	19.9	C	18.9	C	22.4	C	20.3	D	31.9	C	22.9	E	37.3
10	SR-16/ County Road 21A	AWSC	D	B	11.6	B	11.1	B	12.3	B	11.9	C	16.7	C	23.6	C	18.8	D	28.8
11	County Road 85B/ County Road 21A	TWSC	C	A	9.3	A	8.9	A	9.3	A	9.1	A	9.3	A	9.0	A	9.3	A	9.2
12	Country Villa Estates/ County Road 21A	TWSC	C	A	9.8	A	9.9	B	10.0	B	10.1	A	9.9	A	10.0	B	10.1	B	10.2
13	Fremont Street/ County Road 21A	TWSC	C	A	9.7	A	9.9	A	9.9	B	10.2	A	9.8	B	10.1	A	10.0	B	10.3
14	SR-16/ County Road 89	Roundabout	D	A	6.7	A	6.9	A	7.4	A	7.8	A	7.4	A	8.4	A	8.3	A	9.6
15	SR-16/ I-505 SB Ramps	TWSC	D	B	15.0	C	17.3	C	16.2	C	18.9	C	20.2	D	27.2	C	22.4	D	30.5
16	SR-16/ I-505 NB Ramps	Signal	D	A	9.3	B	12.2	B	10.2	B	13.7	B	10.1	B	16.5	B	11.3	C	21.5
17	SR-16/ Wildwing Drive	TWSC	D	C	17.5	C	15.1	C	18.5	C	16.0	D	27.9	C	23.9	D	30.1	D	26.0
18	SR-16/ County Road 94B	TWSC	D	C	20.9	B	14.4	C	22.2	C	15.1	**F**	**253.9**	**F**	**59.9**	**F**	**306.6**	**F**	**72.5**
19	SR-16/ County Road 95	TWSC	D	C	18.8	C	16.4	C	19.7	C	17.2	C	24.4	C	20.7	D	25.6	C	21.8
20	SR-16/ County Road 98	Signal	D	C	25.5	C	24.7	C	25.6	C	24.9	C	25.7	C	24.6	C	25.9	C	24.8
21	SR-16/ W. Kentucky Avenue	Signal	D	B	19.4	B	19.2	B	19.2	B	18.7	C	20.2	B	19.0	C	20.0	B	18.7

Note: Locations operating unacceptably are bolded and significant project impacts are highlighted.

Project Alternative Traffic Signal Warrant Analysis

Near-Term Plus Project Alternative and Long-Term Plus Project Alternative off-reservation traffic volumes at unsignalized study intersections were compared against the peak-hour warrant in the *2014 California Manual on Uniform Traffic Control Devices (MUTCD)*.

Results of the analysis showed that the following off-reservation intersections would satisfy Traffic Signal Warrant #3 by year 2019 and 2035.

- #3 – SR-16/South Casino Entrance (2019 and 2035)
- #5 – SR-16/CR-85B (2019 and 2035)
- #6 – SR-16/Woodland Avenue (2019 and 2035)
- #10 – SR-16/CR-21A (2019 and 2035)
- #14 – SR-16/CR-89 (2019)
- #17 – SR-16/Wildwing Drive (2035)
- #18 – SR-16/CR-94B (2035)

It should be noted that these same intersections meet the Traffic Signal Warrant in the No Build scenarios as well. Other warrants such as for minimum vehicle volumes, interruption of continuous traffic, and traffic progression were not evaluated because they generally require higher traffic volumes to be satisfied. A copy of the analysis summary for Traffic Signal Warrant #3 is included in the **Appendix**.

Project Alternative Off-Reservation LOS Conditions and Impacts on Roadway Segments

Project trips generated by the Project Alternative were added to the year 2019 and 2035 forecast off-reservation roadway segment volumes.

Traffic analyses were completed to evaluate the operation of the study roadway segments in the year 2019 and 2035, with the addition of the Project Alternative.

Results of the Near-Term Plus Project Alternative analysis are presented in **Table 19**. (Results shown as bold in the table do not meet operational standards and significant Project impacts are highlighted.)

Results of the Long-Term Plus Project Alternative analysis are presented in **Table 20**. (Results shown as bold in the table do not meet operational standards and significant Project impacts are highlighted.)

Table 19 – Project Alternative Near-Term Roadway Segment Level of Service Summary

#	Roadway Segment	Highway Class	LOS Criteria	Near-term (2019) Plus Project Alterenative											
				Friday PM Peak						Saturday PM Peak					
				Northbound/Westbound			Southbound/Eastbound			Northbound/Westbound			Southbound/Eastbound		
				LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)
1	SR-16 between Cache Creek Casino and CR-85	I	D	D	69.6	40.7	D	73.6	40.4	**E**	**81.4**	**38.9**	**E**	**66.8**	**39.8**
2	SR-16 between CR-85 and Esparto Town Limits	II	D	C	65.4	-	D	70.3	-	D	81.7	-	C	62.4	-
3	SR-16 through the Town of Esparto	II	E	D	72.4	-	C	64.4	-	D	81.9	-	C	56.4	-
4	SR-16 between Esparto Town limits and CR-89	I	D	D	76.9	41	D	73.1	41.3	**E**	**85.5**	**39.9**	D	65.3	41.2
5	SR-16 between CR-89 and I-505	I	D	D	78.5	40.2	D	73.8	40.5	**E**	**85.1**	**39.9**	D	65.5	40.9
6	SR-16 between I-505 and CR-98	I	D	**E**	**64.7**	**33**	**E**	**78.8**	**32.3**	**E**	**69.8**	**33.7**	**E**	**64.7**	**34**
7	County Road 21A between CR-85B and SR-16	II	C	A	28.5	-	A	37	-	A	36.6	-	A	37.9	-
8	County Road 85B between SR-16 and CR-21A	II	C	A	31.9	-	B	50.7	-	B	44.5	-	B	46.5	-

Table 20 – Project Alternative Long-Term Roadway Segment Level of Service Summary

#	Roadway Segment	Highway Class	LOS Criteria	Long-term (2035) Plus Project Alternative											
				Friday PM Peak						Saturday PM Peak					
				Northbound/Westbound			Southbound/Eastbound			Northbound/Westbound			Southbound/Eastbound		
				LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)
1	SR-16 between Cache Creek Casino and CR-85	I	D	D	69.8	40.5	D	75	40.2	**E**	**83**	**38.1**	**E**	**73**	**38.7**
2	SR-16 between CR-85 and Esparto Town Limits	II	D	C	65.2	-	D	71.7	-	D	83.8	-	C	69.6	-
3	SR-16 through the Town of Esparto	II	E	D	81.3	-	D	71	-	E	89.6	-	D	71.1	-
4	SR-16 between Esparto Town limits and CR-89	I	D	**E**	**84.4**	**38.5**	**E**	**79.2**	**39.1**	**E**	**91.8**	**35.9**	**E**	**79.1**	**36.5**
5	SR-16 between CR-89 and I-505	I	D	**E**	**80.1**	**38.7**	**E**	**83**	**38.6**	**E**	**86.6**	**37.7**	**E**	**79.8**	**38**
6	SR-16 between I-505 and CR-98	I	D	**E**	**76**	**31.6**	**E**	**78.1**	**31**	**E**	**80.2**	**32.2**	**E**	**62.7**	**33**
7	County Road 21A between CR-85B and SR-16	II	C	A	31.2	-	B	40.3	-	B	40.6	-	B	42.3	-
8	County Road 85B between SR-16 and CR-21A	II	C	A	34.3	-	B	50.8	-	B	48.1	-	B	47	-

Note: Locations operating unacceptably are **bolded** and significant impacts are highlighted in yellow.

Project Alternative traffic would add to the background congestion on the off-reservation roadway segments. In the Near-Term Plus Project Alternative condition, the following off-reservation segments operate at unacceptable levels of service with the addition of the Project Alternative:

- SR-16 (WB and EB) between CCCR and CR-85 (Saturday PM Peak)
- SR-16 (WB) between the Esparto Town Limits and CR-89 (Saturday PM Peak)
- SR-16 (WB) between CR-89 and I-505 (Saturday PM Peak)
- SR-16 (WB and EB) between I-505 and CR-98 (Friday and Saturday PM Peaks)

In the Long-Term Plus Project Alternative condition, the following off-reservation segments operate at unacceptable levels of service with the addition of the Project Alternative:

- SR-16 (WB and EB) between CCCR and CR-85 (Saturday PM Peak)
- SR-16 (WB and EB) between the Esparto Town Limits and CR-89 (Friday and Saturday PM Peaks)
- SR-16 (WB and EB) between CR-89 and I-505 (Friday and Saturday PM Peaks)
- SR-16 (WB and EB) between I-505 and CR-98 (Friday and Saturday PM Peaks)

Project Alternative Mitigations

The evaluation disclosed that the following off-reservation intersection and roadway segment improvements as shown in **Table 21** are needed in the Near-Term (2019) and Long-Term (2035) to mitigate Project impacts and are described below. **Table 21** also shows the Project's fair share responsibility of the mitigation costs. The fair share percentage follows the Caltrans methodology for calculating equitable mitigation measures as outlined in the Caltrans *Guide for the Preparation of Traffic Impact Studies*[20]. This is calculated by taking the project trips and dividing it by the difference between the long-term volumes and the near-term volumes.

Off-Reservation Intersections

Off-reservation intersections with levels of service below established thresholds were investigated to determine the role of the Project Alternative traffic in the projected operating conditions at those intersections.

Alternative Impact #1 – Long-Term (2035): SR-16/CR-94B – Intersection #18

The SR-16/CR-94B intersection will operate at LOS F on the side street approach during the Friday PM and Saturday PM peak hours under the Long-Term traffic condition without Project Alternative and would experience an increase in delay due to the Project Alternative. Since the Project Alternative traffic results in an increase in delay at an intersection which operates at unacceptable service levels without Project Alternative, this is a significant impact.

[20] *Guide for the Preparation of Traffic Impact Studies*, Caltrans, December 2002.

Table 21 – Project Alternative Summary of Mitigations

Mitigation #	Location	Impacted Scenario	Jurisdiction	Mitigation	Proportionate Share	Fair Share
Alt #1	#18 - SR-16/CR 94B	Long-Term (2035) + Project Alternative	Caltrans	A refuge lane shall be installed along SR-16 for northbound left turn users and southbound left turn users.	13%	13%
Alt #2	SR-16 between Cache Creek Casino and CR 85	Near-Term (2019) + Project Alternative	Caltrans	Add a slow-vehicle turnout in each direction along SR-16 between CCCR and CR-85.	91%	TBD in consultation w/ Caltrans
Alt #3	SR-16 between Esparto Town limits and CR 89	Near-Term (2019) + Project Alternative	Caltrans	Add a slow-vehicle turnout in the WB direction along SR-16 between the Esparto Town Limits and CR-89.	28%	TBD in consultation w/ Caltrans
Alt #4	SR-16 between CR 89 and I-505	Near-Term (2019) + Project Alternative	Caltrans	Add a slow-vehicle turnout in the WB direction along SR-16 between CR-89 and the I-505 ramps.	59%	TBD in consultation w/ Caltrans
Alt #5	SR-16 between I-505 and CR 98	Near-Term (2019) + Project Alternative	Caltrans	Add a slow-vehicle turnout in each direction along SR-16 between the I-505 ramps and CR-98.	28%	TBD in consultation w/ Caltrans
Alt #6	SR-16 between Cache Creek Casino and CR 85	Long-Term (2035) + Project Alternative	Caltrans	Implement Alternative Mitigation #2.	91%	TBD in consultation w/ Caltrans
Alt #7	SR-16 between Esparto Town limits and CR 89	Long-Term (2035) + Project Alternative	Caltrans	Add a slow-vehicle turnout in each direction along SR-16 between the Esparto Town Limits and CR-89.	28%	TBD in consultation w/ Caltrans
Alt #8	SR-16 between CR 89 and I-505	Long-Term (2035) + Project Alternative	Caltrans	Add a slow-vehicle turnout in each direction along SR-16 between CR-89 and the I-505 ramps.	59%	TBD in consultation w/ Caltrans
Alt #9	SR-16 between I-505 and CR 98	Long-Term (2035) + Project Alternative	Caltrans	Implement Alternative Mitigation #5.	28%	TBD in consultation w/ Caltrans

Alternative Mitigation #1

To mitigate the Project impacts expected to occur in the Long-Term, a refuge lane along SR-16 for northbound left turn users and southbound left turn users should be installed (same as Mitigation #1). This improvement would create a receiving lane for the side-street approach traffic to use, thereby reducing the delay to cross SR-16. Because the Project does not trigger the impact but adds to the unacceptable operation, the Project would be responsible for a proportionate share of the mitigation costs if and when the impact occurs. Modifying the intersection as proposed in this mitigation would reduce the impact to less than significant and improve the intersection to an acceptable LOS D and LOS C on the side street during the Friday PM and Saturday PM peak hours, respectively (see **Table 22**).

Table 22 summarizes the expected intersection levels of service with the identified mitigations in the Long-Term Plus Project Alternative conditions.

Table 22 – Long-Term Plus Project Alternative Mitigated Intersection Level of Service Summary

	Intersection	Intersection Control	Criteria	Long-Term (2035)				Long-Term (2035) + Project Alternative				Long-Term (2035) + Project Alternative (Mitigated)			
				Friday PM Peak		Saturday PM Peak		Friday PM Peak		Saturday PM Peak		Friday PM Peak		Saturday PM Peak	
				LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1	SR-16/ North Casino Entrance	Signal	D	B	11.9	A	9.0	B	10.8	A	8.5				
2	SR-16/ Central Casino Entrance	Uncontrolled	D	A	0.0	A	0.0	A	0.0	A	0.0				
3	SR-16/ South Casino Entrance	TWSC	D	C	17.3	D	26.1	C	21.0	D	34.6				
4	SR-16/ County Road 85	TWSC	D	B	13.0	C	21.4	B	14.3	C	25.0				
5	SR-16/ County Road 85B	TWSC	D	A	9.3	C	16.6	B	10.3	C	24.7				
6	SR-16/ Woodland Avenue	AWSC	E	A	4.5	A	5.8	A	5.4	A	6.6				
7	SR-16/ Capay Street	TWSC	E	C	17.4	D	25.5	C	19.4	D	28.8				
8	SR-16/ Madison Street	TWSC	E	C	17.0	C	22.9	C	18.7	D	25.3				
9	SR-16/ Plainfield Street	TWSC	E	C	20.3	D	31.9	C	22.9	E	37.3				
10	SR-16/ County Road 21A	AWSC	D	C	16.7	C	23.6	C	18.8	D	28.8				
11	County Road 85B/ County Road 21A	TWSC	C	A	9.3	A	9.0	A	9.3	A	9.2				
12	Country Villa Estates/ County Road 21A	TWSC	C	A	9.9	A	10.0	B	10.1	B	10.2				
13	Fremont Street/ County Road 21A	TWSC	C	A	9.8	B	10.1	A	10.0	B	10.3				
14	SR-16/ County Road 89	Roundabout	D	A	7.4	A	8.4	A	8.3	A	9.6				
15	SR-16/ I-505 SB Ramps	TWSC	D	C	20.2	D	27.2	C	22.4	D	30.5				
16	SR-16/ I-505 NB Ramps	Signal	D	B	10.1	B	16.5	B	11.3	C	21.5				
17	SR-16/ Wildwing Drive	TWSC	D	D	27.9	C	23.9	D	30.1	D	26.0				
18	SR-16/ County Road 94B	TWSC	D	**F**	**253.9**	**F**	**59.9**	**F**	**306.6**	**F**	**72.5**	D	34.1	C	22.2
19	SR-16/ County Road 95	TWSC	D	C	24.4	C	20.7	D	25.6	C	21.8				
20	SR-16/ County Road 98	Signal	D	C	25.7	C	24.6	C	25.9	C	24.8				
21	SR-16/ W. Kentucky Avenue	Signal	D	C	20.2	B	19.0	C	20.0	B	18.7				

Note: Locations operating unacceptably are bolded and significant project impacts are highlighted.

Off-Reservation Roadway Segments

Off-reservation roadway segments with levels of service below established thresholds were investigated to determine the role of the Project Alternative traffic in the projected operating conditions at those roadway segments.

Alternative Impact #2 – Near-Term (2019): SR-16 between CCCR and CR-85

The roadway segment of eastbound SR-16 between CCCR and CR-85 will operate at an acceptable LOS D during the Saturday PM peak hour under the Near-Term traffic condition without Project Alternative, and would degrade to LOS E with the addition of the Project Alternative. Since the Project Alternative traffic results in an unacceptable level of service on this roadway segment, this is a significant impact.

The westbound direction of SR-16 between CCCR and CR-85 will operate at LOS E during the Saturday PM peak hours under the Near-Term traffic condition without Project Alternative and would experience an increase in the percent time spent following and a decrease in average travel speed with the addition of the Project Alternative.

Alternative Mitigation #2

To mitigate the Project Alternative impacts expected to occur in the Near-Term, a slow vehicle turnout shall be installed in each direction on SR-16 between CCCR and CR-85 (same as Mitigation #2). The Project's percentage of the mitigation costs shall be determined in consultation with Caltrans.

Alternative Impact #3 – Near-Term (2019): SR-16 between Esparto Town limits and CR-89

The roadway segment of westbound SR-16 between the Esparto Town limits and CR-89 will operate at LOS E during the Saturday PM peak hour under the Near-Term traffic condition without Project Alternative, and would experience an increase in the percent time spent following and a decrease in average travel speed with the addition of the Project Alternative. Since the Project Alternative traffic results in an increase in percent time spent following on a roadway segment which operates at unacceptable service levels without Project Alternative, this is a significant impact.

Alternative Mitigation #3

To mitigate the Project Alternative impacts expected to occur in the Near-Term, a slow-vehicle turnout shall be installed in the westbound direction on SR-16 between the Esparto Town limits and CR-89 (same as Mitigation #3). The Project's percentage of the mitigation costs shall be determined in consultation with Caltrans.

Alternative Impact #4 – Near-Term (2019): SR-16 between CR-89 and I-505

The roadway segment of westbound SR-16 between CR-89 and I-505 will operate at LOS E during the Saturday PM peak hour under the Near-Term traffic condition without Project Alternative, and would experience an increase in the percent time spent following and a decrease in average travel speed with the addition of the Project

Alternative. Since the Project Alternative traffic results in an increase in percent time spent following on a roadway segment which operates at unacceptable service levels without Project Alternative, this is a significant impact.

Alternative Mitigation #4
To mitigate the Project Alternative impacts expected to occur in the Near-Term, a slow-vehicle turnout shall be installed in the westbound direction on SR-16 between CR-89 and the I-505 ramps (same as Mitigation #4). The Project's percentage of the mitigation costs shall be determined in consultation with Caltrans.

Alternative Impact #5 – Near-Term (2019): SR-16 between I-505 and CR-98
The roadway segment of SR-16 between I-505 and CR-98 will operate at LOS E during the Friday PM and Saturday PM peak hours under the Near-Term traffic condition without Project Alternative, and would experience an increase in the percent time spent following and a decrease in average travel speed with the addition of the Project Alternative. Since the Project Alternative traffic results in an increase in percent time spent following on a roadway segment which operates at unacceptable service levels without Project Alternative, this is a significant impact.

Alternative Mitigation #5
To mitigate the Project Alternative impacts expected to occur in the Near-Term, a slow-vehicle turnout shall be installed in both directions on SR-16 between CR-89 and the I-505 ramps (same as Mitigation #5). The Project's percentage of the mitigation costs shall be determined in consultation with Caltrans.

Alternative Impact #6 – Long-Term (2035): SR-16 between CCCR and CR-85
The roadway segment of SR-16 between CCCR and CR-85 will operate at an unacceptable LOS E in the Saturday PM peak hour under the Long-Term traffic condition without Project Alternative and would experience an increase in the percent time spent following and a decrease in average travel speed with the addition of the Project Alternative. Since the Project Alternative traffic results in an unacceptable level of service on this roadway segment, this is a significant impact.

Alternative Mitigation #6
To mitigate the Project Alternative impacts expected to occur in the Long-Term, Alternative Mitigation #2 shall be implemented. Alternative Mitigation #2 is to install a slow-vehicle turnout in each direction on SR-16 between CCCR and CR-85. The Project's percentage of the mitigation costs shall be determined in consultation with Caltrans.

Alternative Impact #7 – Long-Term (2035): SR-16 between Esparto Town limits and CR-89
The roadway segment of SR-16 between the Esparto Town limits and CR-89 will operate at LOS E during the Friday PM and Saturday PM peak hours under the Long-

Term traffic condition without Project Alternative, and would experience an increase in the percent time spent following and a decrease in average travel speed with the addition of the Project Alternative. Since the Project Alternative traffic results in an increase in percent time spent following on a roadway segment which operates at unacceptable service levels without Project Alternative, this is a significant impact.

Alternative Mitigation #7
To mitigate the Project Alternative impacts expected to occur in the Long-Term, a slow-vehicle turnout shall be installed in both directions on SR-16 between the Esparto Town limits and CR-89 (same as Mitigation #7). The Project's percentage of the mitigation costs shall be determined in consultation with Caltrans.

Alternative Impact #8 – Long-Term (2035): SR-16 between CR-89 and I-505
The roadway segment of SR-16 between CR-89 and I-505 will operate at LOS E during the Friday PM and Saturday PM peak hours under the Long-Term traffic condition without Project Alternative and would experience an increase in the percent time spent following and a decrease in average travel speed with the addition of the Project Alternative. Since the Project Alternative traffic results in an increase in percent time spent following on a roadway segment which operates at unacceptable service levels without Project Alternative, this is a significant impact.

Alternative Mitigation #8
To mitigate the Project Alternative impacts expected to occur in the Long-Term, a slow-vehicle turnout shall be installed in both directions on SR-16 between CR-89 and the I-505 ramps (same as Mitigation #8). The Project's percentage of the mitigation costs shall be determined in consultation with Caltrans.

Alternative Impact #9 – Long-Term (2035): SR-16 between I-505 and CR-98
The roadway segment of SR-16 between the I-505 and CR-98 will operate at LOS E during the Friday PM and Saturday PM peak hours under the Long-Term traffic condition without Project Alternative and would experience an increase in the percent time spent following and a decrease in average travel speed with the addition of the Project Alternative. Since the Project Alternative traffic results in an increase in percent time spent following on a roadway segment which operates at unacceptable service levels without Project Alternative, this is a significant impact.

Alternative Mitigation #9
To mitigate the Project Alternative impacts expected to occur in the Long-Term, Alternative Mitigation #5 shall be implemented. Alternative Mitigation #5 is to install a slow-vehicle turnout in each direction on SR-16 between the I-505 ramps and CR-98. The Project's percentage of the mitigation costs shall be determined in consultation with Caltrans.

Project Alternative's Potential Effects on Bicycle and Pedestrian Mobility

The Project Alternative's potential effects on bicycle and pedestrian mobility are the same as the Project's potential effects, which were stated previously to be less than significant.

Project Alternative's Potential Effects on Transit Mobility

The Project Alternative's potential effects on transit mobility are the same as the Project's potential effects, which were stated previously to be less than significant.

Project Alternative's Potential Effects on County Road Maintenance

The Project Alternative's potential effects on county road maintenance are the same as the Project's potential effects, which were stated previously to be less than significant.

Project Alternative's Potential Effects on Intersection Safety

The Project Alternative's potential effects on intersection safety are the same as the Project's potential effects, which were stated previously to be less than significant.

Project Alternative's Construction Traffic Impacts

The Project Alternative's potential effects on construction traffic impacts are the same as the Project's potential effects, which were stated previously to be less than significant.

The following mitigation is recommended in relation to construction traffic, and is listed in **Table 23**.

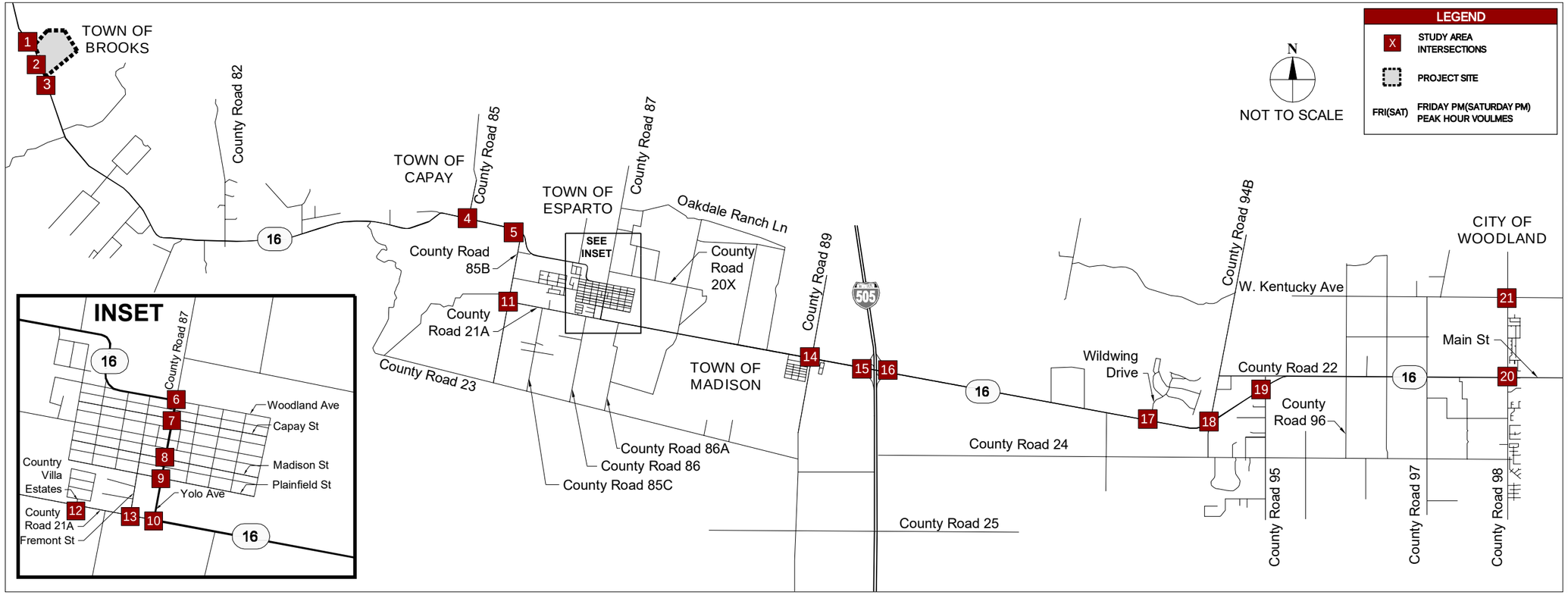
Alternative Impact #10: Construction Traffic
The worst-case construction traffic for the Project Alternative would occur for a period of time when truck traffic would generate a large number vehicle trip ends per day in addition to construction employee trips and heavy equipment delivery to the project site. The presence of large and slow-moving vehicles and construction equipment on SR-16 in the project vicinity would result in potential safety hazards to motorists.

> **Alternative Mitigation #10**
> Prior to commencing each phase of project development, the applicant shall prepare a traffic control plan for construction of that phase, and shall obtain approval from Caltrans for implementation of such a plan (same as Mitigation #10). The traffic control plan shall be prepared in accordance with Caltrans requirements, and shall include information about times of construction, haul

routes, delivery times for heavy equipment, and any other particulars as required by Caltrans. With the implementation of the traffic control plan, the impacts of project construction traffic would be reduced to less-than-significant levels.

Table 23 – Project Construction Traffic Summary of Mitigations

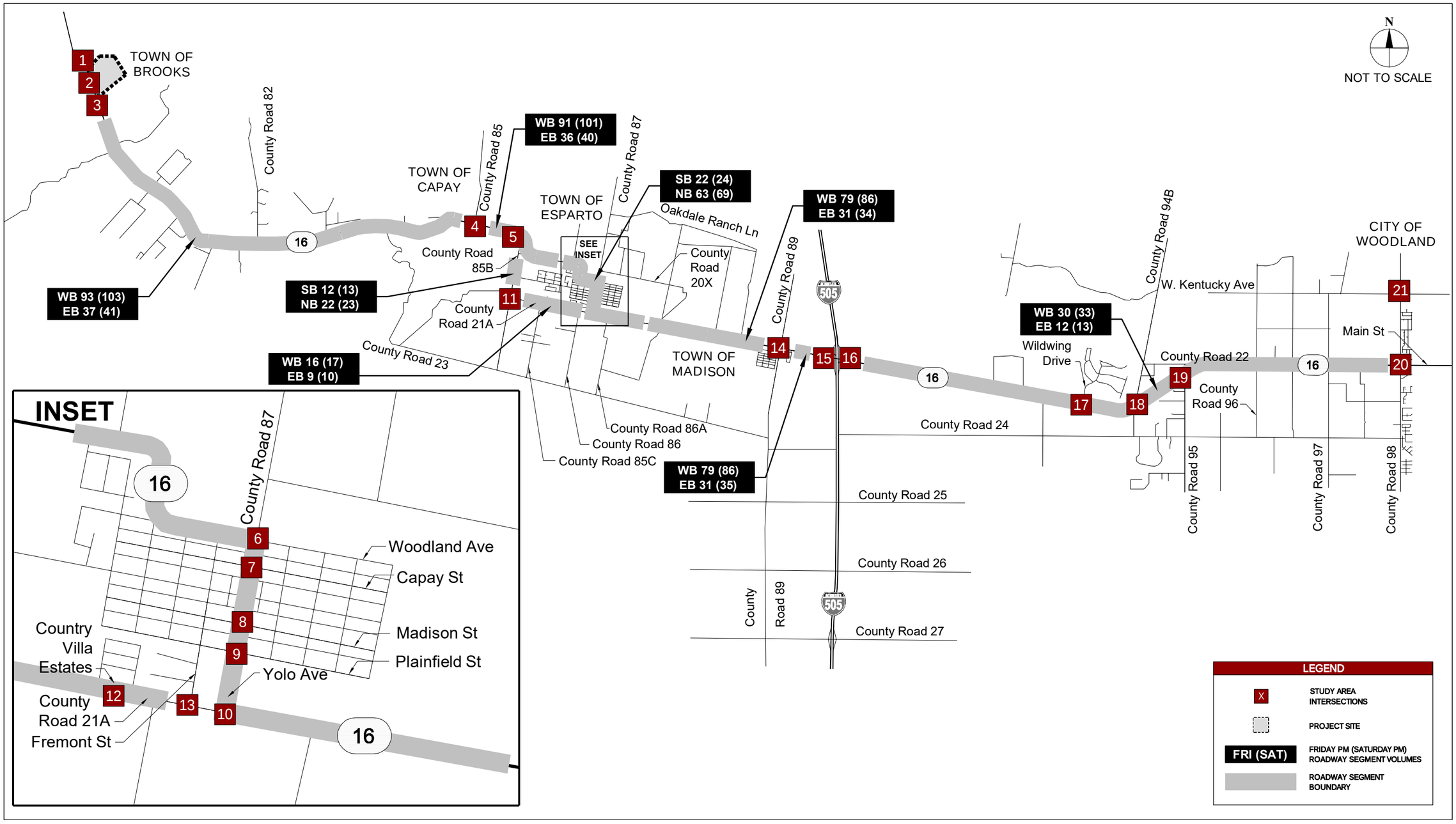
Mitigation #	Location	Impacted Scenario	Jurisdiction	Mitigation	Proportionate Share	Fair Share
Alt #10	Construction Traffic	Near-Term (2019) + Project	Caltrans	Prepare a traffic control plan	100%	100%



Kimley»Horn

FIGURE 20
PROJECT ALTERNATIVE GENERATED PEAK HOUR TURNING MOVEMENT VOLUMES
CACHE CREEK CASINO RESORT HOTEL EXPANSION PROJECT

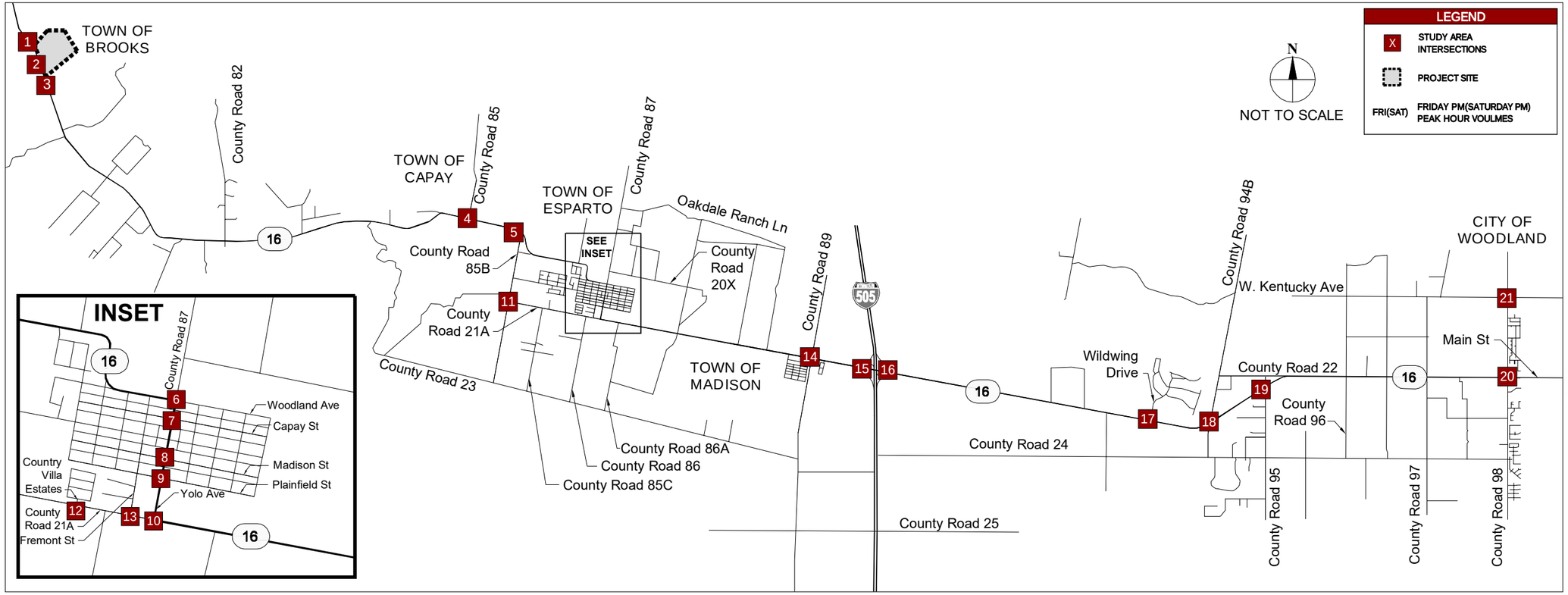
097360008 NOVEMBER 2016



Kimley»Horn

FIGURE 21
PROJECT ALTERNATIVE PEAK HOUR DIRECTIONAL ROADWAY SEGMENT TRAFFIC VOLUMES
CACHE CREEK CASINO RESORT HOTEL EXPANSION PROJECT

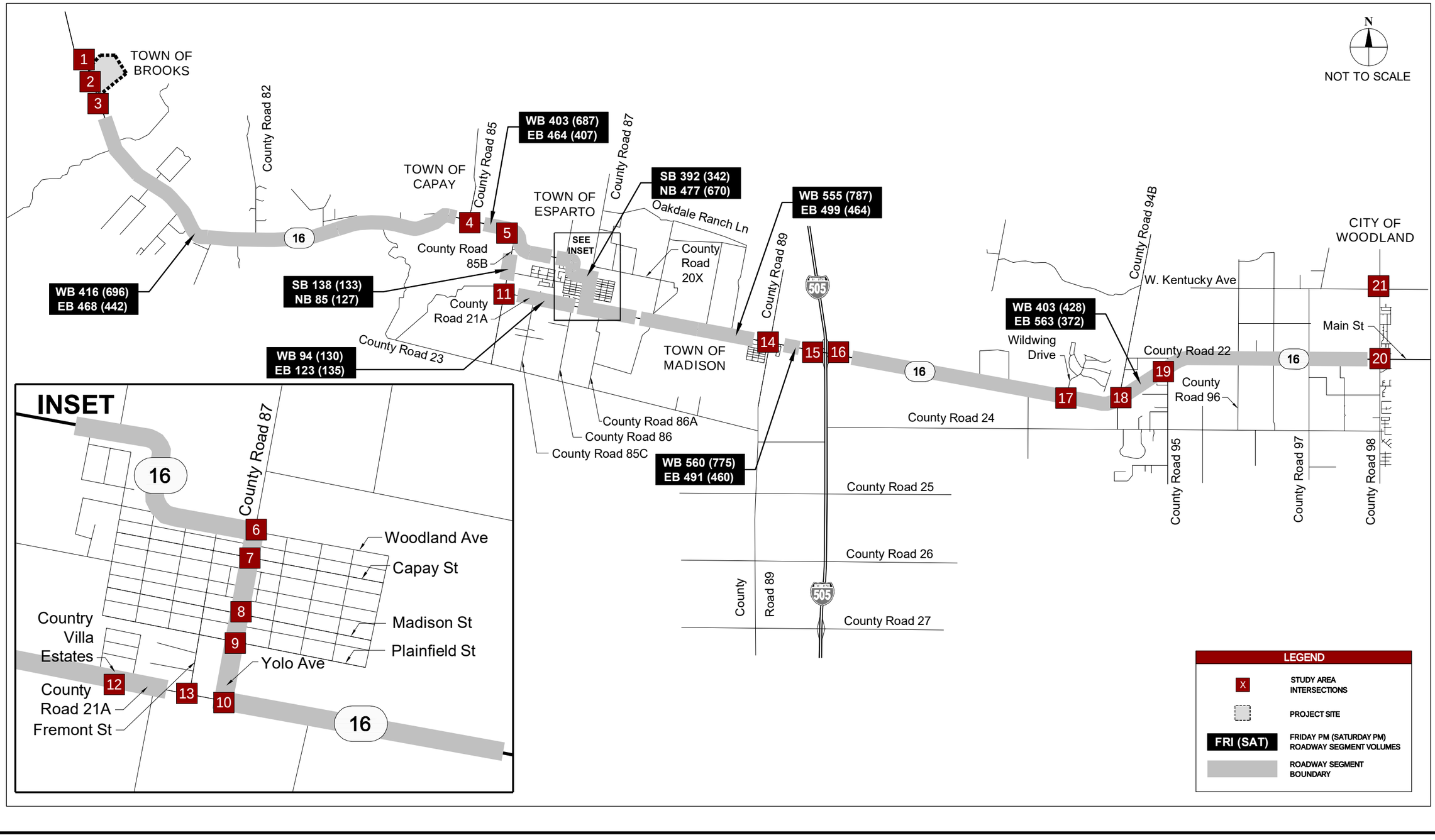
097360008 NOVEMBER 2016



Kimley»Horn

FIGURE 22
NEAR-TERM 2019 PLUS PROJECT ALTERNATIVE PEAK HOUR TURNING MOVEMENT VOLUMES
CACHE CREEK CASINO RESORT HOTEL EXPANSION PROJECT

097360008 NOVEMBER 2016



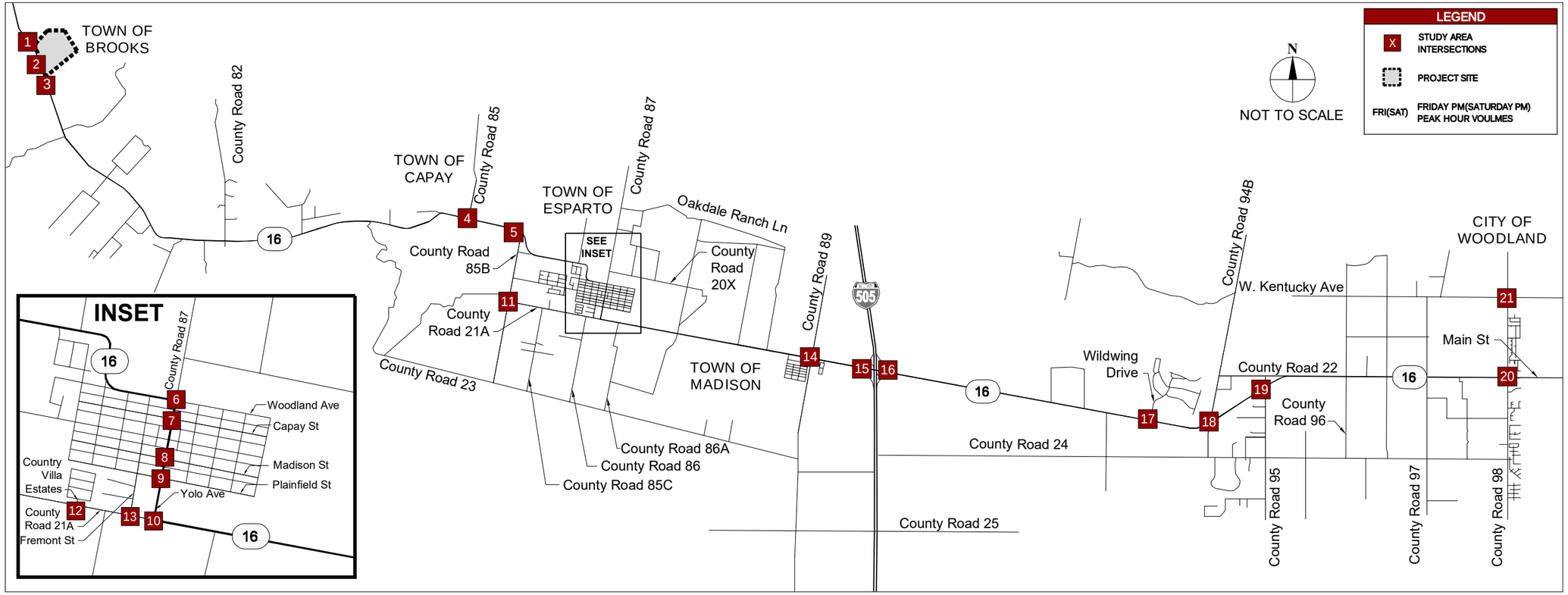
Kimley»Horn

FIGURE 23

NEAR-TERM 2019 PLUS PROJECT ALTERNATIVE DIRECTIONAL ROADWAY SEGMENT TRAFFIC VOLUMES

CACHE CREEK CASINO RESORT HOTEL EXPANSION PROJECT

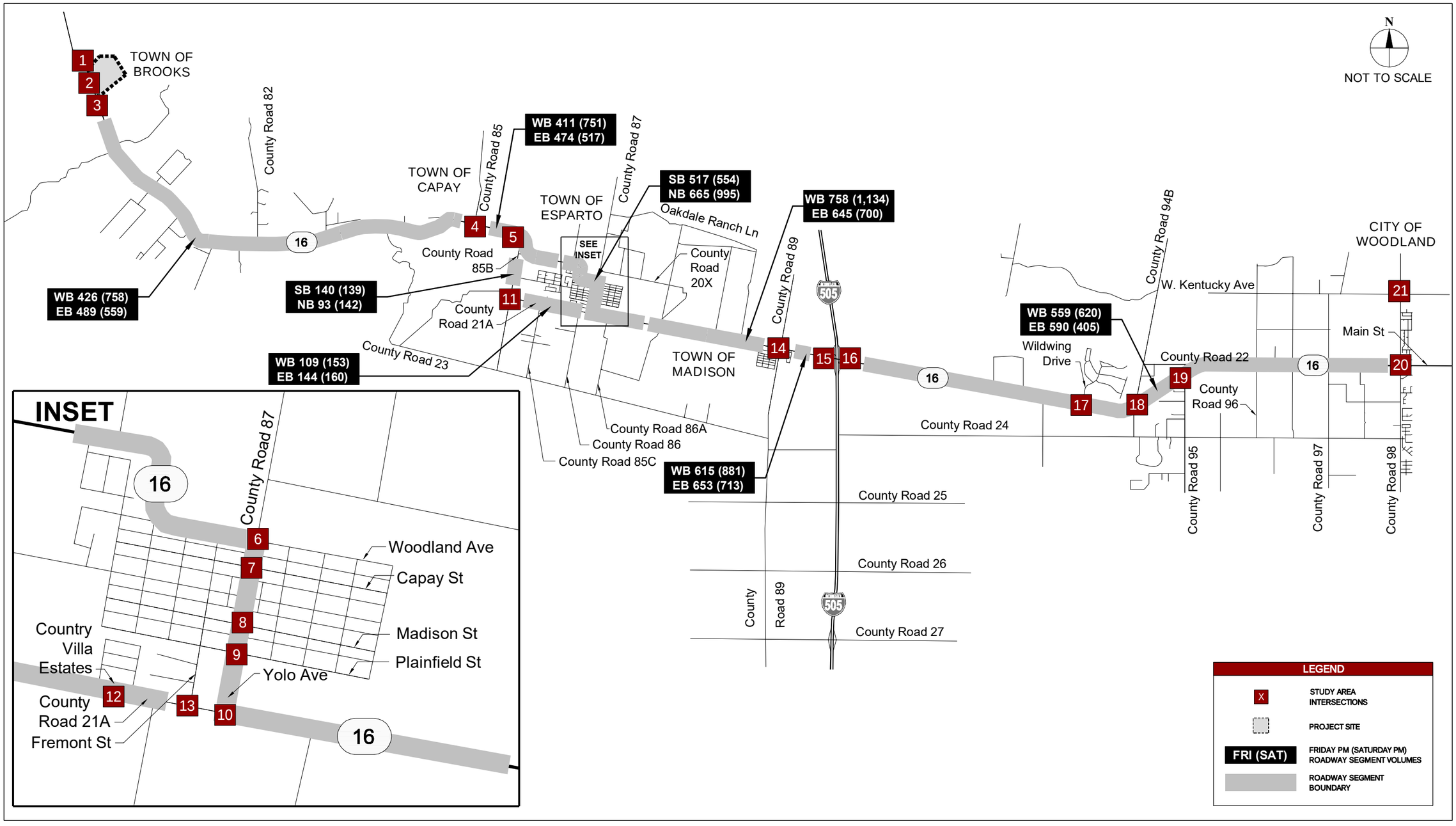
097360008 NOVEMBER 2016



Kimley»Horn

FIGURE 24
LONG-TERM 2035 PLUS PROJECT ALTERNATIVE PEAK HOUR TURNING MOVEMENT VOLUMES
CACHE CREEK CASINO RESORT HOTEL EXPANSION PROJECT

097360008 NOVEMBER 2016



Kimley»Horn

FIGURE 25

LONG-TERM 2035 PLUS PROJECT ALTERNATIVE DIRECTIONAL ROADWAY SEGMENT TRAFFIC VOLUMES

CACHE CREEK CASINO RESORT HOTEL EXPANSION PROJECT

097360008 NOVEMBER 2016

REFERENCES CONSULTED

- 2014 U.S. Census American Community Survey
- Cache Creek Destination Resort Project Traffic Impact Study, Abrams Associates, April 2008
- Caltrans Highway Design Manual, Topic 613 – Traffic Considerations, July 1, 2008
- Capay Valley General Plan, 2007
- Collision History provided by California Highway Patrol
- Draft Traffic Impact Study for Cache Creek Casino Expansion, Fehr and Peers, June 2008
- Draft Traffic Impact Study for Cache Creek Casino Resort Event Center Project, Kimley-Horn and Associates, Inc., June 2010
- Email communications with Katie Wurzel and Brent Meyer, City of Woodland
- Email communications with Sergio Aceves, Caltrans
- Email communications with Stephanie Cormier, Yolo County
- Email communications with Sutha Suthahar, Caltrans
- Esparto General Plan, April 2007
- Guide for the Preparation of Traffic Impact Studies, Caltrans, December 2002
- Intersection signal timing sheets provided by Caltrans
- ITE Trip Generation, 9th Edition, Institute of Transportation Engineers, 2012
- Meeting with Caltrans and Yolo County, April 2010
- Meeting with Caltrans, March 2010
- Sacramento Area County of Governments Travel Demand Forecast Model
- State Route 16 Safety Improvement Project, Caltrans, December 2009
- State Route 16 Safety Improvement Project Initial Study and Proposed Mitigation Negative Declaration, Caltrans, February 2015
- State Route 16 Transportation Concept Report, December 2004
- Woodland General Plan Policy Document, 2002
- Yolo County 2035 Countywide General Plan, 2009
- Yolo County 2035 Countywide General Plan EIR, LSA Associates, Inc., April 2009
- Yolo County Traffic Impact Study Guidelines, February 2010

APPENDIX

APPENDIX

TRAFFIC COUNTS

COLLISION DATA

EXISTING CONDITIONS

PROJECT TRIP GENERATION

APPROVED & PENDING DEVELOPMENT INFORMATION

SACOG MODEL PLOTS

NEAR-TERM CONDITIONS

LONG-TERM CONDITIONS

NEAR-TERM PLUS PROJECT TRAFFIC CONDITIONS

LONG-TERM PLUS PROJECT TRAFFIC CONDITIONS

LONG-TERM PLUS PROJECT MITIGATED TRAFFIC CONDITIONS

NEAR-TERM PLUS PROJECT ALTERNATIVE TRAFFIC CONDITIONS

LONG-TERM PLUS PROJECT ALTERNATIVE TRAFFIC CONDITIONS

LONG-TERM PLUS PROJECT ALTERNATIVE MITIGATED TRAFFIC CONDITIONS

SIGNAL WARRANT ANALYSIS

DRAFT TRAFFIC IMPACT STUDY FOR CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

TRAFFIC COUNTS

SR-16 & North Casino Entrance

Date: 1/22/2016

Day: Friday

Project #: 16-7030-001

AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	17:00 - 18:00

Peak Hour Summary

Southbound Approach

AM	0	0	0	0	0	AM
NOON	0	0	0	0	0	NOON
PM	0	38	21	0	58	PM

SR-16

N

North Casino Entrance

Eastbound Approach

AM	NOON	PM
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
AM	NOON	PM

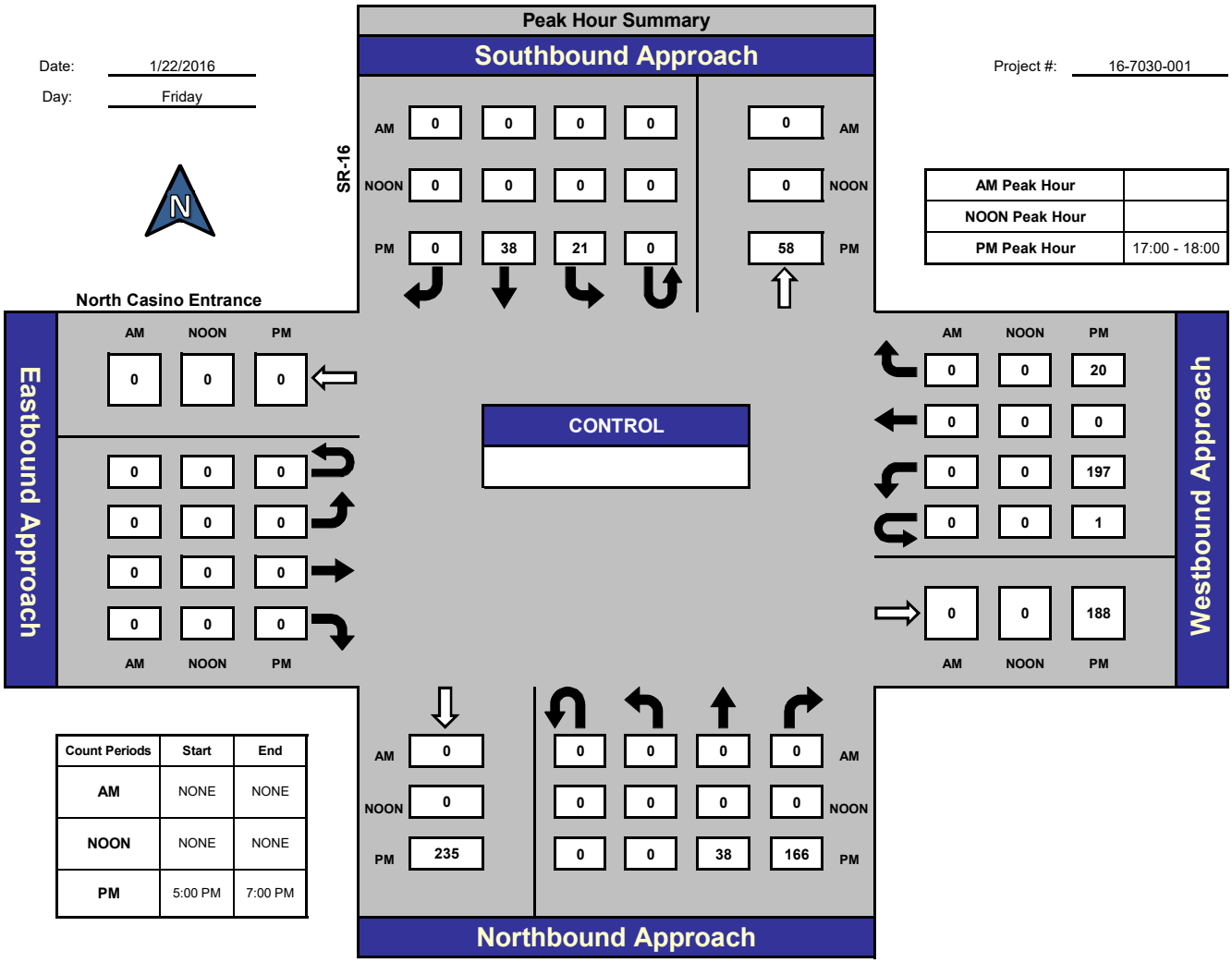
Westbound Approach

AM	NOON	PM
0	0	20
0	0	0
0	0	197
0	0	1
0	0	188
AM	NOON	PM

CONTROL

Northbound Approach

AM	0	0	0	0	0	AM
NOON	0	0	0	0	0	NOON
PM	235	0	0	38	166	PM



Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Total Ins & Outs

North Leg

0	0	AM
0	0	NOON
59	58	PM

East Leg

0	0	218
0	0	188
AM	NOON	PM

West Leg

AM	NOON	PM
0	0	0
0	0	0

South Leg

AM	0	0
NOON	0	0
PM	235	204

Total Volume Per Leg

North Leg

0	AM
0	NOON
117	PM

East Leg

0	0	406
AM	NOON	PM

West Leg

AM	NOON	PM
0	0	0

South Leg

AM	0
NOON	0
PM	439

SR-16 & Central Casino Entrance

Date: 1/22/2016

Day: Friday

Project #: 16-7030-002

Peak Hour Summary	
AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	17:00 - 18:00

Southbound Approach

AM	0	0	0	0	0	AM
NOON	0	0	0	0	0	NOON
PM	0	238	0	0	203	PM

SR-16

Central Casino Entrance

Eastbound Approach

	AM	NOON	PM
	0	0	0
	0	0	0
	0	0	0
	0	0	0
	0	0	0

CONTROL

Westbound Approach

	AM	NOON	PM
	0	0	0
	0	0	0
	0	0	0
	0	0	0
	0	0	43

Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Northbound Approach

AM	0	0	0	0	AM
NOON	0	0	0	0	NOON
PM	238	0	203	43	PM

Total Ins & Outs

North Leg		
0	0	AM
0	0	NOON
238	203	PM

West Leg			East Leg		
AM	NOON	PM			
0	0	0	0	0	0
0	0	0	0	0	43
			AM	NOON	PM

South Leg		
0	0	AM
0	0	NOON
238	246	PM

Total Volume Per Leg

North Leg	
0	AM
0	NOON
441	PM

West Leg			East Leg		
AM	NOON	PM			
0	0	0	0	0	43
			AM	NOON	PM

South Leg	
0	AM
0	NOON
484	PM

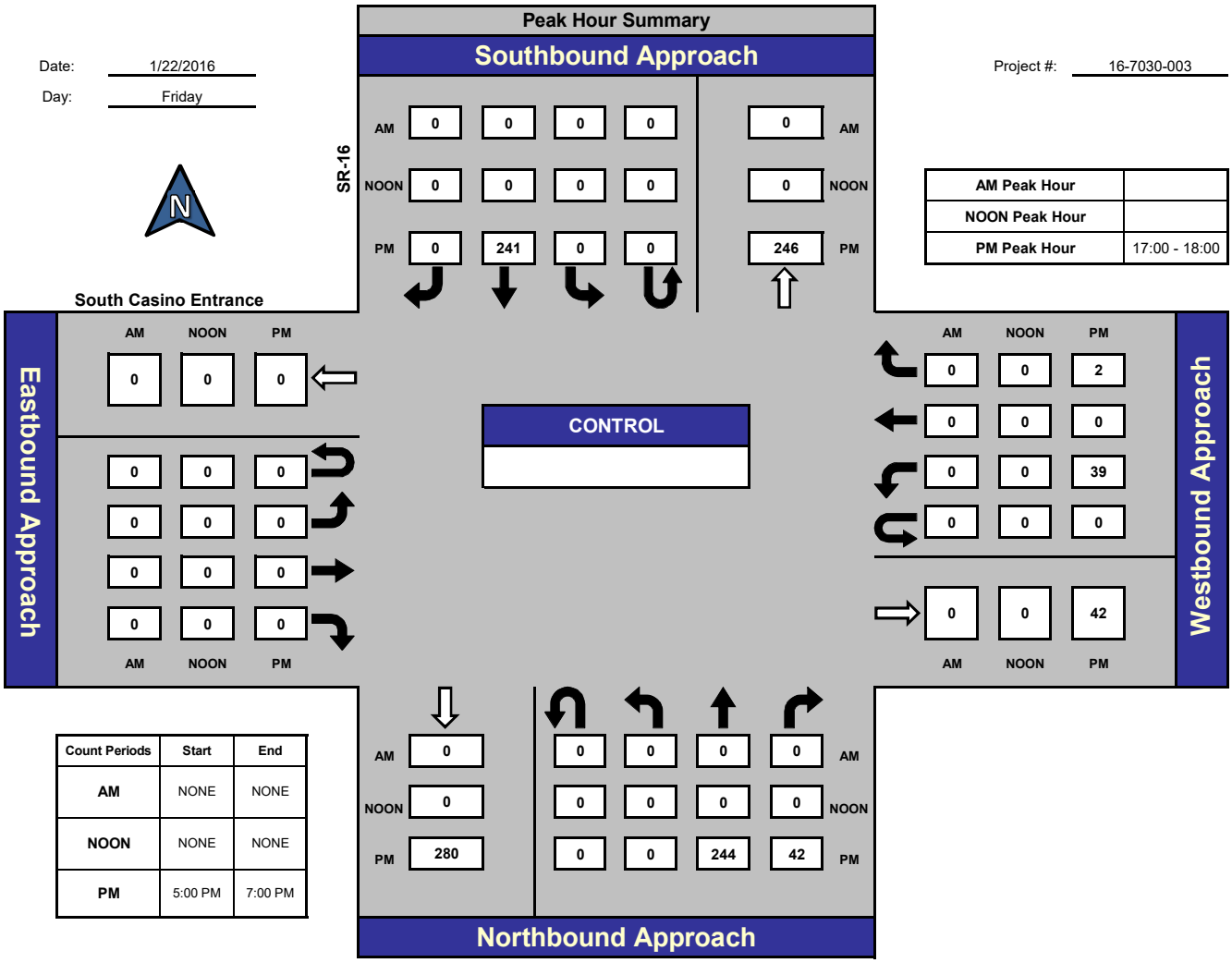
SR-16 & South Casino Entrance

Date: 1/22/2016

Day: Friday

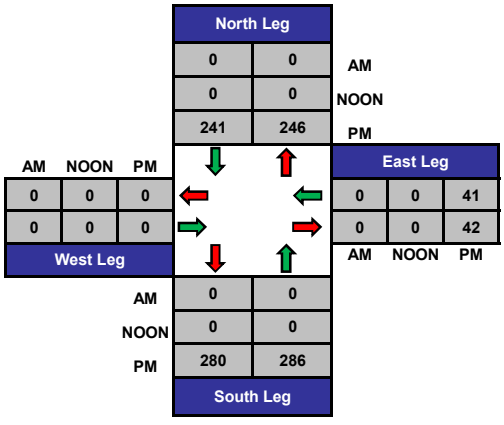
Project #: 16-7030-003

Peak Hour Summary	
AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	17:00 - 18:00

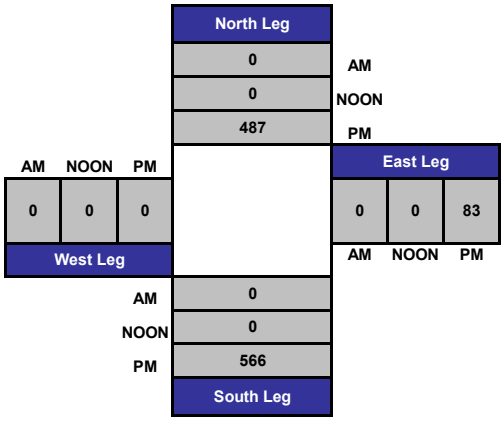


Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Total Ins & Outs



Total Volume Per Leg

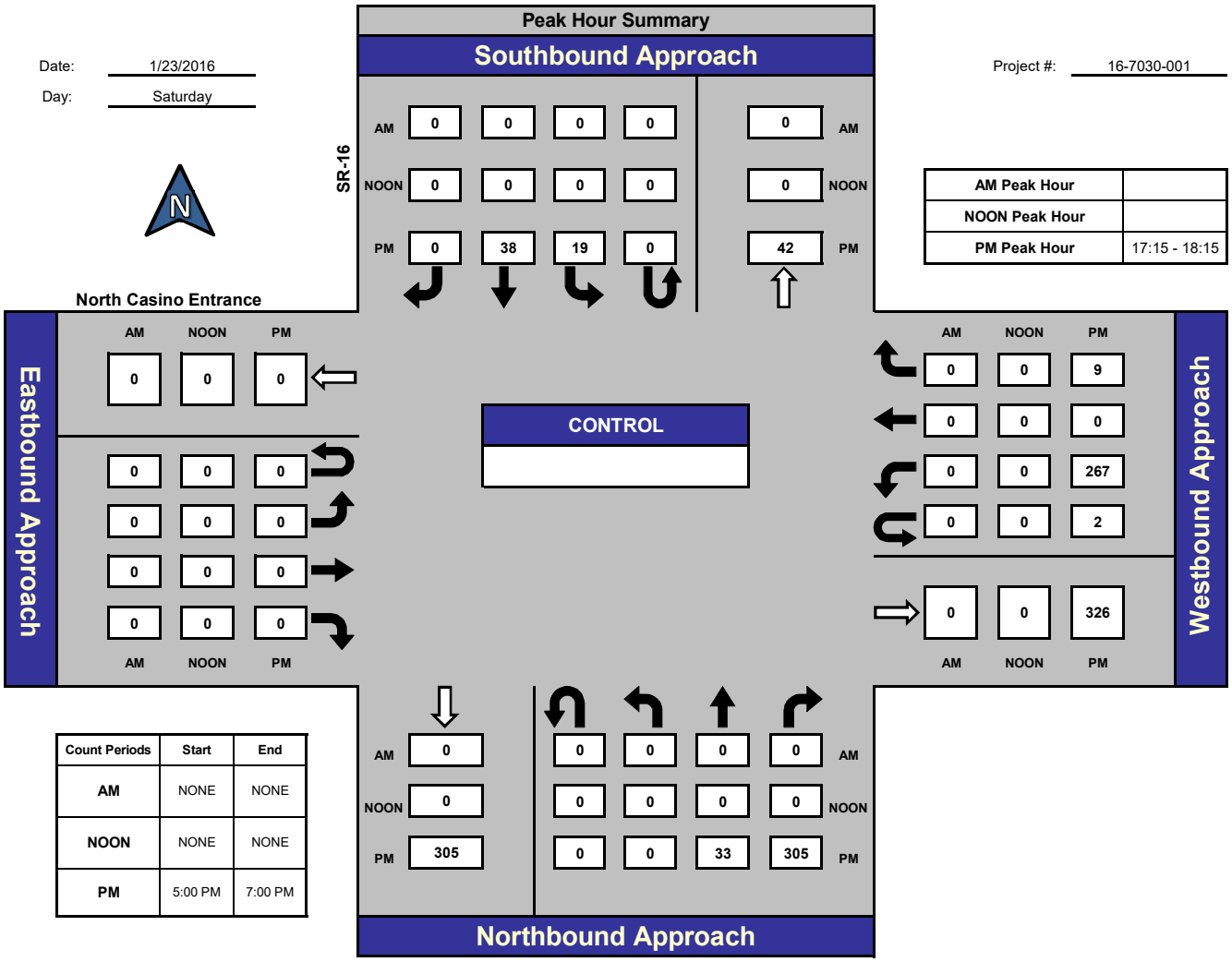


SR-16 & North Casino Entrance

Date: 1/23/2016
Day: Saturday

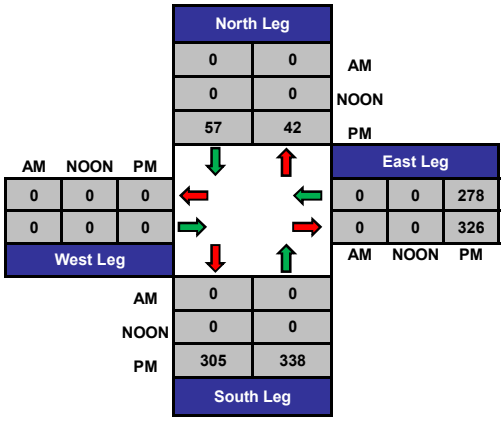
Project #: 16-7030-001

AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	17:15 - 18:15

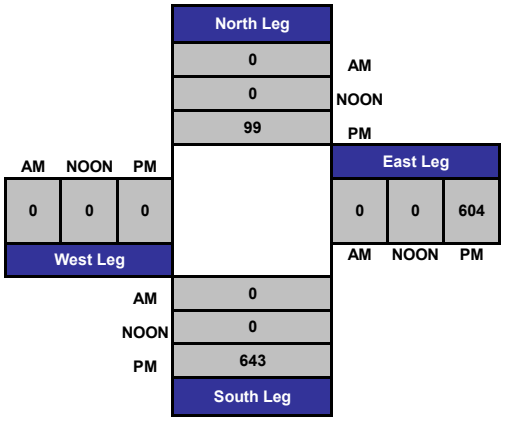


Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Total Ins & Outs



Total Volume Per Leg

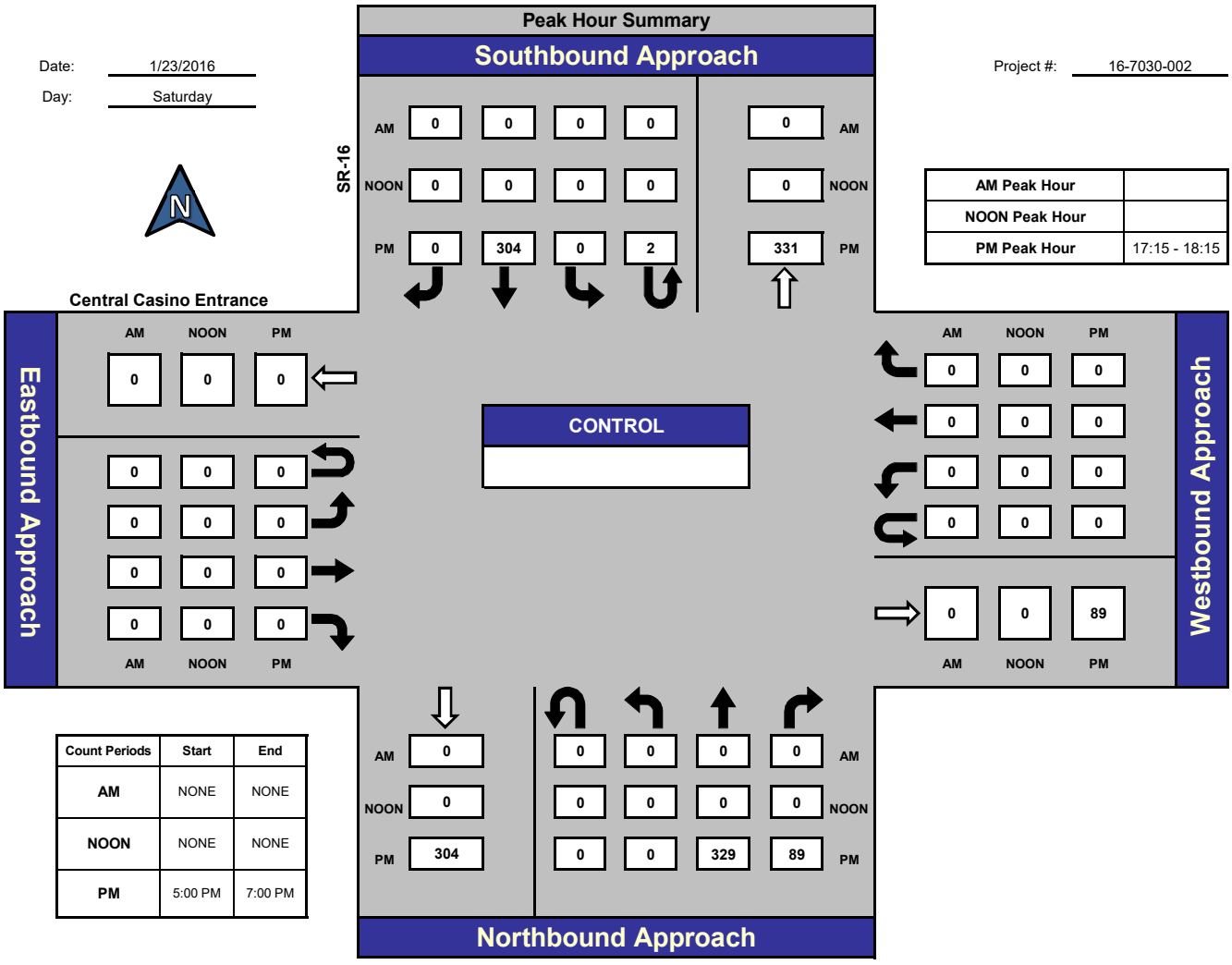


SR-16 & Central Casino Entrance

Date: 1/23/2016

Day: Saturday

Project #: 16-7030-002



AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	17:15 - 18:15

Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Total Ins & Outs

	North Leg		
	0	0	AM
	0	0	NOON
	306	331	PM

West Leg				East Leg		
AM	NOON	PM		AM	NOON	PM
0	0	0		0	0	0
0	0	0		0	0	89

	South Leg	
AM	0	0
NOON	0	0
PM	304	418

Total Volume Per Leg

North Leg	
0	AM
0	NOON
637	PM

West Leg			East Leg		
AM	NOON	PM	AM	NOON	PM
0	0	0	0	0	89

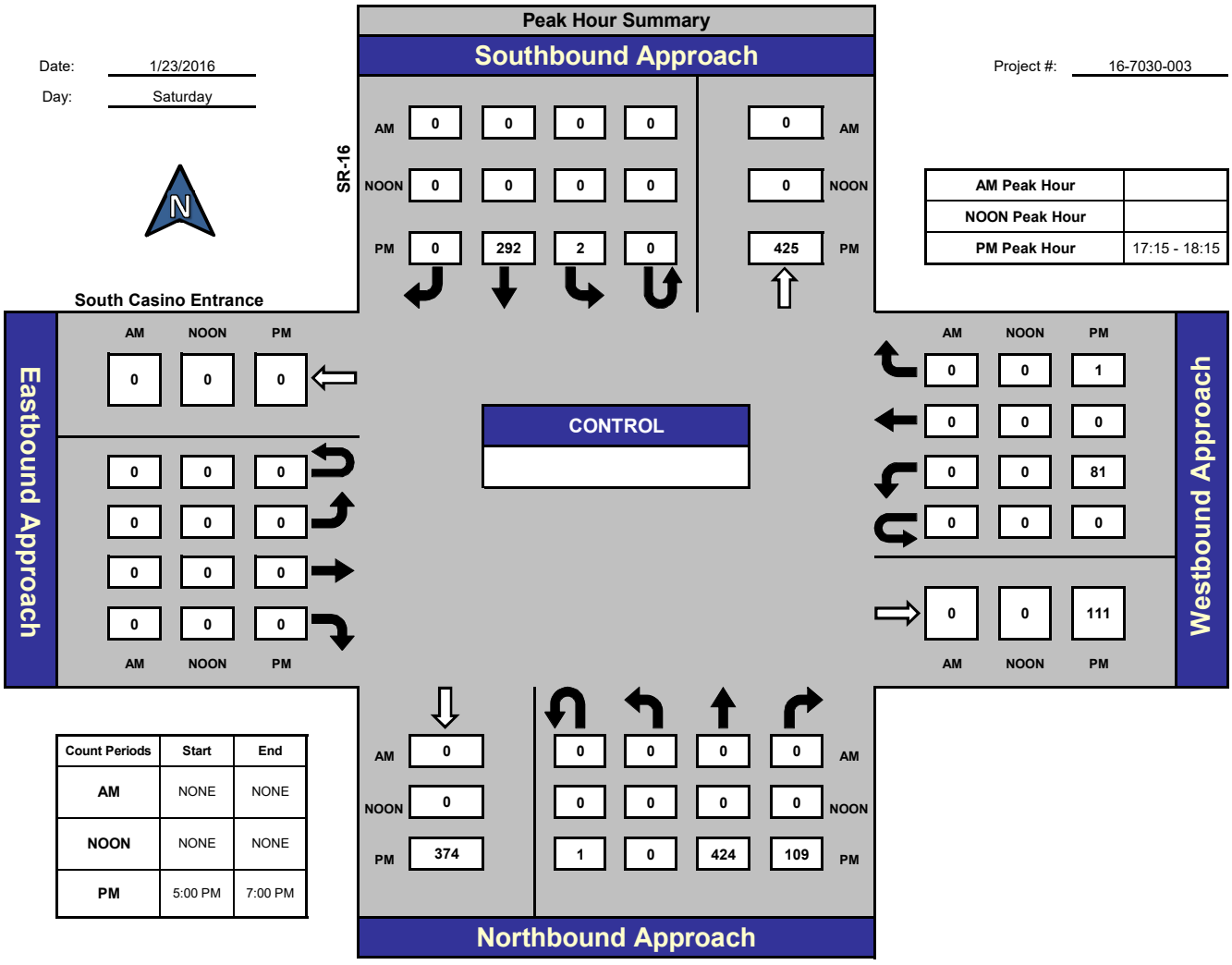
South Leg	
AM	0
NOON	0
PM	722

SR-16 & South Casino Entrance

Date: 1/23/2016

Day: Saturday

Project #: 16-7030-003



AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	17:15 - 18:15

Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Total Ins & Outs

North Leg		
0	0	AM
0	0	NOON
294	425	PM

West Leg			East Leg		
AM	NOON	PM			
0	0	0	0	0	82
0	0	0	0	0	111
			AM	NOON	PM

South Leg	
0	0
0	0
374	534
AM	
NOON	
PM	

Total Volume Per Leg

North Leg
0
0
719

West Leg		
AM	NOON	PM
0	0	0

East Leg		
0	0	193
AM	NOON	PM

South Leg
0
0
908
AM
NOON
PM

SR-16 & North Casino Entrance

Date: 1/29/2016
Day: Friday

Project #: 16-7030-001

AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	17:15 - 18:15

Peak Hour Summary

Southbound Approach

AM	0	0	0	0	0	AM
NOON	0	0	0	0	0	NOON
PM	0	51	12	0	53	PM

SR-16

North Casino Entrance

Eastbound Approach

	AM	NOON	PM
	0	0	0
	0	0	0
	0	0	0
	0	0	0
	0	0	0
AM		NOON	PM

CONTROL

Westbound Approach

	AM	NOON	PM
	0	0	10
	0	0	0
	0	0	184
	0	0	0
	0	0	161
AM		NOON	PM

Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Northbound Approach

AM	0	0	0	0	AM
NOON	0	0	0	0	NOON
PM	235	0	43	149	PM

Total Ins & Outs

North Leg	
0	0
0	0
63	53

AM / NOON / PM

West Leg		
0	0	0
0	0	0

East Leg		
0	0	194
0	0	161

AM NOON PM

South Leg	
0	0
0	0
235	192

AM / NOON / PM

Total Volume Per Leg

North Leg
0
0
116

AM / NOON / PM

West Leg		
0	0	0

East Leg		
0	0	355

AM NOON PM

South Leg
0
0
427

AM / NOON / PM

SR-16 & Central Casino Entrance

Date: 1/29/2016

Day: Friday

Project #: 16-7030-002

Peak Hour Summary	
AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	17:15 - 18:15

Southbound Approach

AM	0	0	0	0	0	AM
NOON	0	0	0	0	0	NOON
PM	0	227	1	0	198	PM

SR-16

Central Casino Entrance

Eastbound Approach

	AM	NOON	PM
	0	0	0
	0	0	0
	0	0	0
	0	0	0
	0	0	0

CONTROL

Westbound Approach

	AM	NOON	PM
	0	0	0
	0	0	0
	0	0	0
	0	0	0
	0	0	34

Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Northbound Approach

AM	0	0	0	0	AM
NOON	0	0	0	0	NOON
PM	227	0	198	33	PM

Total Ins & Outs

	North Leg		
	0	0	AM
	0	0	NOON
	228	198	PM

West Leg				East Leg			
AM	NOON	PM		AM	NOON	PM	
0	0	0		0	0	0	
0	0	0		0	0	34	

	South Leg	
AM	0	0
NOON	0	0
PM	227	231

Total Volume Per Leg

	North Leg	
	0	AM
	0	NOON
	426	PM

West Leg			East Leg			
AM	NOON	PM	AM	NOON	PM	
0	0	0	0	0	34	

	South Leg
AM	0
NOON	0
PM	458

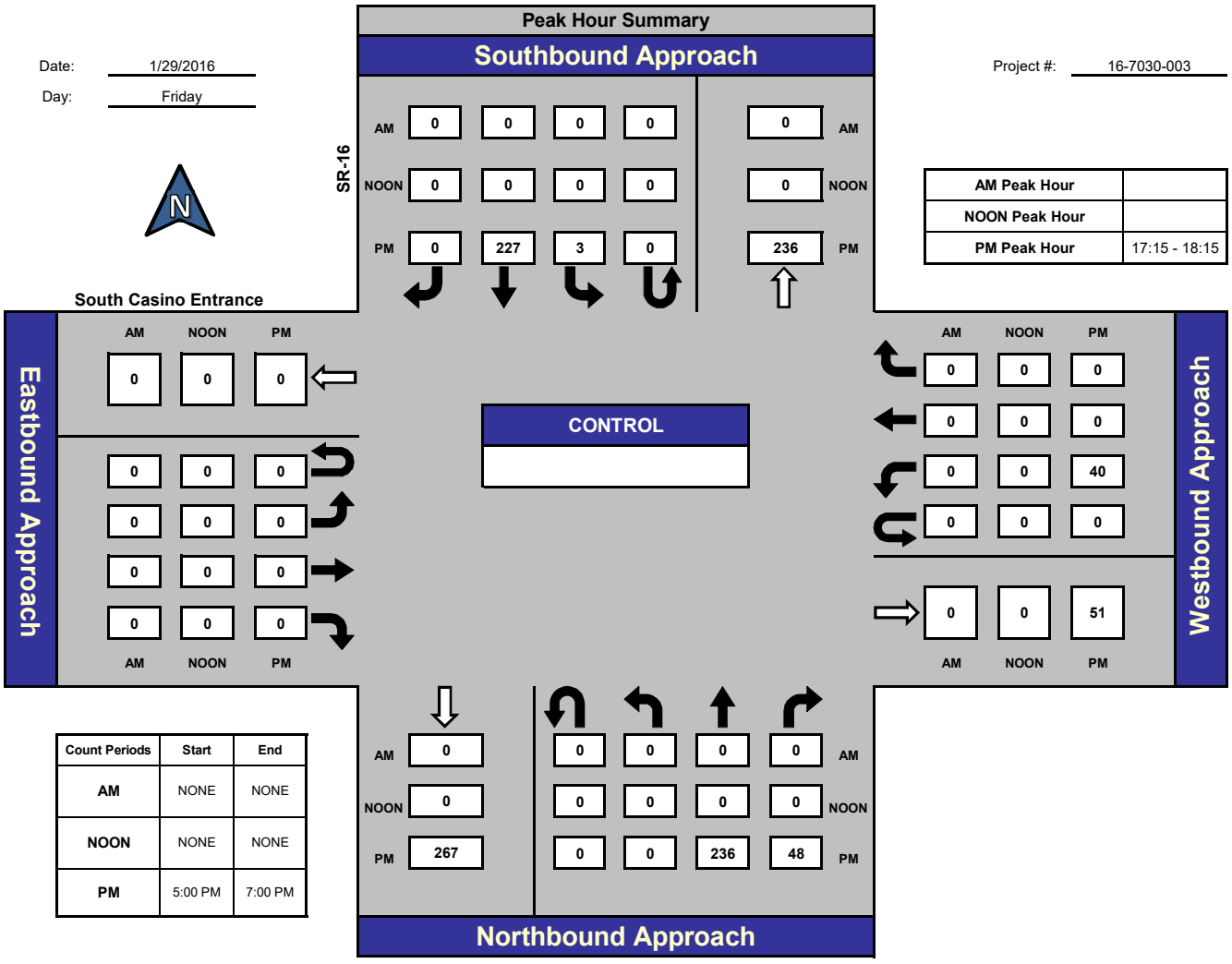
SR-16 & South Casino Entrance

Date: 1/29/2016

Day: Friday

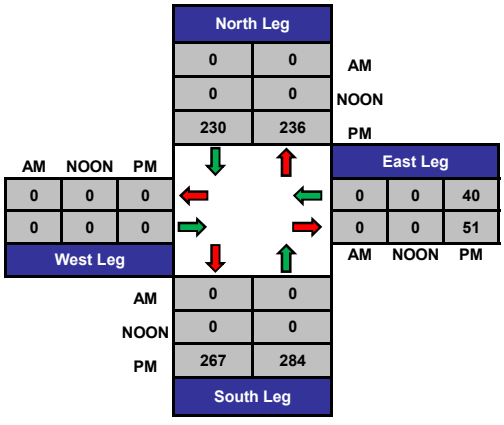
Project #: 16-7030-003

Peak Hour Summary	
AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	17:15 - 18:15

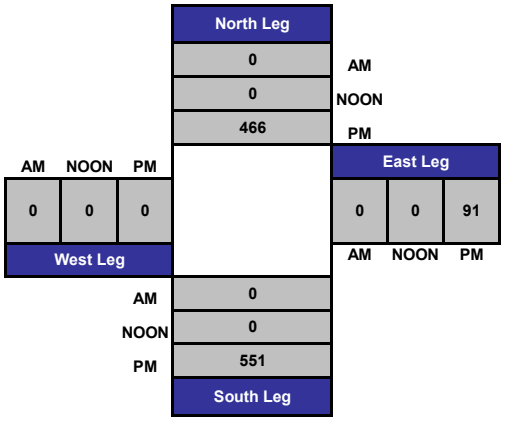


Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Total Ins & Outs



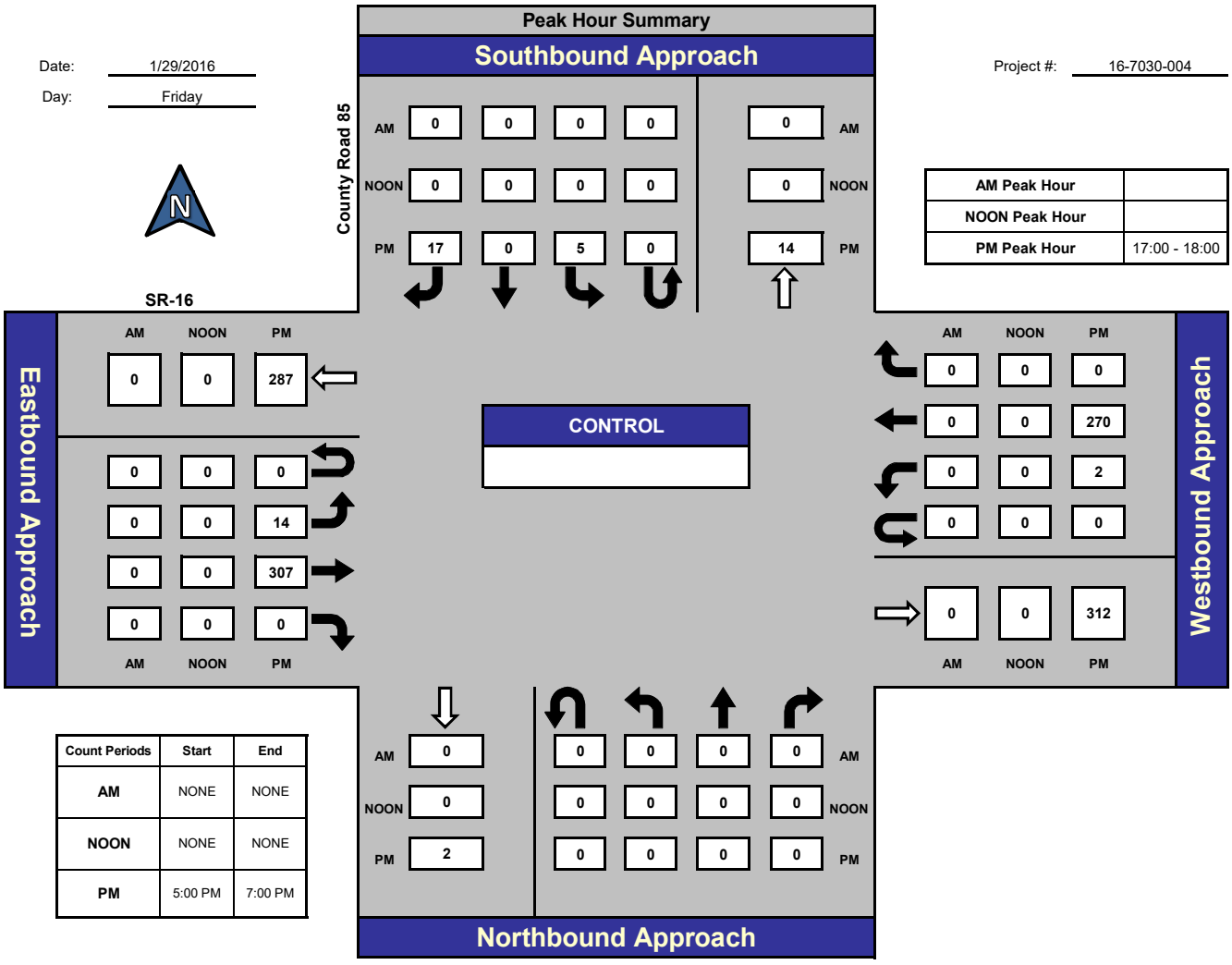
Total Volume Per Leg



County Road 85 & SR-16

Date: 1/29/2016
Day: Friday

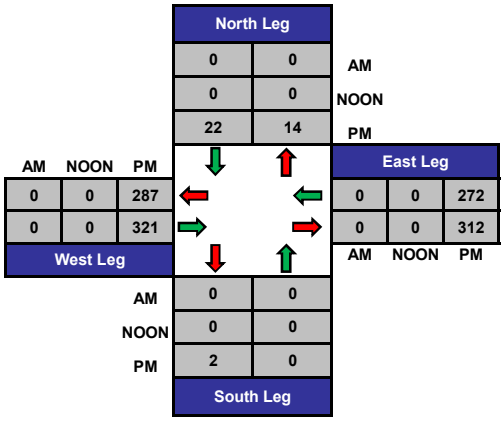
Project #: 16-7030-004



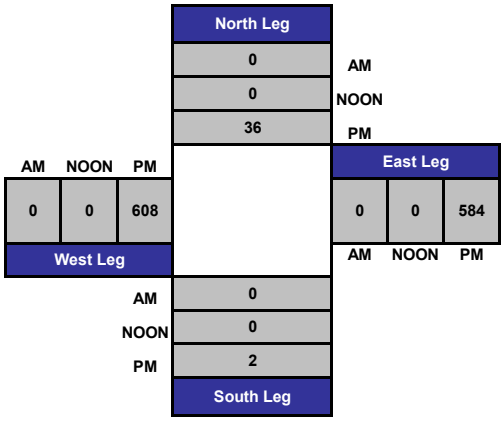
AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	17:00 - 18:00

Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Total Ins & Outs



Total Volume Per Leg

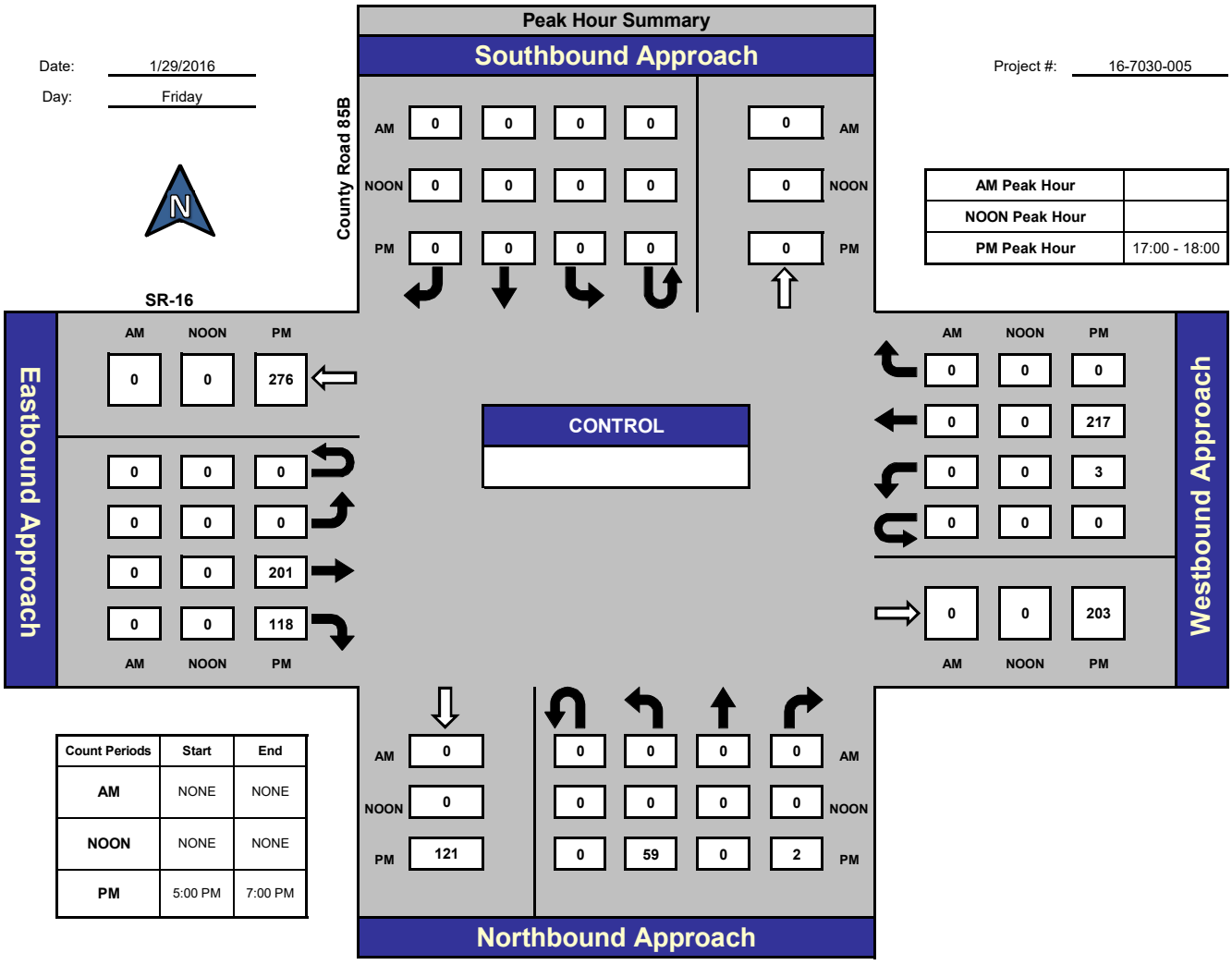


County Road 85B & SR-16

Date: 1/29/2016

Day: Friday

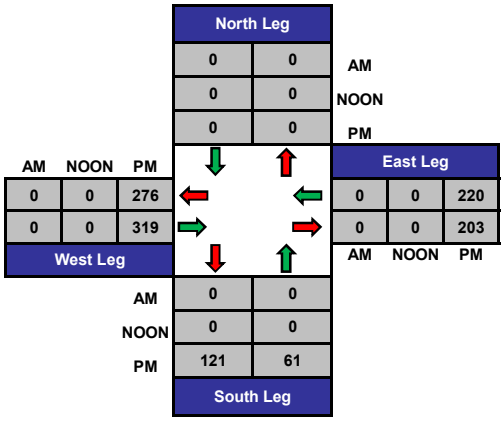
Project #: 16-7030-005



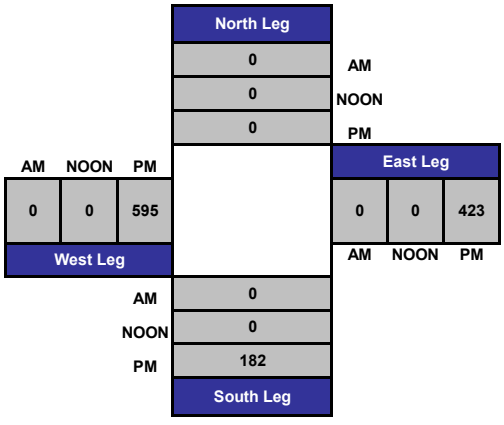
AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	17:00 - 18:00

Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Total Ins & Outs



Total Volume Per Leg

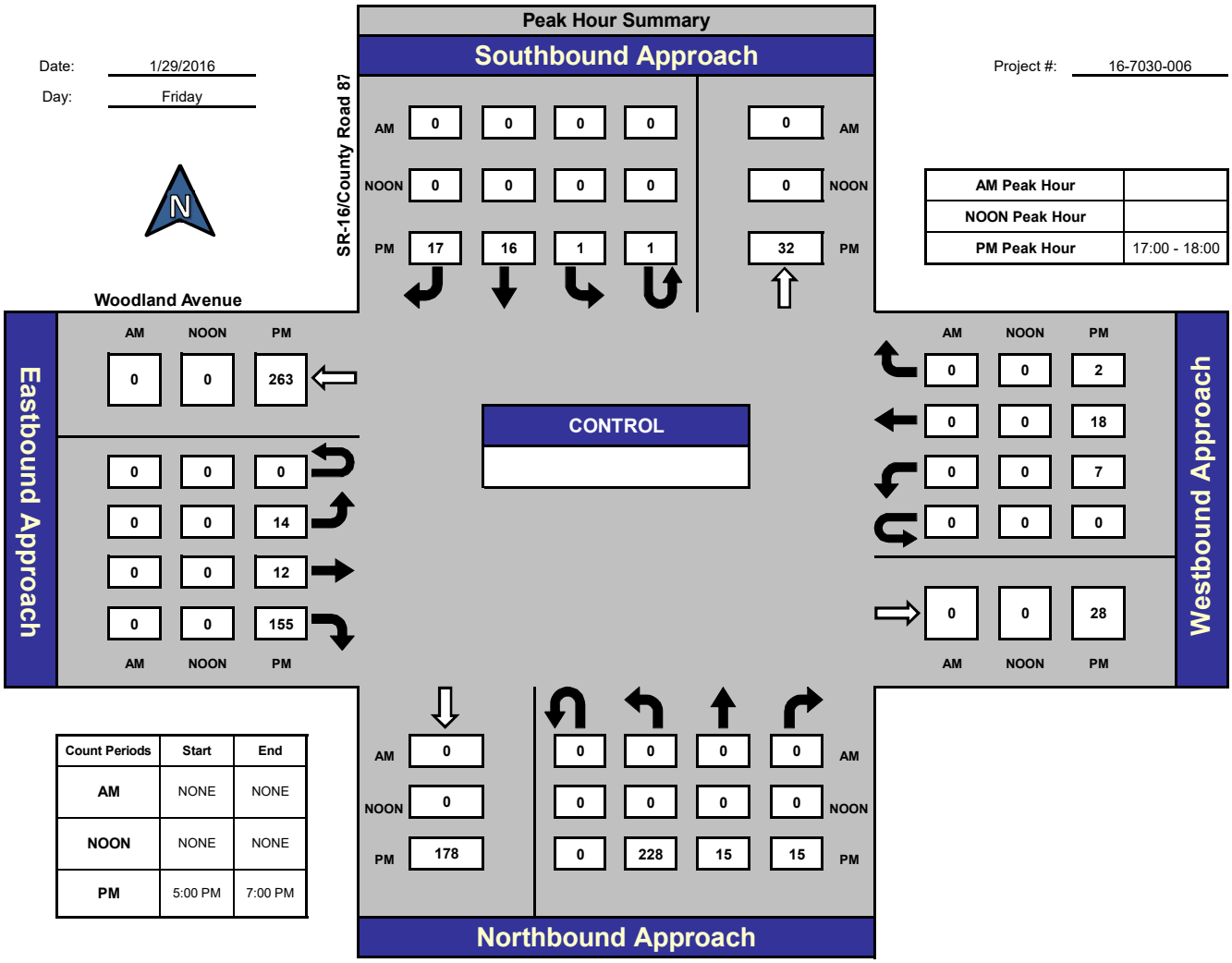


SR-16/County Road 87 & Woodland Avenue

Date: 1/29/2016
Day: Friday

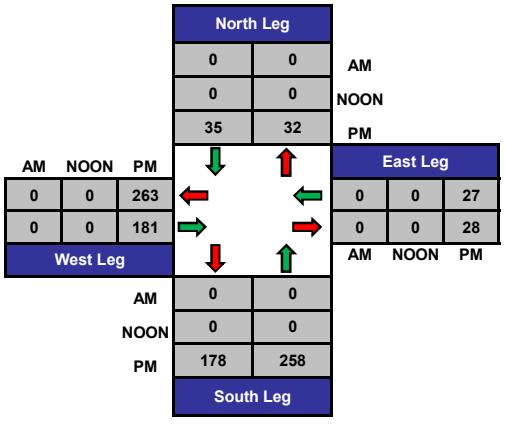
Project #: 16-7030-006

Peak Hour Summary	
AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	17:00 - 18:00

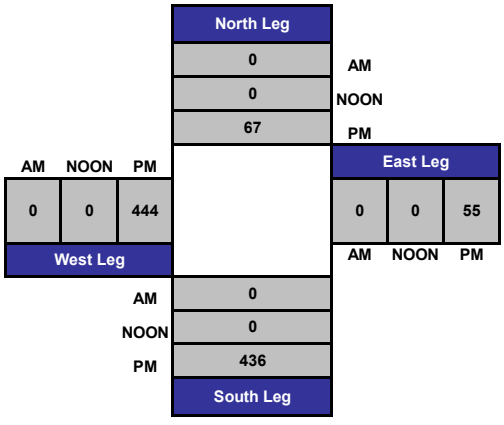


Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Total Ins & Outs



Total Volume Per Leg

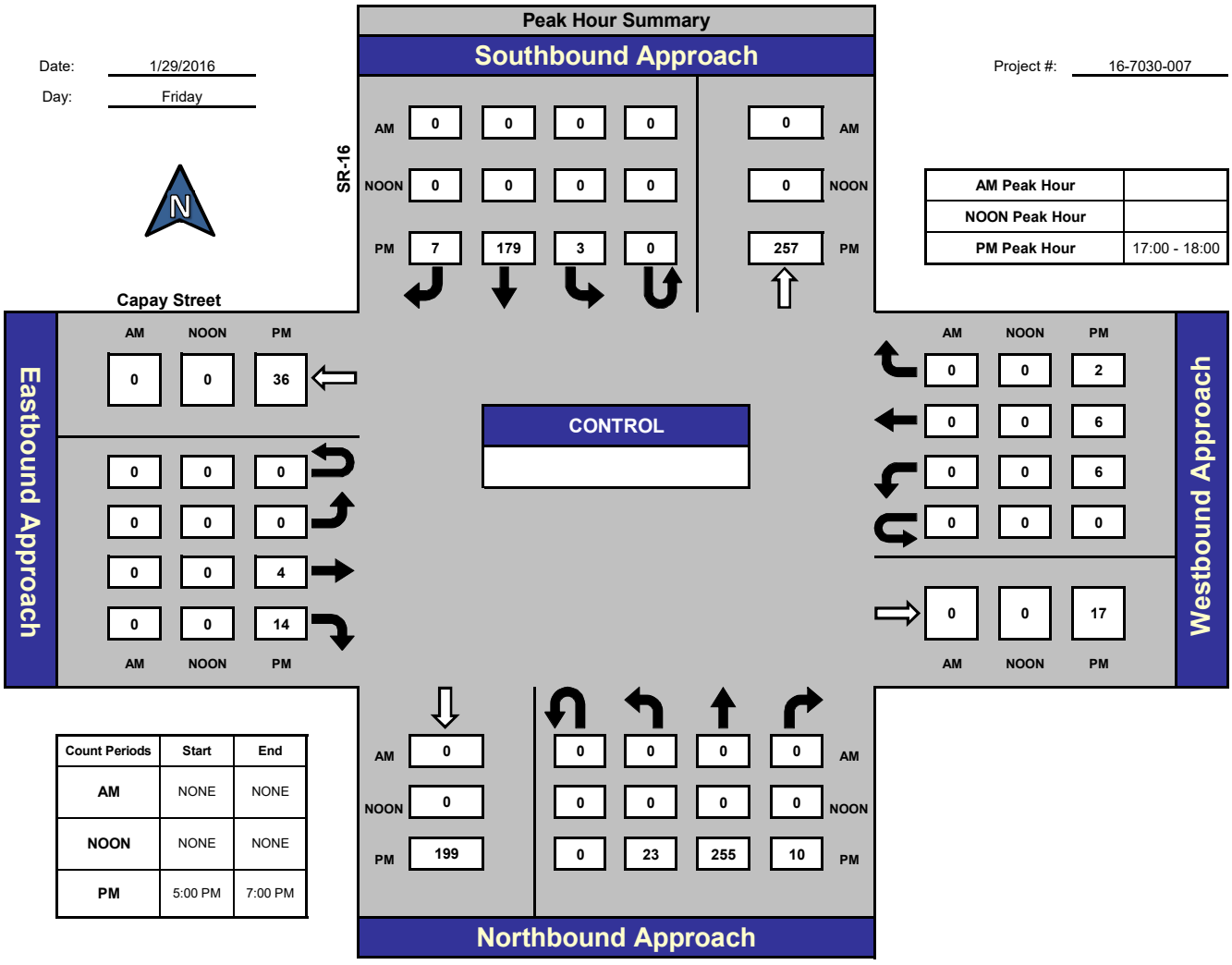


SR-16 & Capay Street

Date: 1/29/2016

Day: Friday

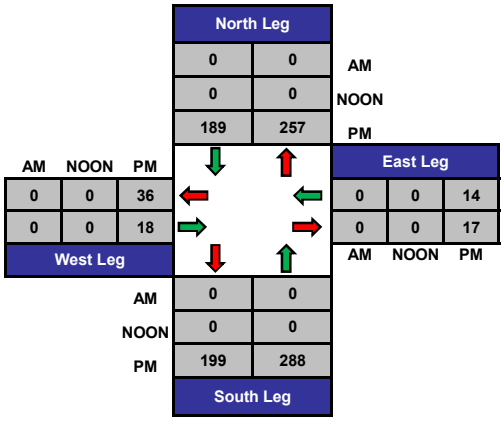
Project #: 16-7030-007



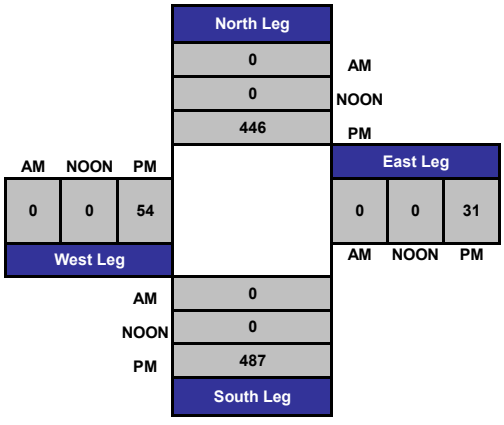
AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	17:00 - 18:00

Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Total Ins & Outs



Total Volume Per Leg

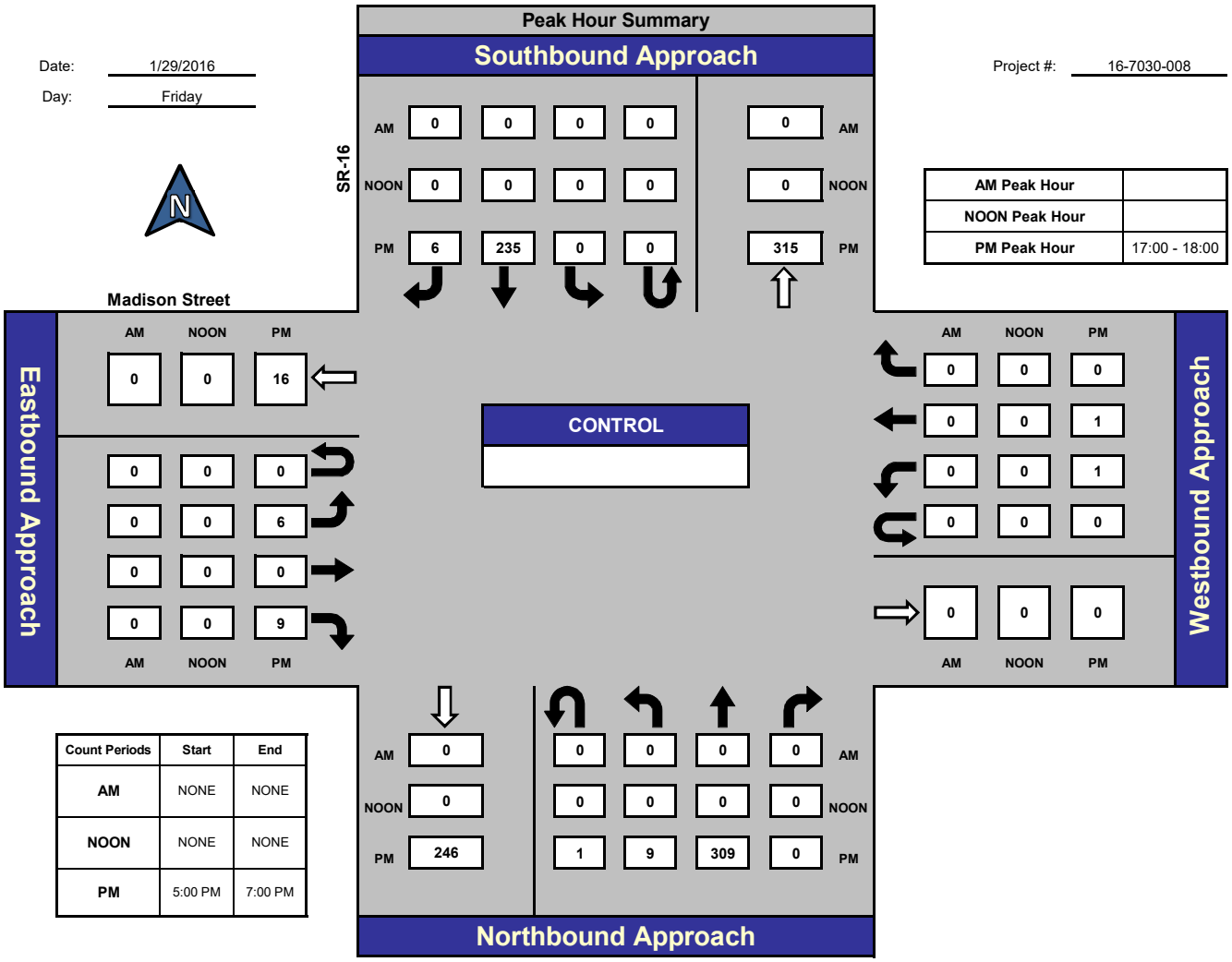


SR-16 & Madison Street

Date: 1/29/2016
Day: Friday

Project #: 16-7030-008

Peak Hour Summary	
AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	17:00 - 18:00



Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Total Ins & Outs

	North Leg	
AM	0	0
NOON	0	0
PM	241	315

West Leg				East Leg		
AM	NOON	PM		AM	NOON	PM
0	0	16		0	0	2
0	0	15		0	0	0

	South Leg	
AM	0	0
NOON	0	0
PM	246	319

Total Volume Per Leg

	North Leg
AM	0
NOON	0
PM	556

West Leg			East Leg		
AM	NOON	PM	AM	NOON	PM
0	0	31	0	0	2

	South Leg
AM	0
NOON	0
PM	565

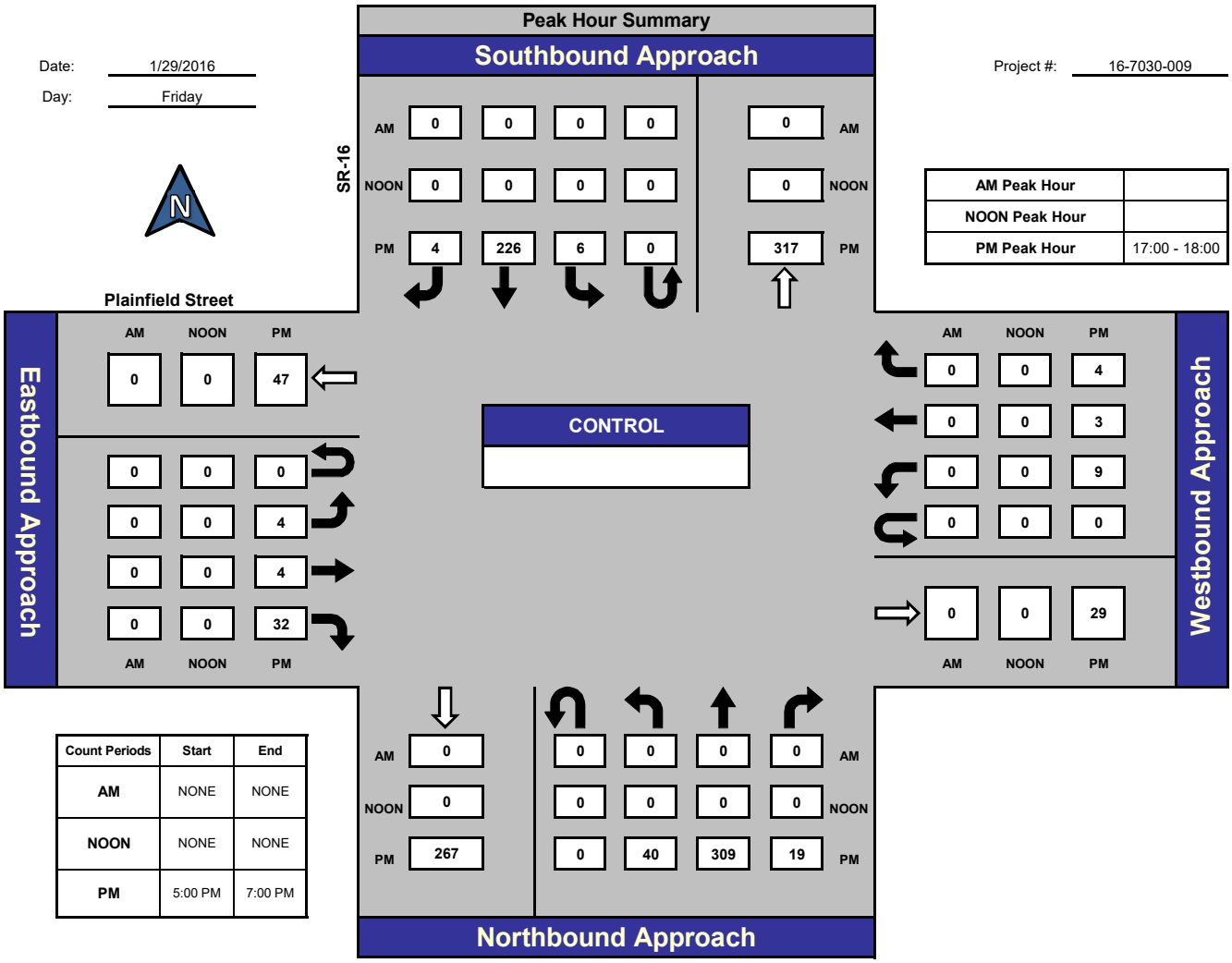
SR-16 & Plainfield Street

Date: 1/29/2016

Day: Friday

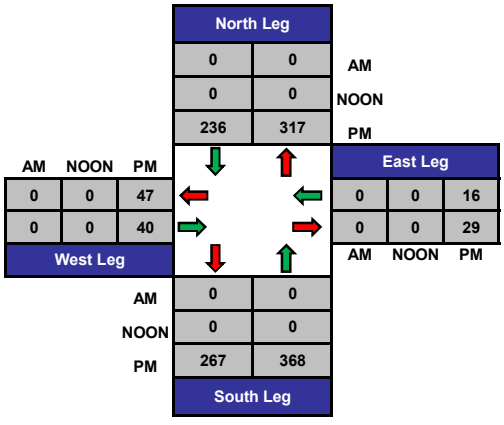
Project #: 16-7030-009

Peak Hour Summary	
AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	17:00 - 18:00

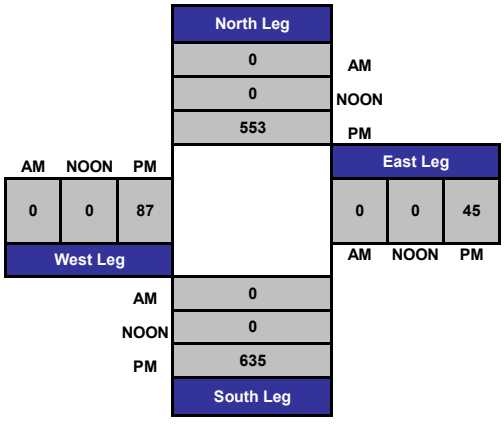


Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Total Ins & Outs



Total Volume Per Leg

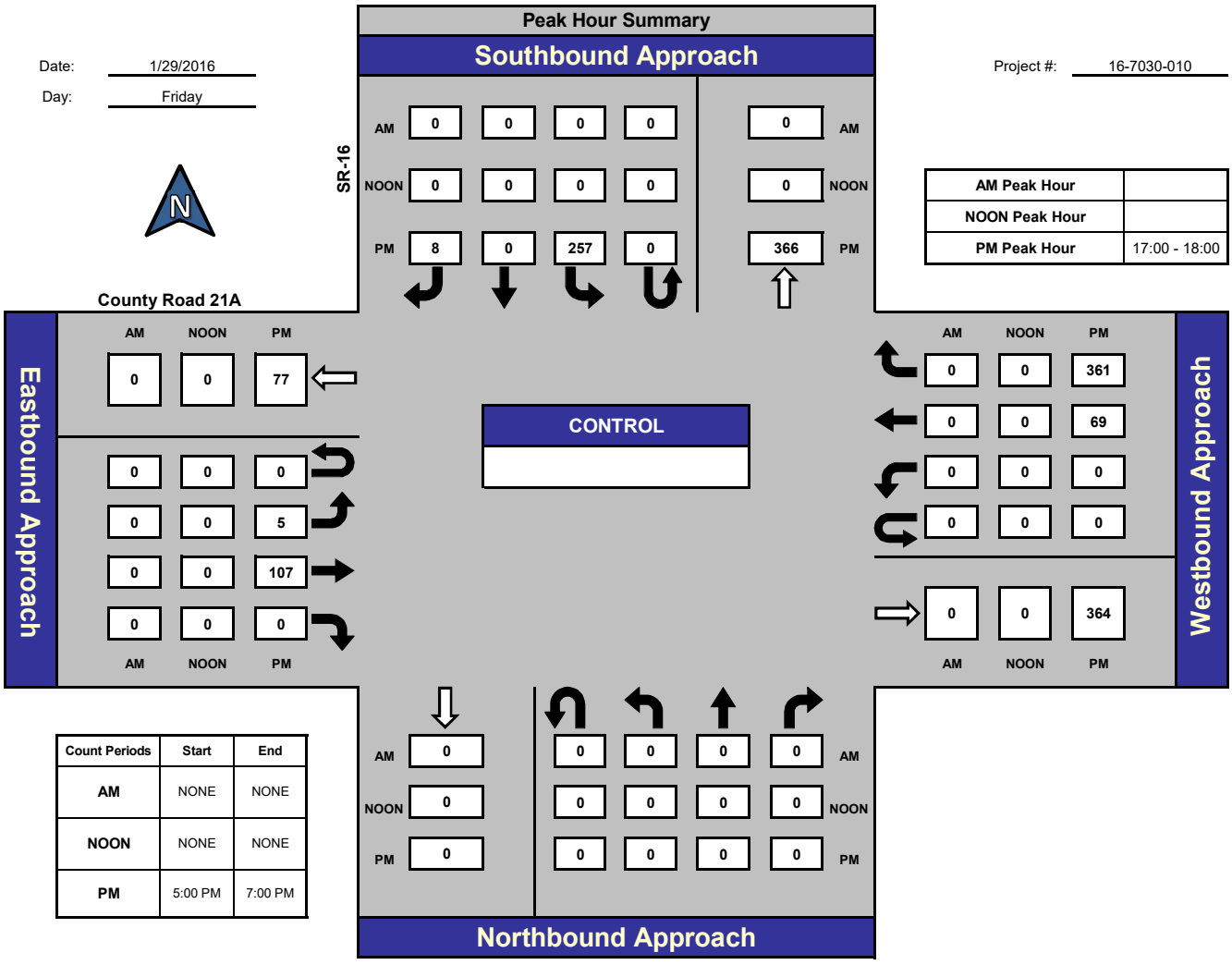


SR-16 & County Road 21A

Date: 1/29/2016

Day: Friday

Project #: 16-7030-010



AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	17:00 - 18:00

Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Total Ins & Outs

	North Leg	
	0	0 AM
	0	0 NOON
	265	366 PM

West Leg				East Leg		
AM	NOON	PM		AM	NOON	PM
0	0	77		0	0	430
0	0	112		0	0	364

	South Leg	
AM	0	0
NOON	0	0
PM	0	0

Total Volume Per Leg

	North Leg	
	0	AM
	0	NOON
	631	PM

West Leg				East Leg		
AM	NOON	PM		AM	NOON	PM
0	0	189		0	0	794

	South Leg
AM	0
NOON	0
PM	0

County Road 85B & County Road 21A

Date: 1/29/2016

Day: Friday

Project #: 16-7030-011

AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	17:00 - 18:00

Peak Hour Summary

Southbound Approach

County Road 85B

AM	0	0	0	0	0 AM
NOON	0	0	0	0	0 NOON
PM	0	29	88	0	51 PM

County Road 21A

Eastbound Approach

	AM	NOON	PM
	0	0	0
	0	0	0
	0	0	0
	0	0	0
	0	0	0

CONTROL

Westbound Approach

	AM	NOON	PM
	0	0	27
	0	0	0
	0	0	7
	0	0	1
	0	0	93

Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

AM	0	0	0	0	0 AM
NOON	0	0	0	0	0 NOON
PM	36	0	24	4	0 PM

Northbound Approach

Total Ins & Outs

North Leg	
0	0 AM
0	0 NOON
117	51 PM

West Leg			East Leg		
AM	NOON	PM			
0	0	0	0	0	35
0	0	0	0	0	93
			AM	NOON	PM

South Leg	
0	0 AM
0	0 NOON
36	28 PM

Total Volume Per Leg

North Leg	
0	AM
0	NOON
168	PM

West Leg			East Leg		
AM	NOON	PM			
0	0	0	0	0	128
			AM	NOON	PM

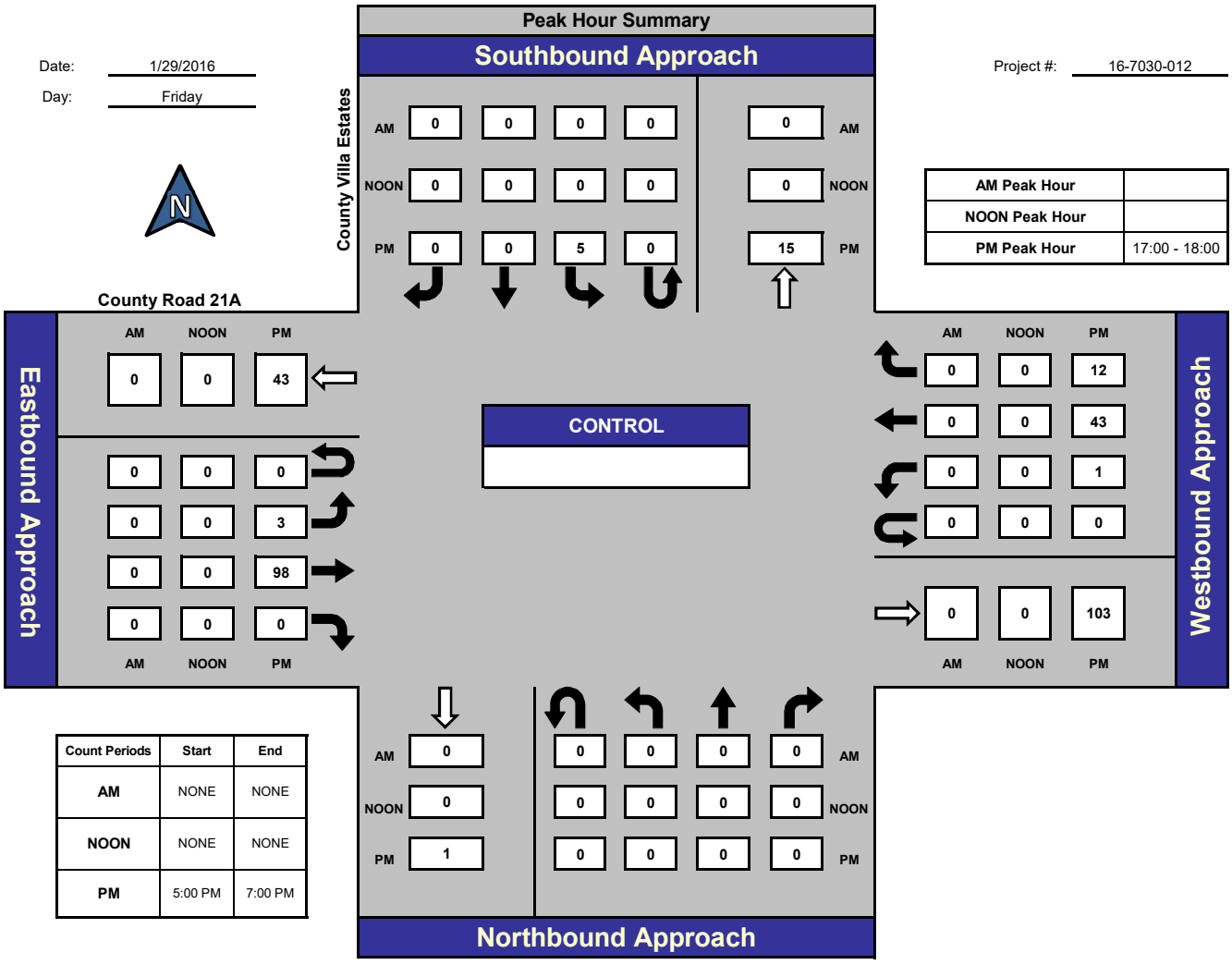
South Leg	
AM	0
NOON	0
PM	64

County Villa Estates & County Road 21A

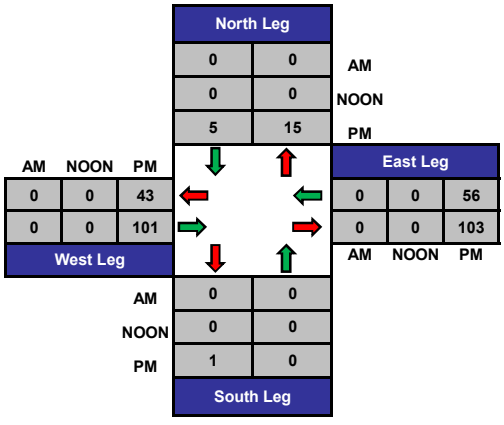
Date: 1/29/2016

Day: Friday

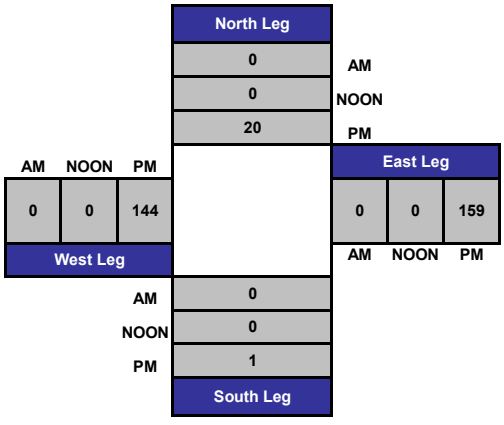
Project #: 16-7030-012



Total Ins & Outs



Total Volume Per Leg



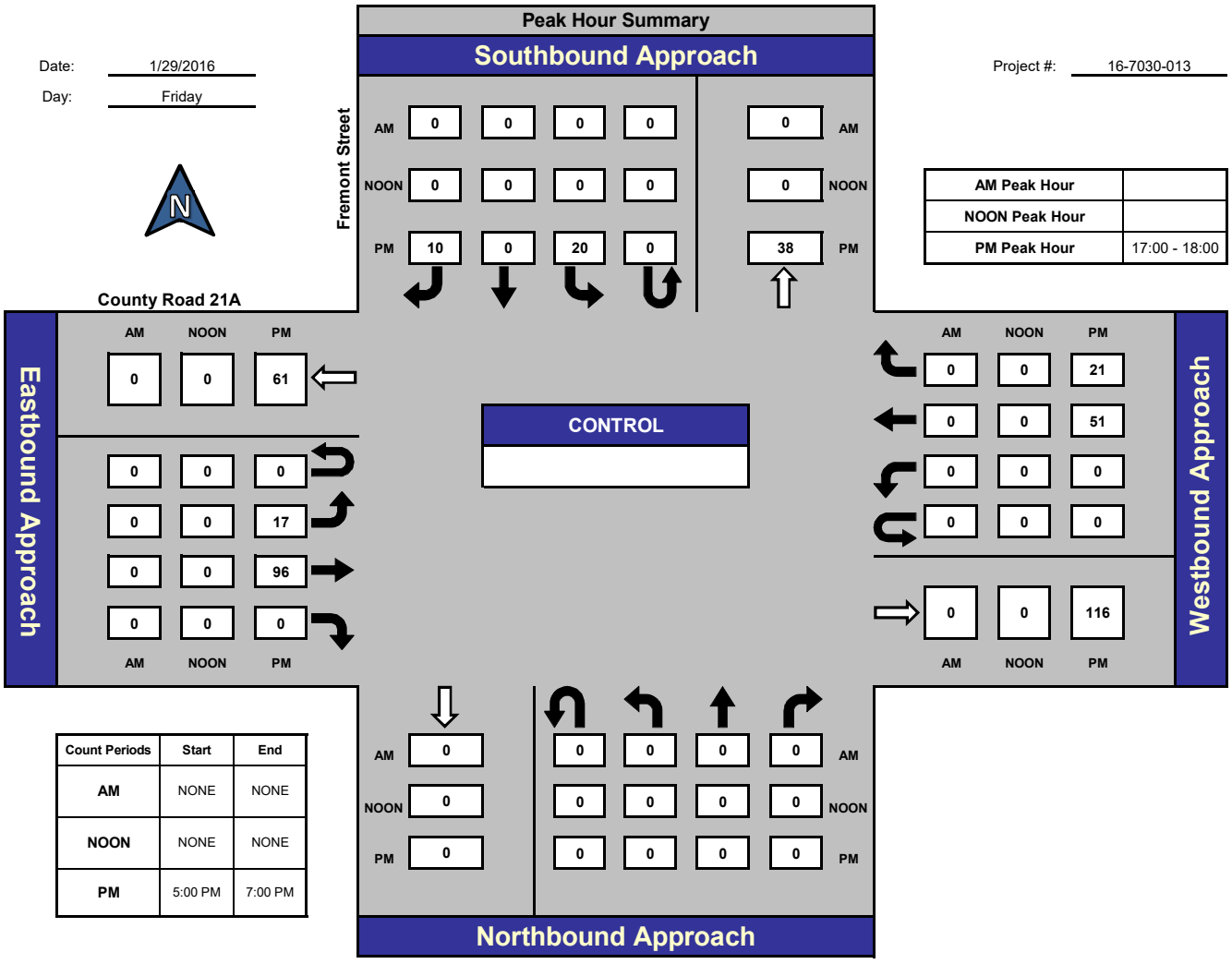
Fremont Street & County Road 21A

Date: 1/29/2016

Day: Friday

Project #: 16-7030-013

Peak Hour Summary	
AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	17:00 - 18:00



Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Total Ins & Outs

North Leg	
0	0 AM
0	0 NOON
30	38 PM

West Leg			East Leg		
AM	NOON	PM			
0	0	61	0	0	72
0	0	113	0	0	116
			AM	NOON	PM

South Leg	
0	0 AM
0	0 NOON
0	0 PM

Total Volume Per Leg

North Leg
0 AM
0 NOON
68 PM

West Leg			East Leg		
AM	NOON	PM			
0	0	174	0	0	188
			AM	NOON	PM

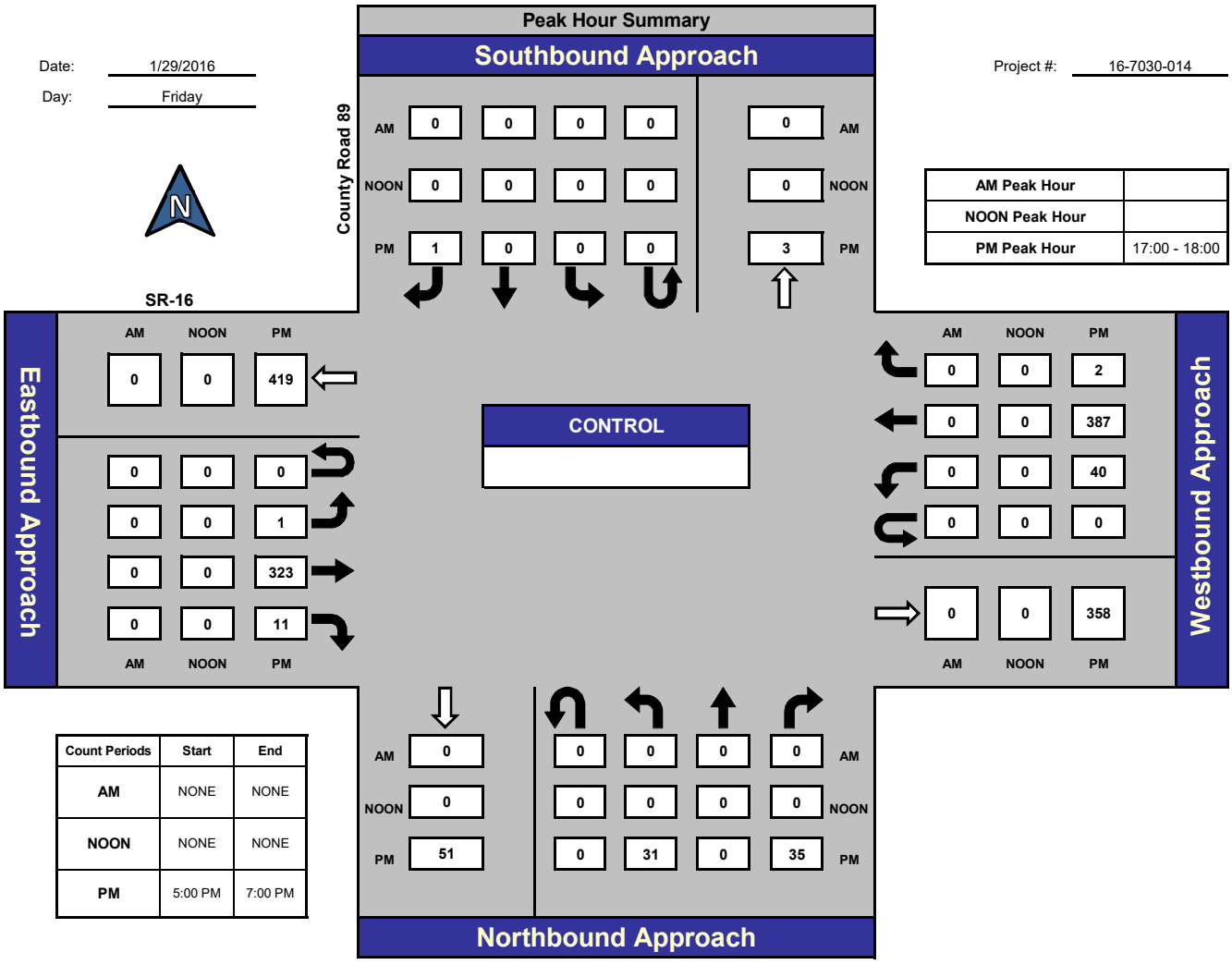
South Leg
AM 0
NOON 0
PM 0

County Road 89 & SR-16

Date: 1/29/2016

Day: Friday

Project #: 16-7030-014



AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	17:00 - 18:00

Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Total Ins & Outs

	North Leg		
	0	0	AM
	0	0	NOON
	1	3	PM

West Leg				East Leg		
AM	NOON	PM		AM	NOON	PM
0	0	419		0	0	429
0	0	335		0	0	358

	South Leg	
AM	0	0
NOON	0	0
PM	51	66

Total Volume Per Leg

	North Leg	
	0	AM
	0	NOON
	4	PM

West Leg			East Leg		
AM	NOON	PM	AM	NOON	PM
0	0	754	0	0	787

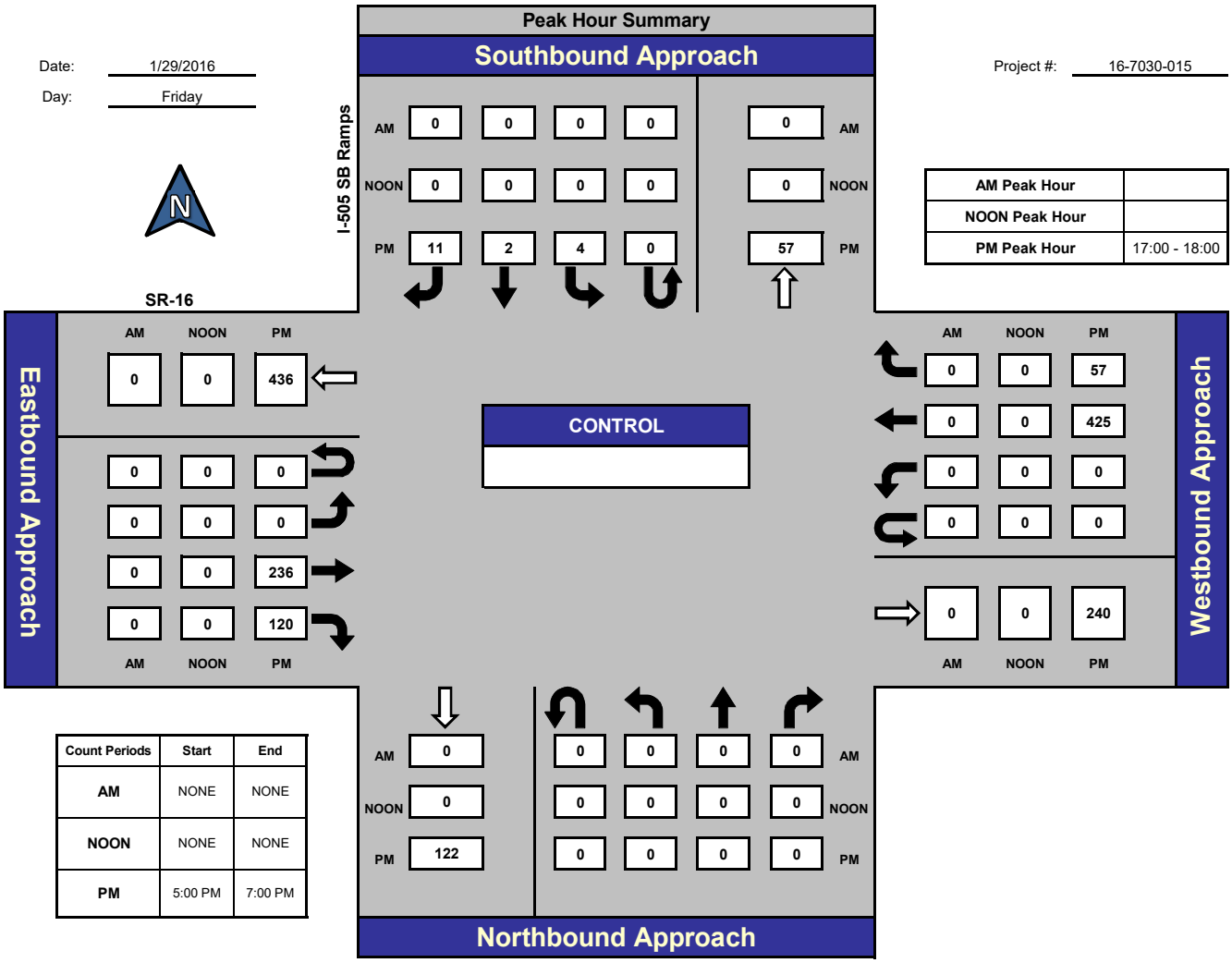
	South Leg
AM	0
NOON	0
PM	117

I-505 SB Ramps & SR-16

Date: 1/29/2016

Day: Friday

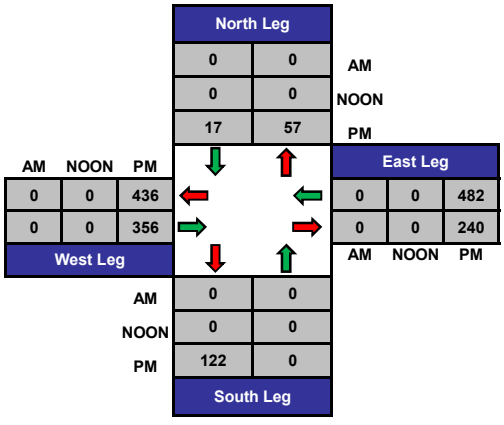
Project #: 16-7030-015



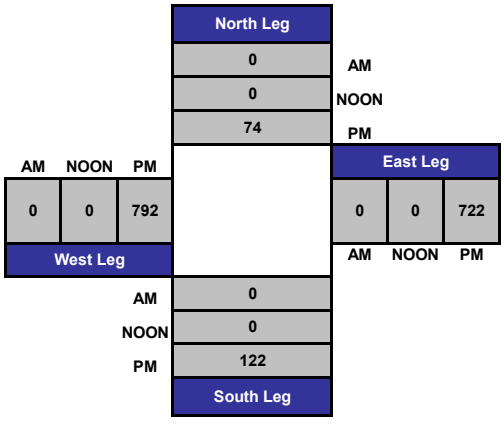
AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	17:00 - 18:00

Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Total Ins & Outs



Total Volume Per Leg

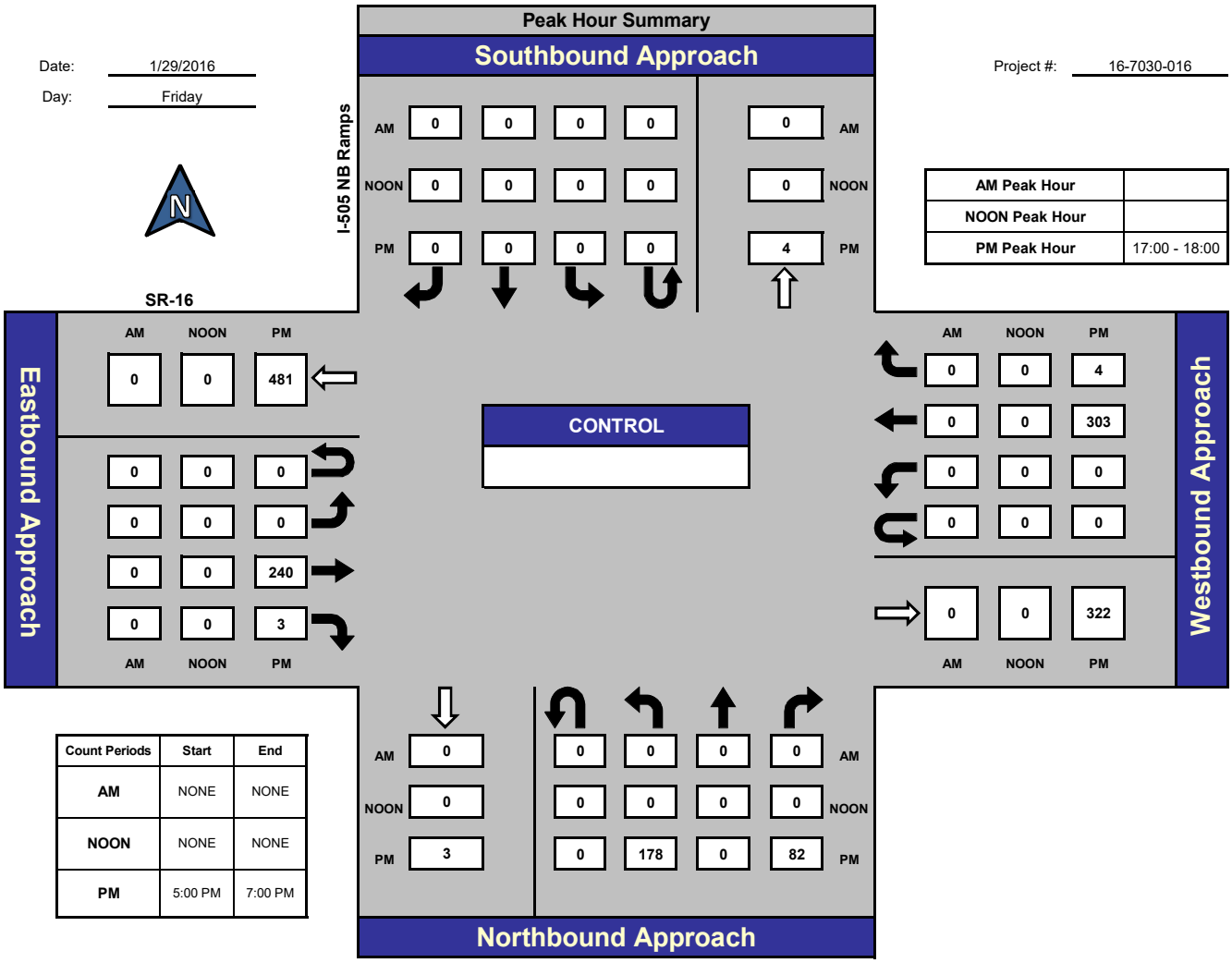


I-505 NB Ramps & SR-16

Date: 1/29/2016
Day: Friday

Project #: 16-7030-016

Peak Hour Summary	
AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	17:00 - 18:00



Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Total Ins & Outs

	North Leg		
	0	0	AM
	0	0	NOON
	0	4	PM

West Leg			East Leg		
AM	NOON	PM			
0	0	481	0	0	307
0	0	243	0	0	322
			AM	NOON	PM

	South Leg	
AM	0	0
NOON	0	0
PM	3	260

Total Volume Per Leg

	North Leg	
	0	AM
	0	NOON
	4	PM

West Leg			East Leg		
AM	NOON	PM			
0	0	724	0	0	629
			AM	NOON	PM

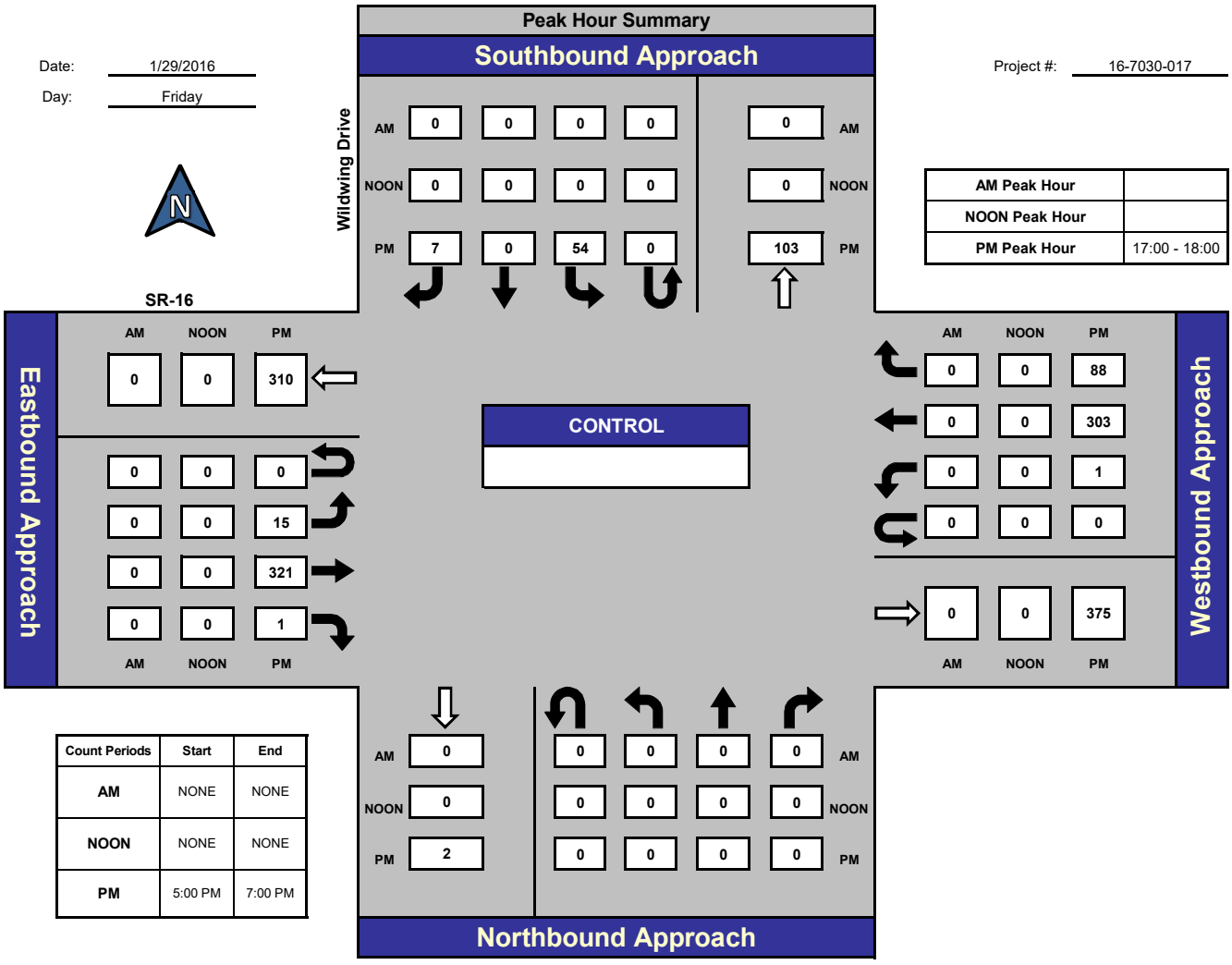
	South Leg
AM	0
NOON	0
PM	263

Wildwing Drive & SR-16

Date: 1/29/2016

Day: Friday

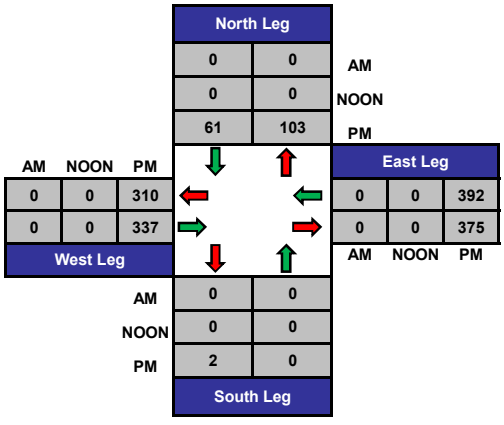
Project #: 16-7030-017



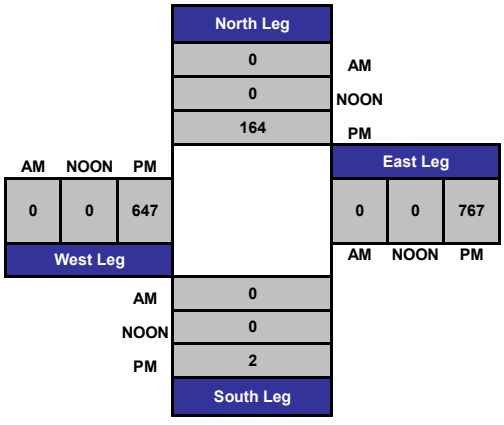
AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	17:00 - 18:00

Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Total Ins & Outs



Total Volume Per Leg



County Road 94B & SR-16

Date: 1/29/2016

Day: Friday

Project #: 16-7030-018

Peak Hour Summary	
AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	17:00 - 18:00

Southbound Approach (County Road 94B)

AM	0	0	0	0	0 AM
NOON	0	0	0	0	0 NOON
PM	5	5	8	0	3 PM

Eastbound Approach (SR-16)

	AM	NOON	PM
	0	0	402
	0	0	0
	0	0	2
	0	0	358
	0	0	0

Westbound Approach

	AM	NOON	PM
	0	0	1
	0	0	391
	0	0	17
	0	0	0
	0	0	380

CONTROL

Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Northbound Approach

AM	0	0	0	0	0 AM
NOON	0	0	0	0	0 NOON
PM	22	0	6	0	14 PM

Total Ins & Outs

	North Leg		
	0	0	AM
	0	0	NOON
	18	3	PM

West Leg				East Leg		
AM	NOON	PM		AM	NOON	PM
0	0	402		0	0	409
0	0	360		0	0	380

	South Leg	
AM	0	0
NOON	0	0
PM	22	20

Total Volume Per Leg

	North Leg	
	0	AM
	0	NOON
	21	PM

West Leg			East Leg		
AM	NOON	PM	AM	NOON	PM
0	0	762	0	0	789

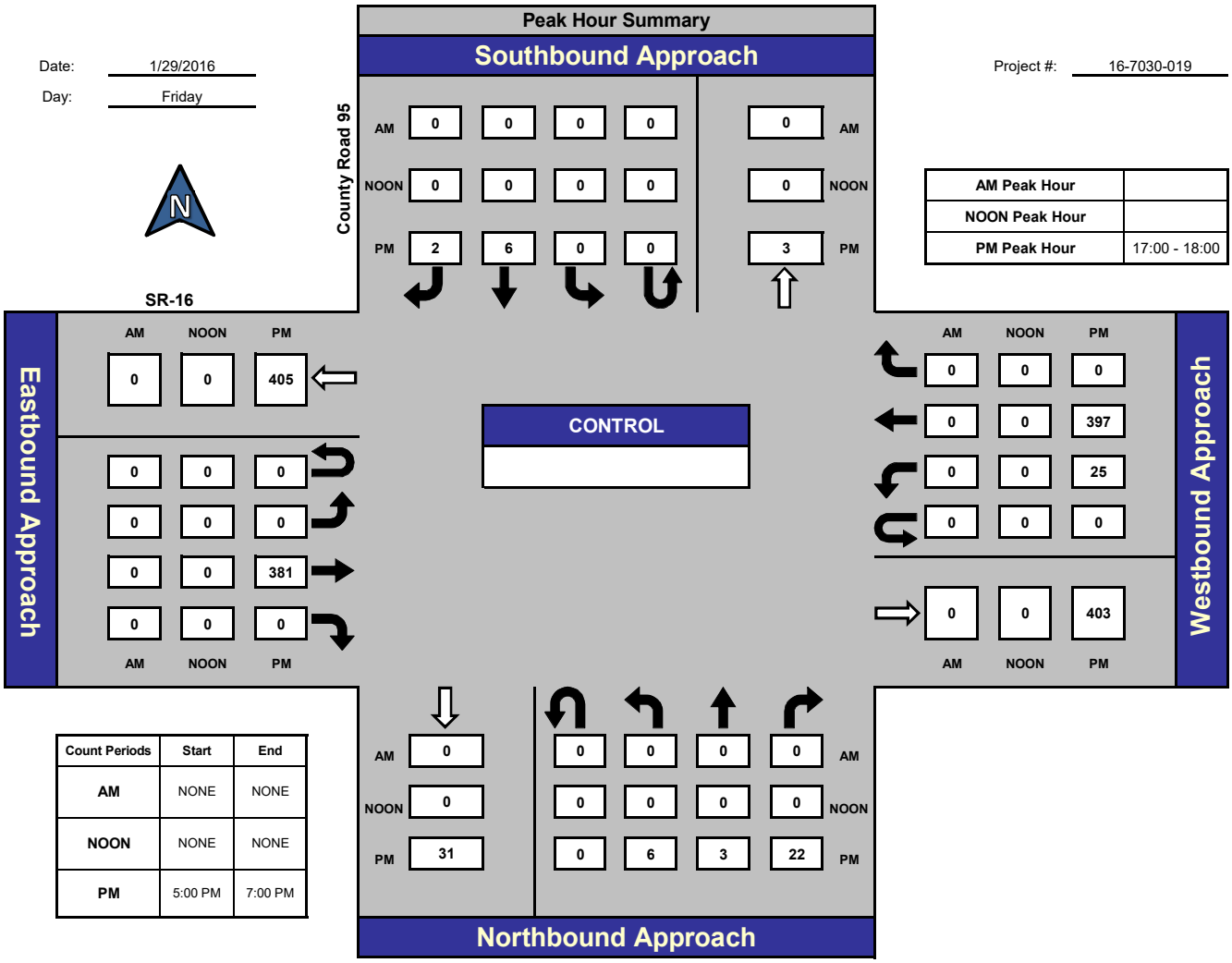
	South Leg
AM	0
NOON	0
PM	42

County Road 95 & SR-16

Date: 1/29/2016

Day: Friday

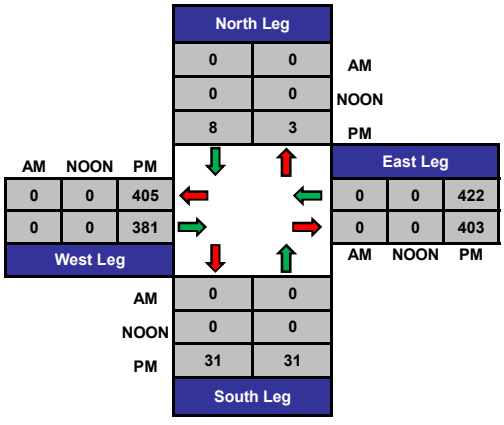
Project #: 16-7030-019



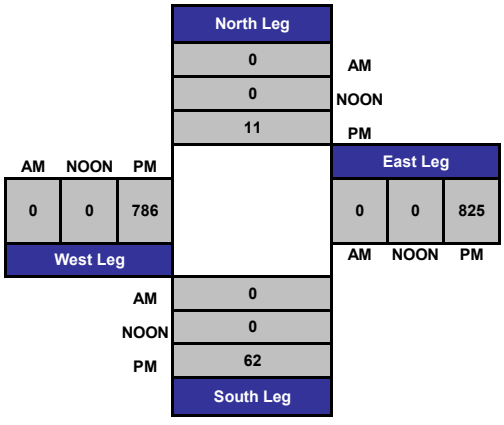
AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	17:00 - 18:00

Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Total Ins & Outs



Total Volume Per Leg

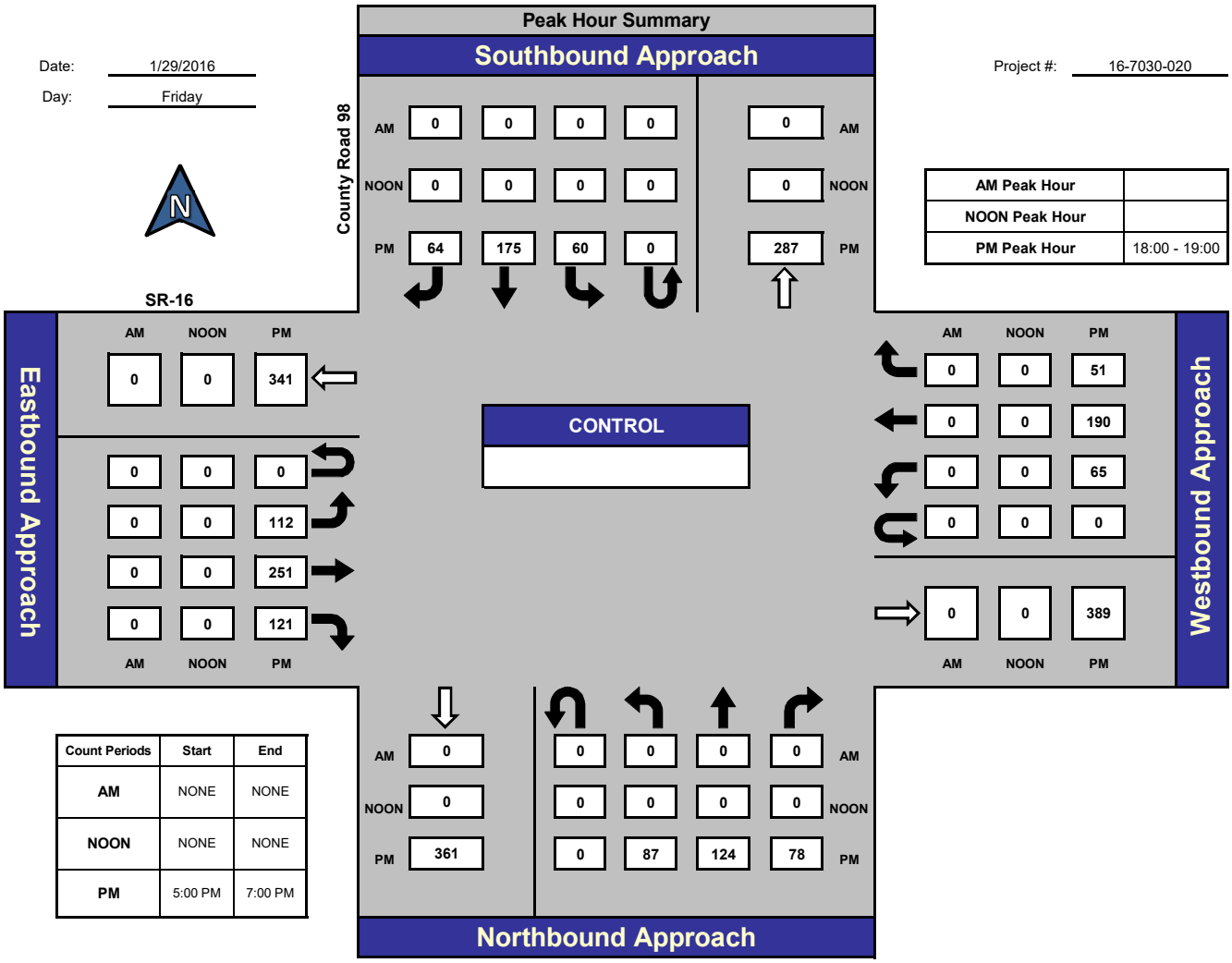


County Road 98 & SR-16

Date: 1/29/2016

Day: Friday

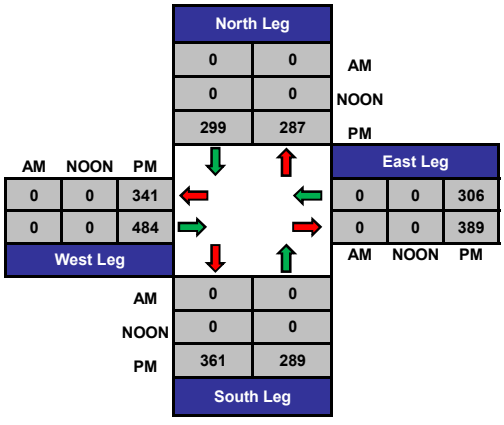
Project #: 16-7030-020



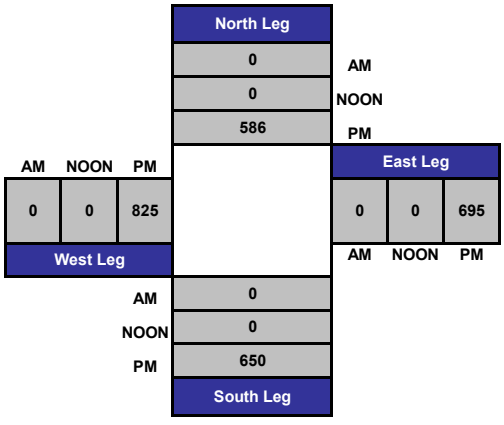
AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	18:00 - 19:00

Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Total Ins & Outs



Total Volume Per Leg



County Road 98 & W Kentucky Avenue

Date: 1/29/2016

Day: Friday

Project #: 16-7030-021

AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	17:00 - 18:00

Peak Hour Summary

Southbound Approach

County Road 98

AM	0	0	0	0	0 AM
NOON	0	0	0	0	0 NOON
PM	33	152	13	0	231 PM

W Kentucky Avenue

Eastbound Approach

	AM	NOON	PM
	0	0	110
	0	0	0
	0	0	24
	0	0	35
	0	0	7
	AM	NOON	PM

CONTROL

Westbound Approach

	AM	NOON	PM
	0	0	20
	0	0	59
	0	0	81
	0	0	0
	0	0	138
	AM	NOON	PM

Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Northbound Approach

AM	0	0	0	0	0 AM
NOON	0	0	0	0	0 NOON
PM	240	0	18	187	90 PM

Total Ins & Outs

	North Leg		
	0	0	AM
	0	0	NOON
	198	231	PM

West Leg			East Leg		
AM	NOON	PM	AM	NOON	PM
0	0	110	0	0	160
0	0	66	0	0	138

	South Leg	
AM	0	0
NOON	0	0
PM	240	295

Total Volume Per Leg

	North Leg	
	0	AM
	0	NOON
	429	PM

West Leg			East Leg		
AM	NOON	PM	AM	NOON	PM
0	0	176	0	0	298

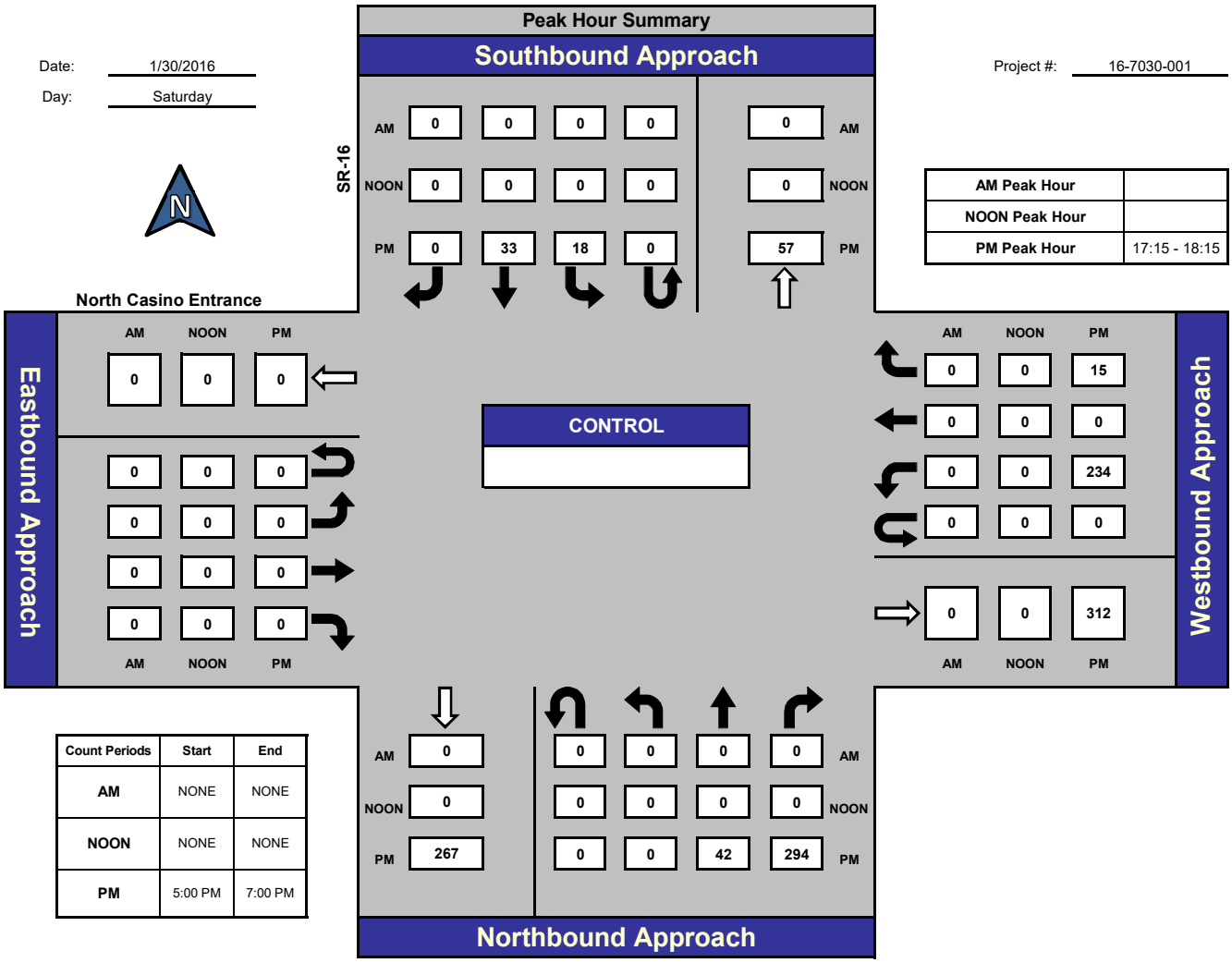
	South Leg
AM	0
NOON	0
PM	535

SR-16 & North Casino Entrance

Date: 1/30/2016
Day: Saturday

Project #: 16-7030-001

Peak Hour Summary	
AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	17:15 - 18:15



Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Total Ins & Outs

	North Leg			East Leg			South Leg		
	0	0	AM	0	0	249	0	0	AM
	0	0	NOON	0	0	312	0	0	NOON
	51	57	PM	AM	NOON	PM	267	336	PM
West Leg									
AM	0	0	0						
NOON	0	0	0						
PM	0	0	0						

Total Volume Per Leg

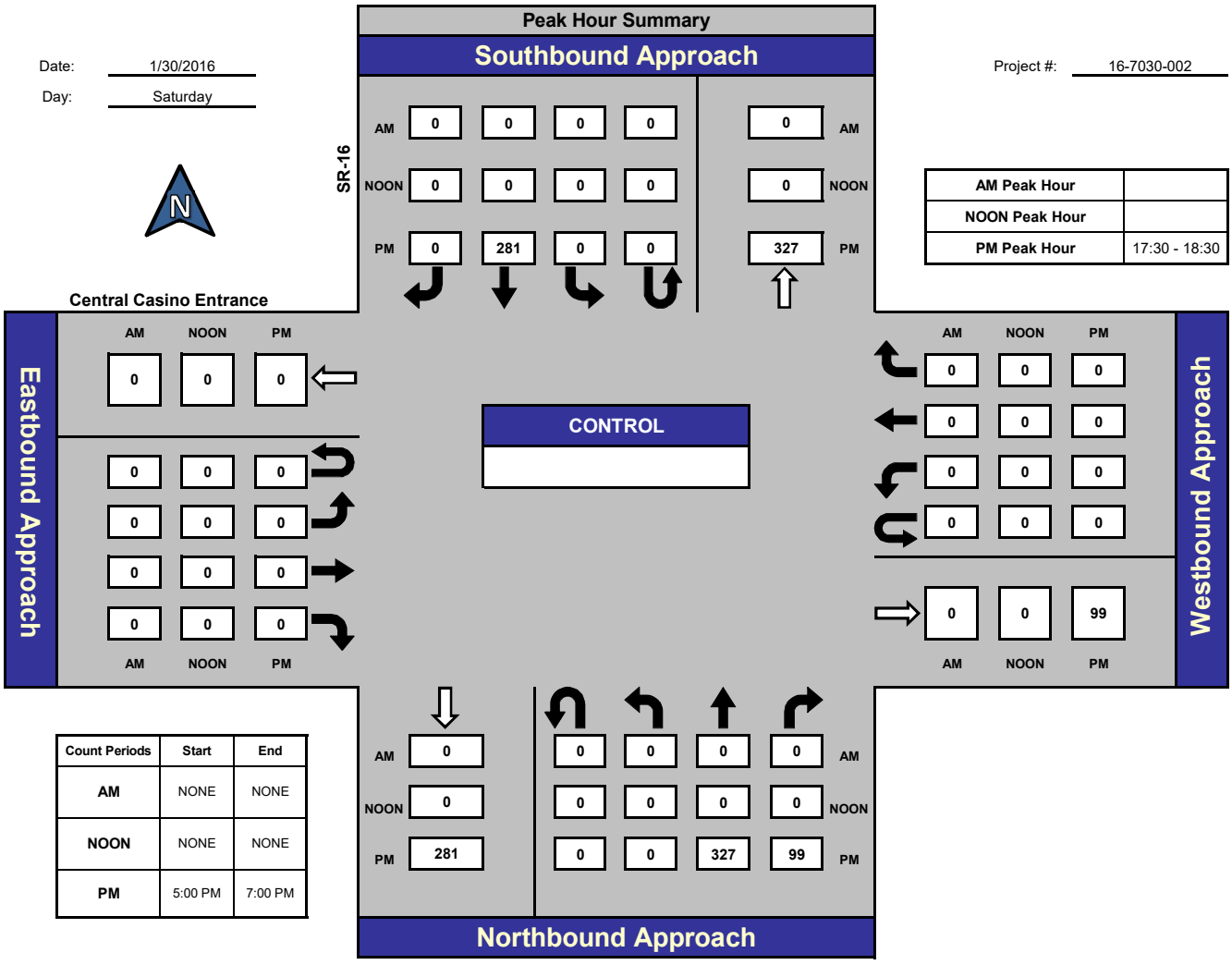
	North Leg			East Leg			South Leg		
	0		AM			561			
	0		NOON						
	108		PM	AM	NOON	PM			
West Leg									
AM	0	0	0						
NOON	0	0	0						
PM	0	0	603						

SR-16 & Central Casino Entrance

Date: 1/30/2016

Day: Saturday

Project #: 16-7030-002



AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	17:30 - 18:30

Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Total Ins & Outs

	North Leg		
	0	0	AM
	0	0	NOON
	281	327	PM

West Leg				East Leg		
AM	NOON	PM		AM	NOON	PM
0	0	0		0	0	0
0	0	0		0	0	99

	South Leg	
AM	0	0
NOON	0	0
PM	281	426

Total Volume Per Leg

North Leg	
0	AM
0	NOON
608	PM

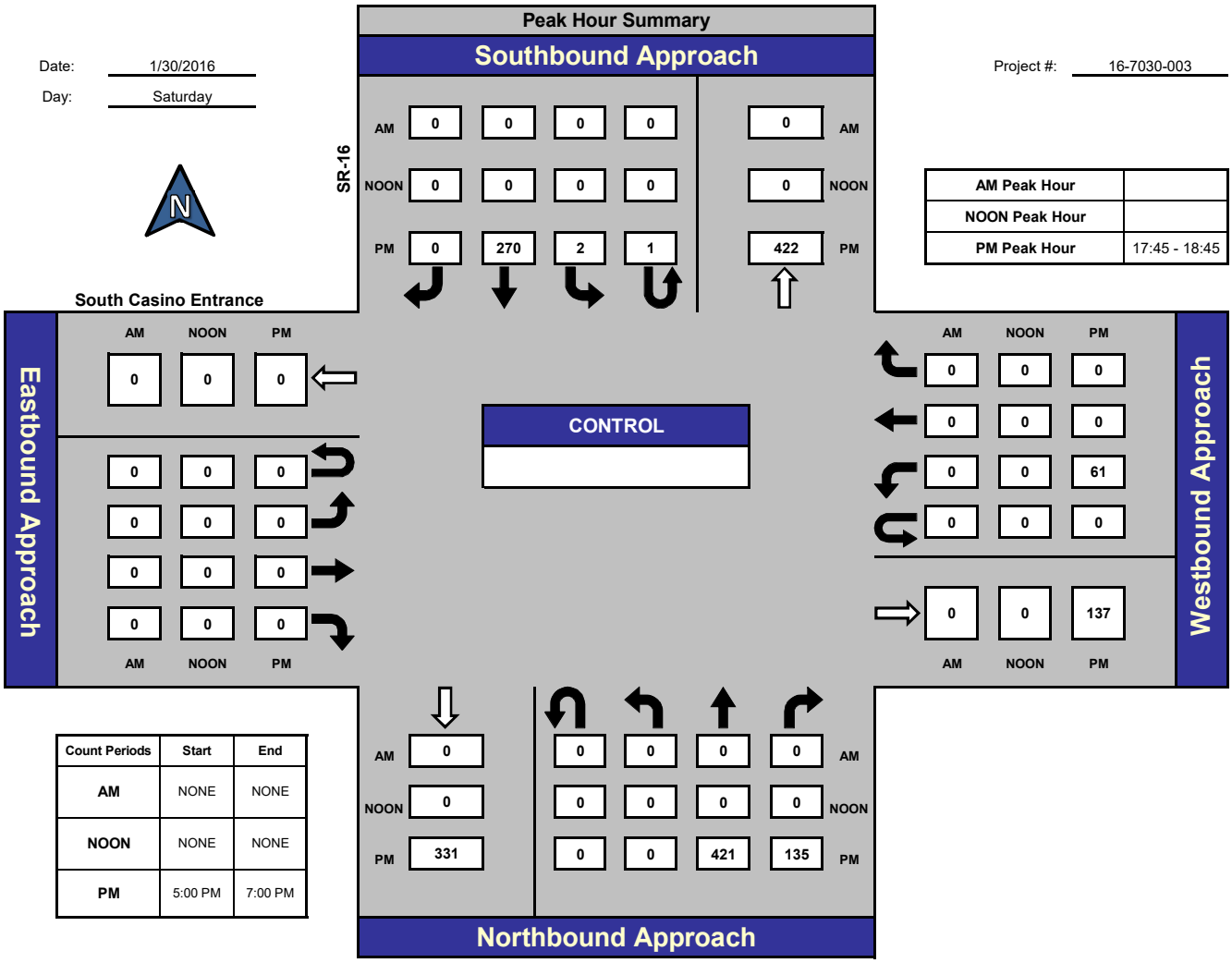
West Leg			East Leg		
AM	NOON	PM	AM	NOON	PM
0	0	0	0	0	99

South Leg	
AM	0
NOON	0
PM	707

SR-16 & South Casino Entrance

Date: 1/30/2016
Day: Saturday

Project #: 16-7030-003



Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	17:45 - 18:45

Total Ins & Outs

	North Leg		
	0	0	AM
	0	0	NOON
	273	422	PM

West Leg				East Leg			
AM	NOON	PM		AM	NOON	PM	
0	0	0		0	0	61	
0	0	0		0	0	137	

	South Leg	
AM	0	0
NOON	0	0
PM	331	556

Total Volume Per Leg

	North Leg	
	0	AM
	0	NOON
	695	PM

West Leg			East Leg		
AM	NOON	PM	AM	NOON	PM
0	0	0	0	0	198

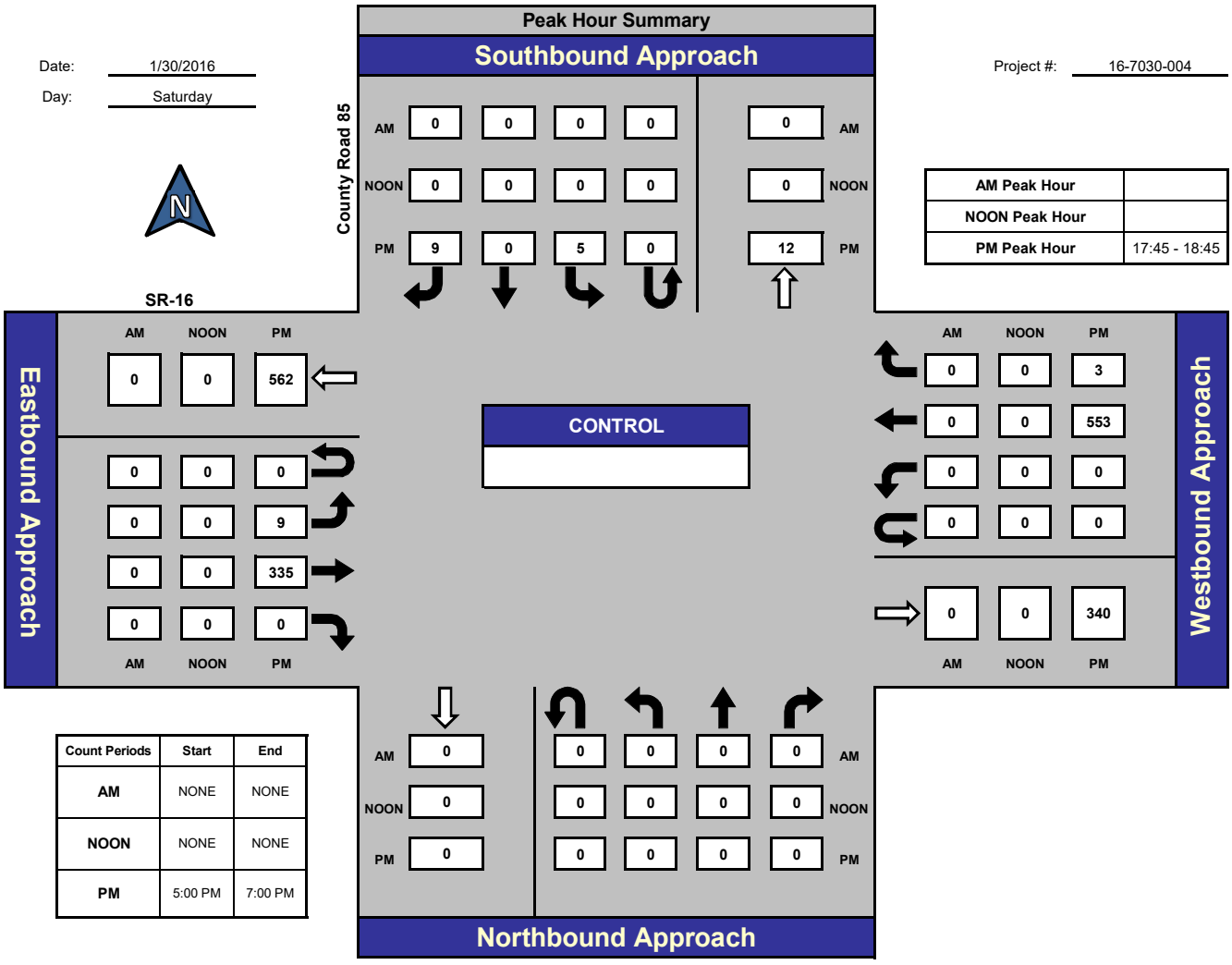
	South Leg
AM	0
NOON	0
PM	887

County Road 85 & SR-16

Date: 1/30/2016

Day: Saturday

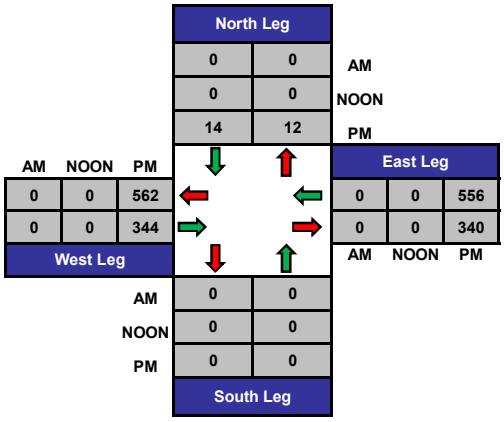
Project #: 16-7030-004



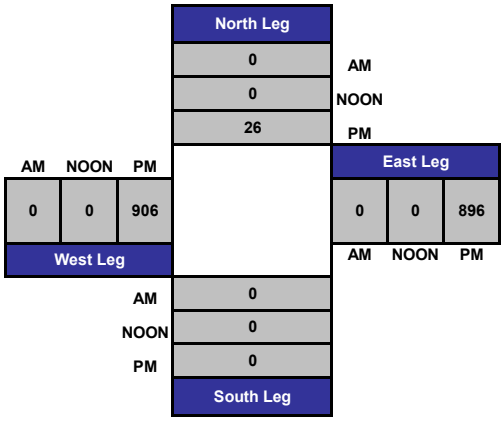
AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	17:45 - 18:45

Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Total Ins & Outs



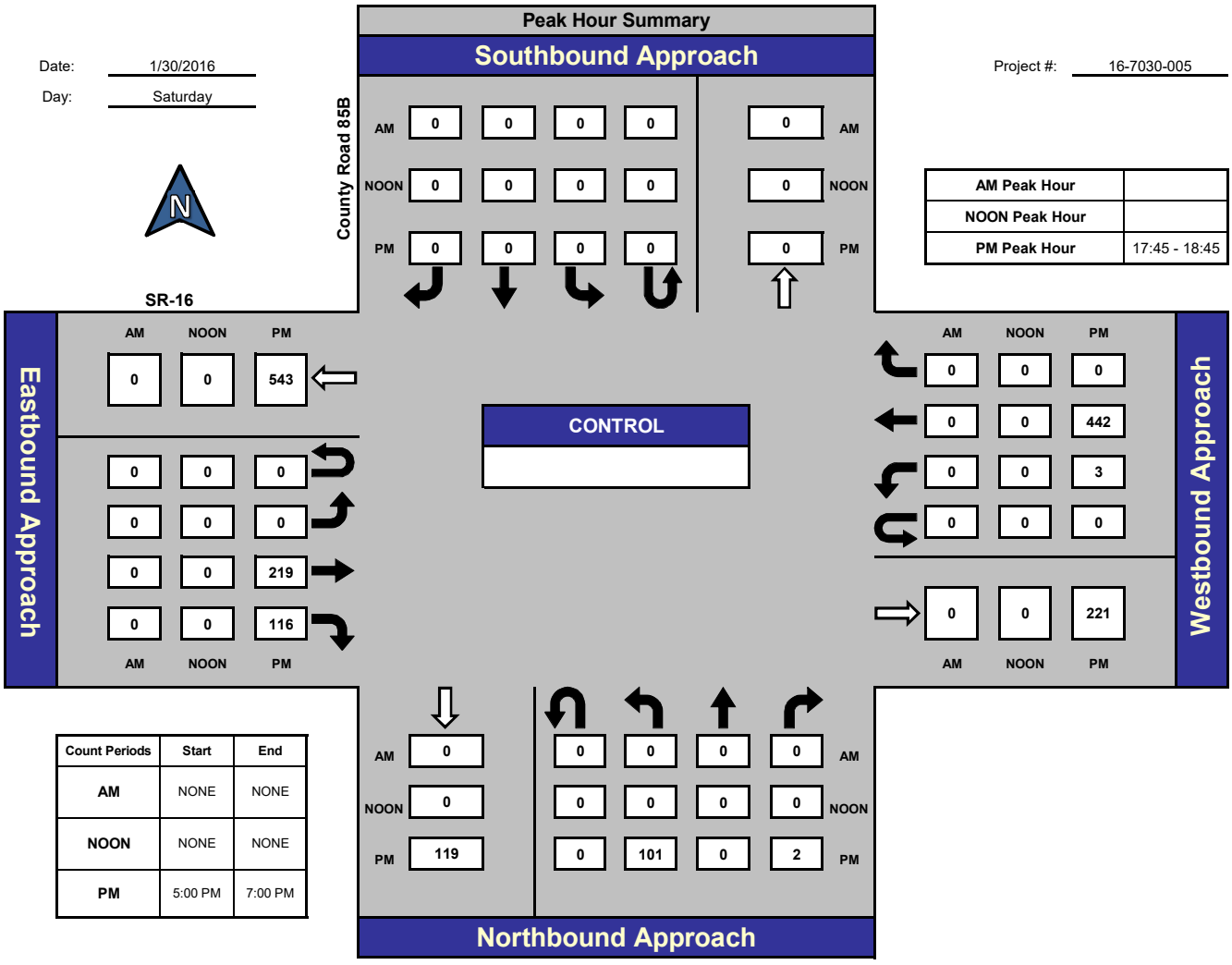
Total Volume Per Leg



County Road 85B & SR-16

Date: 1/30/2016
Day: Saturday

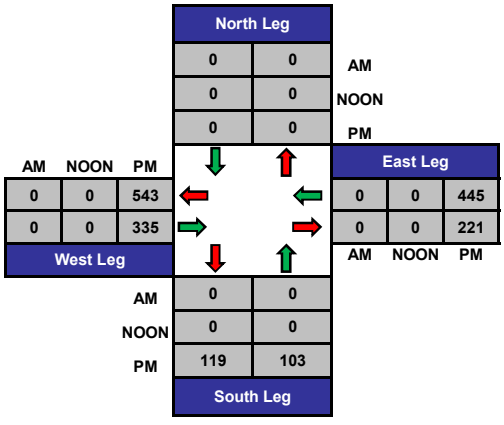
Project #: 16-7030-005



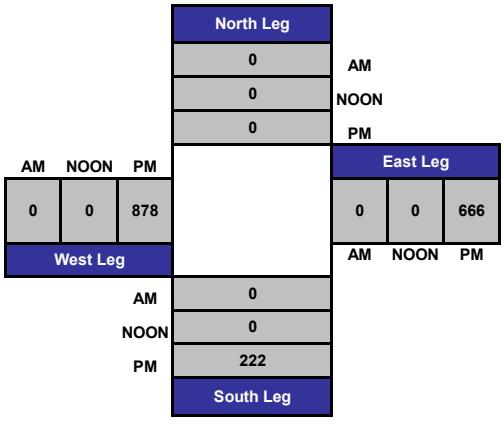
AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	17:45 - 18:45

Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Total Ins & Outs



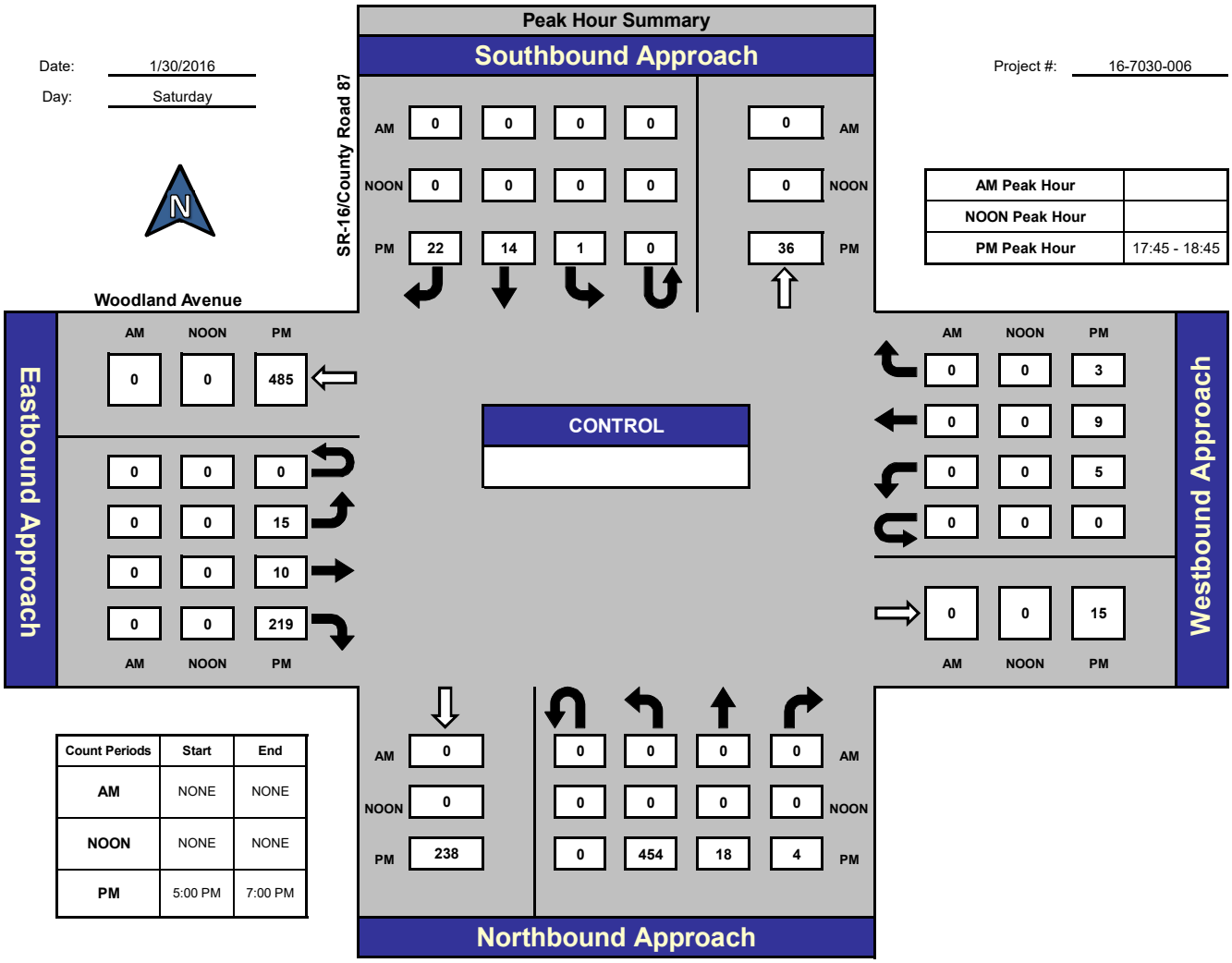
Total Volume Per Leg



SR-16/County Road 87 & Woodland Avenue

Date: 1/30/2016
Day: Saturday

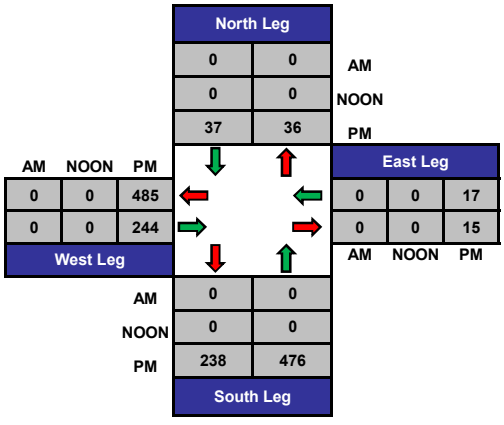
Project #: 16-7030-006



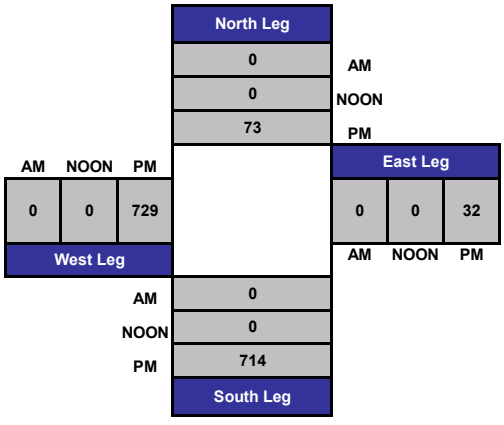
AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	17:45 - 18:45

Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Total Ins & Outs



Total Volume Per Leg

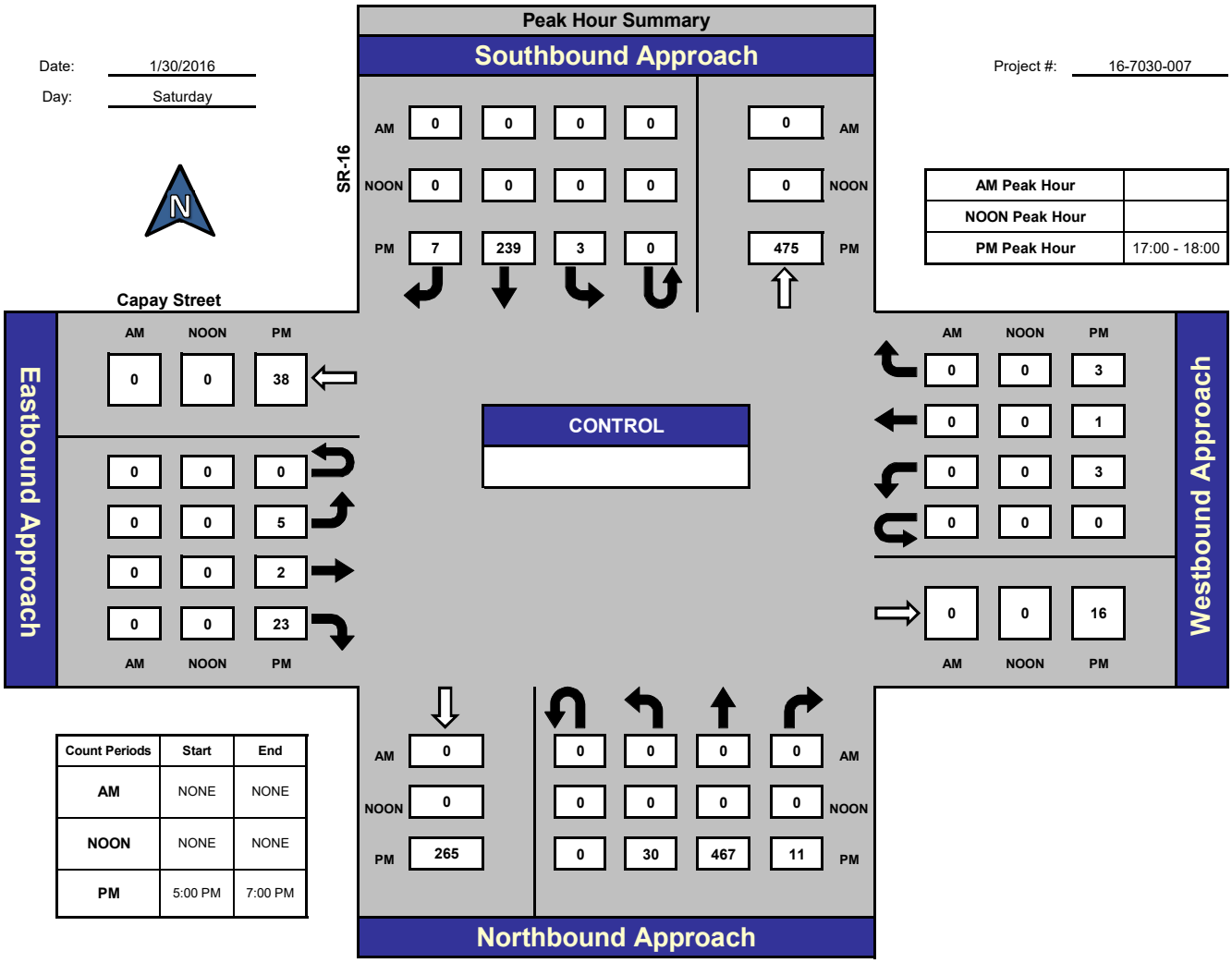


SR-16 & Capay Street

Date: 1/30/2016

Day: Saturday

Project #: 16-7030-007



AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	17:00 - 18:00

Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Total Ins & Outs

North Leg	
0	0 AM
0	0 NOON
249	475 PM

West Leg			East Leg		
AM	NOON	PM	AM	NOON	PM
0	0	38	0	0	7
0	0	30	0	0	16

South Leg	
0	0 AM
0	0 NOON
265	508 PM

Total Volume Per Leg

North Leg
0 AM
0 NOON
724 PM

West Leg			East Leg		
AM	NOON	PM	AM	NOON	PM
0	0	68	0	0	23

South Leg
0 AM
0 NOON
773 PM

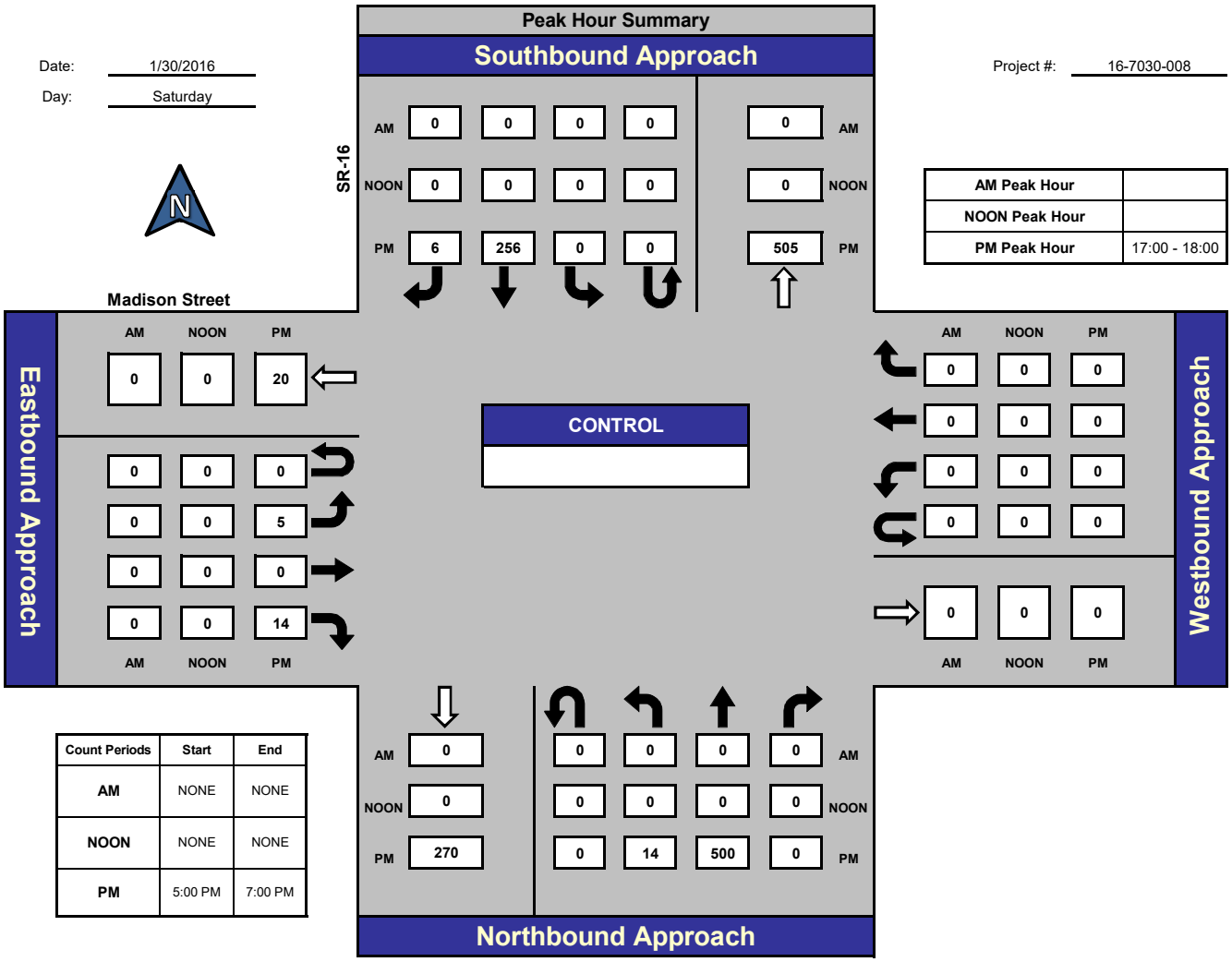
SR-16 & Madison Street

Date: 1/30/2016

Day: Saturday

Project #: 16-7030-008

Peak Hour Summary	
AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	17:00 - 18:00



Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Total Ins & Outs

	North Leg		
	0	0	AM
	0	0	NOON
	262	505	PM

West Leg				East Leg		
AM	NOON	PM		AM	NOON	PM
0	0	20		0	0	0
0	0	19		0	0	0

	South Leg	
AM	0	0
NOON	0	0
PM	270	514

Total Volume Per Leg

	North Leg	
	0	AM
	0	NOON
	767	PM

West Leg			East Leg		
AM	NOON	PM	AM	NOON	PM
0	0	39	0	0	0

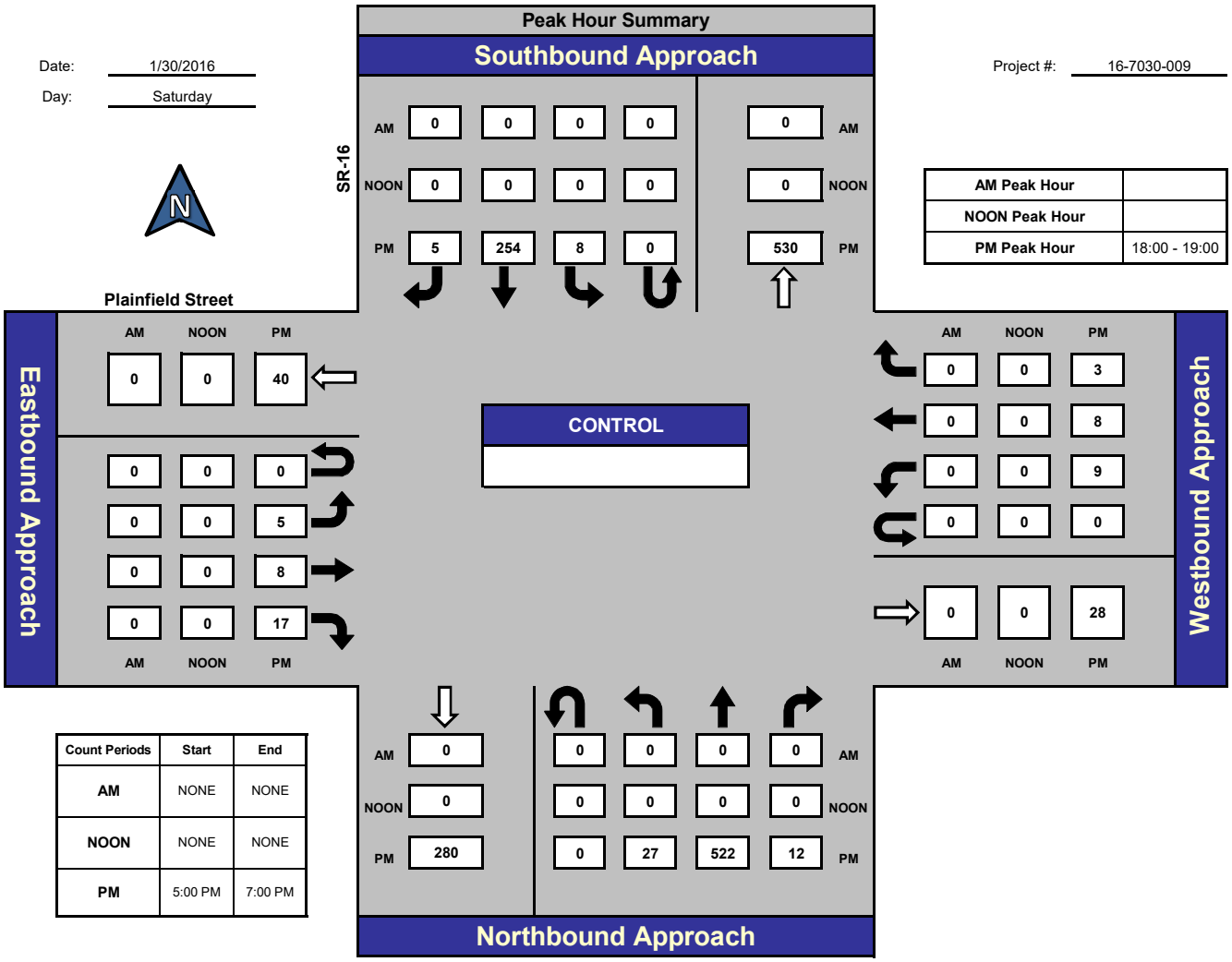
	South Leg
AM	0
NOON	0
PM	784

SR-16 & Plainfield Street

Date: 1/30/2016
Day: Saturday

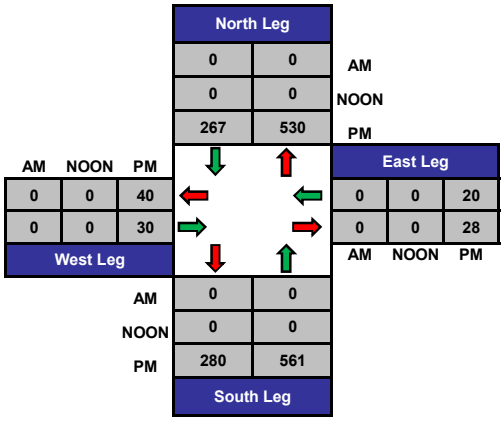
Project #: 16-7030-009

AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	18:00 - 19:00

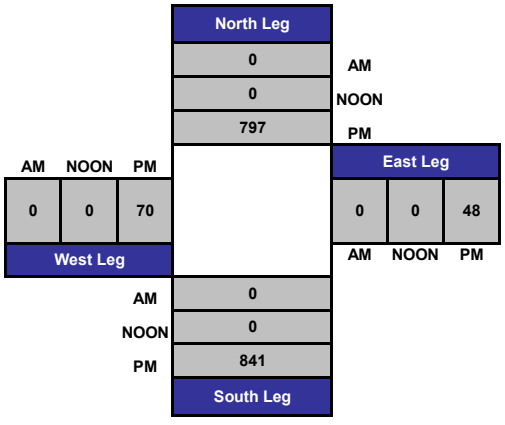


Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Total Ins & Outs



Total Volume Per Leg

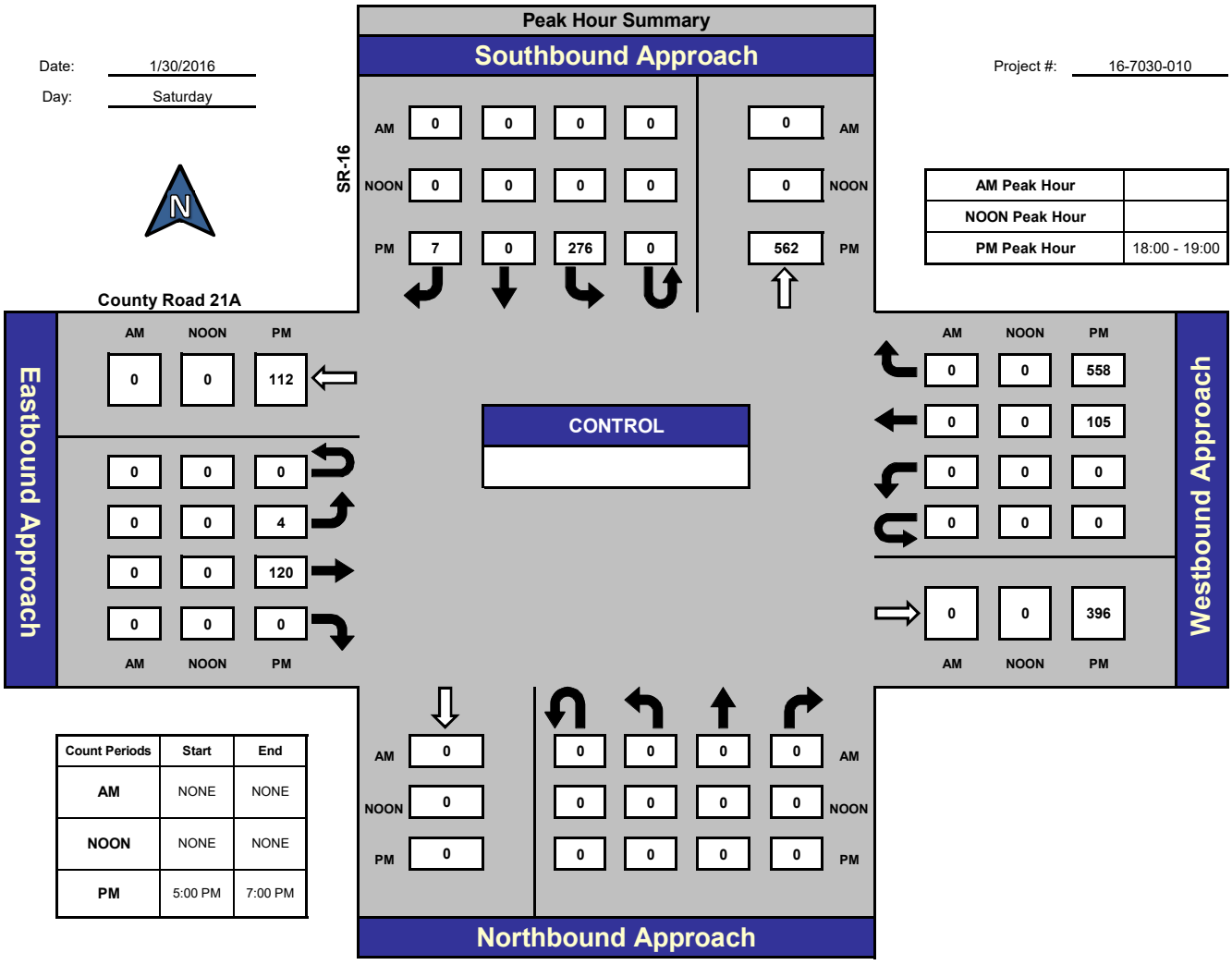


SR-16 & County Road 21A

Date: 1/30/2016

Day: Saturday

Project #: 16-7030-010



AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	18:00 - 19:00

Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Total Ins & Outs

	North Leg		
	0	0	AM
	0	0	NOON
	283	562	PM

West Leg			East Leg		
AM	NOON	PM			
0	0	112	0	0	663
0	0	124	0	0	396
			AM	NOON	PM

	South Leg	
AM	0	0
NOON	0	0
PM	0	0

Total Volume Per Leg

	North Leg	
	0	AM
	0	NOON
	845	PM

West Leg			East Leg		
AM	NOON	PM			
0	0	236	0	0	1059
			AM	NOON	PM

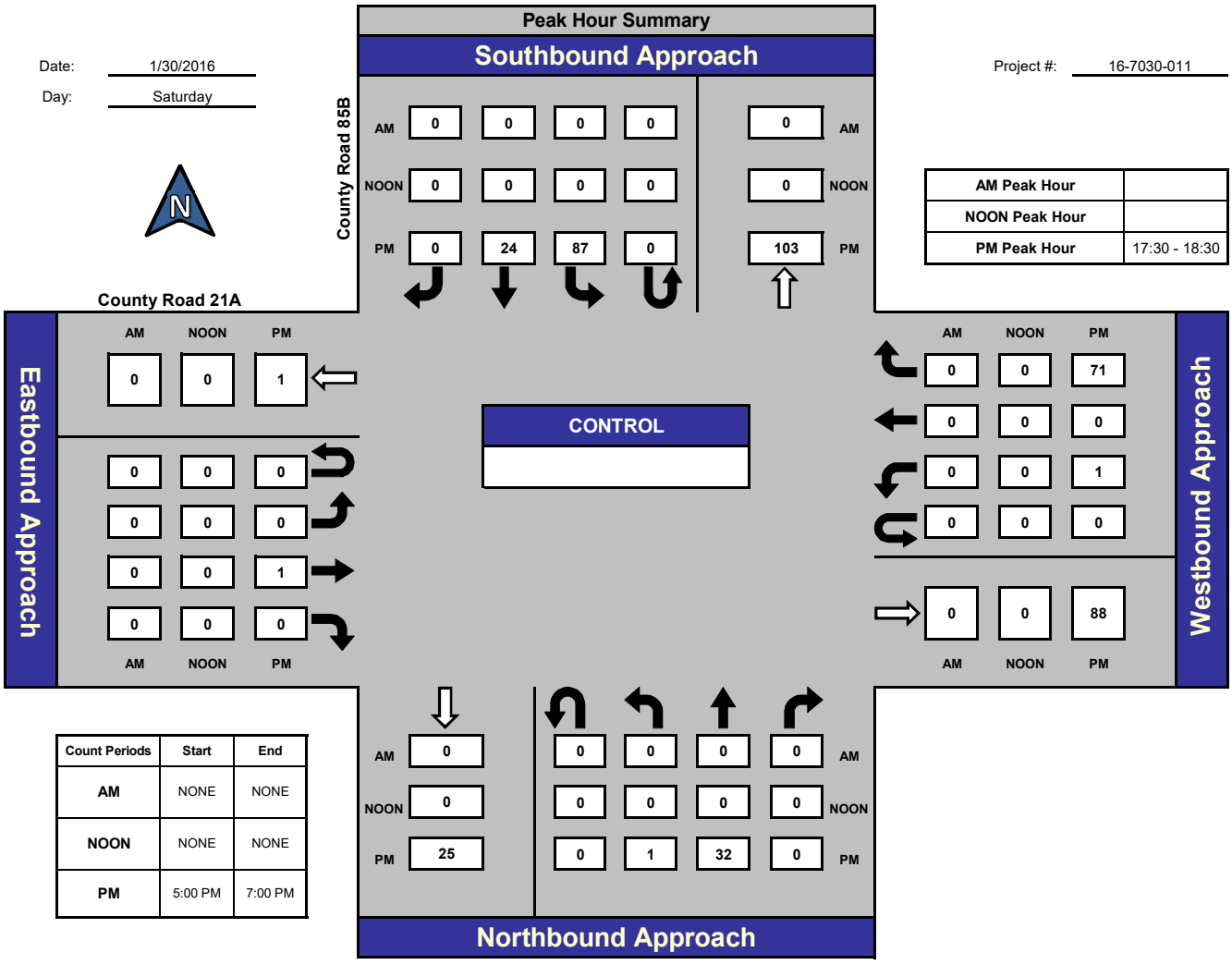
	South Leg
AM	0
NOON	0
PM	0

County Road 85B & County Road 21A

Date: 1/30/2016

Day: Saturday

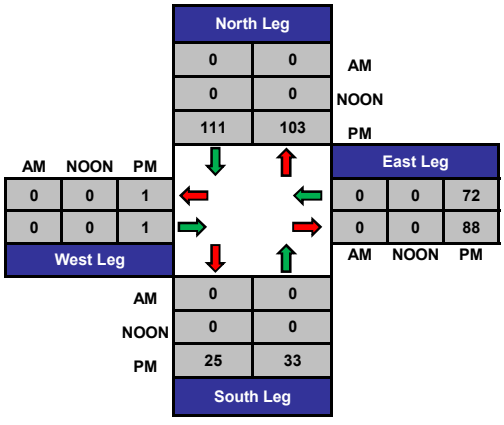
Project #: 16-7030-011



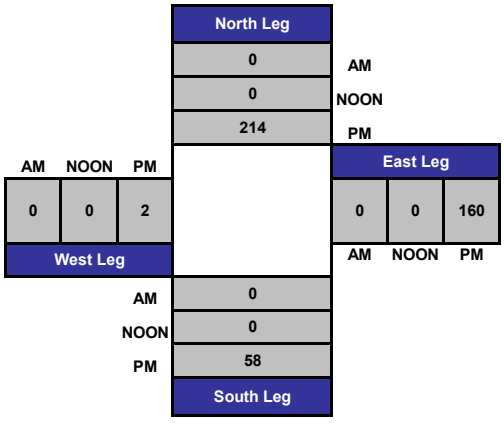
AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	17:30 - 18:30

Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Total Ins & Outs



Total Volume Per Leg

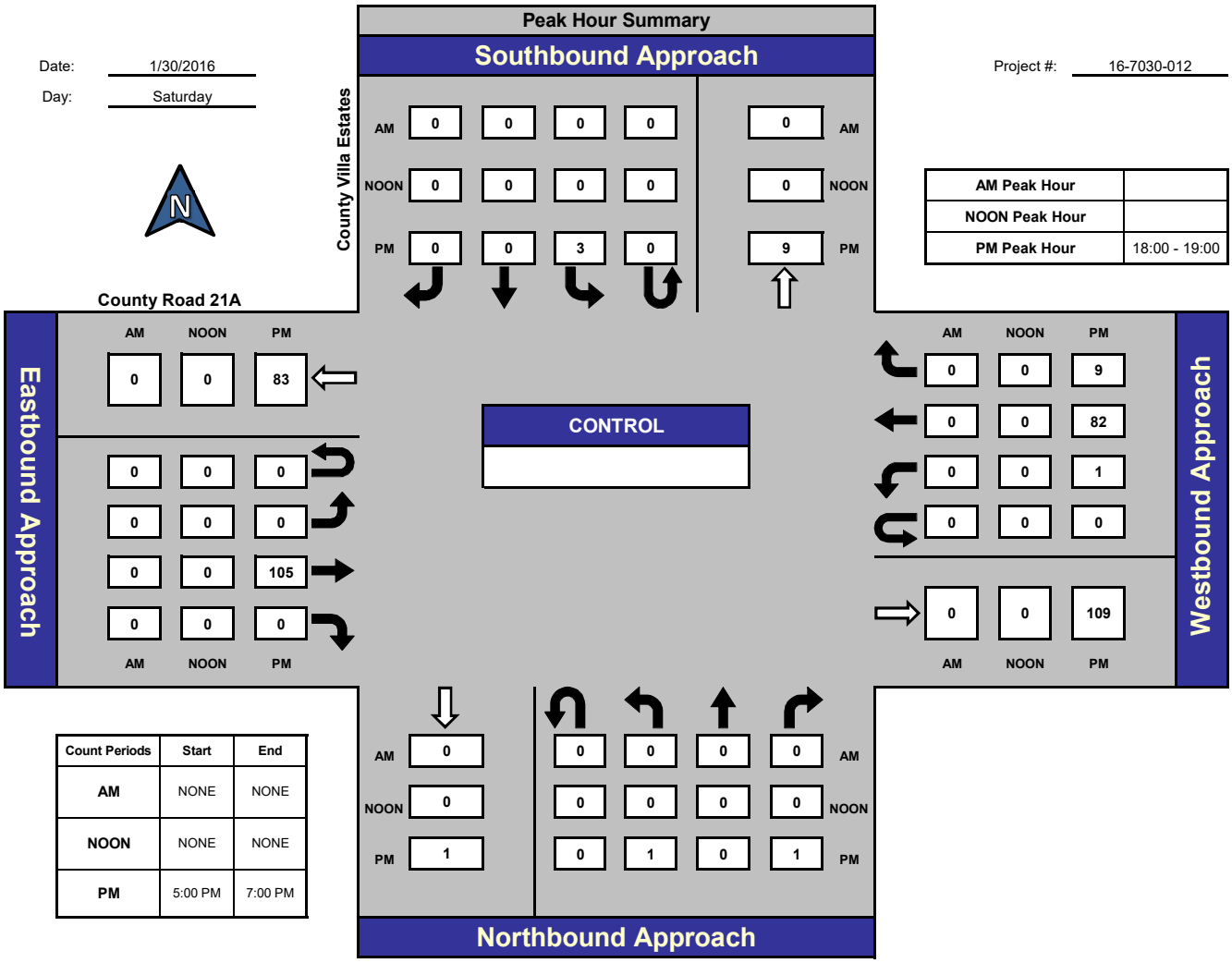


County Villa Estates & County Road 21A

Date: 1/30/2016

Day: Saturday

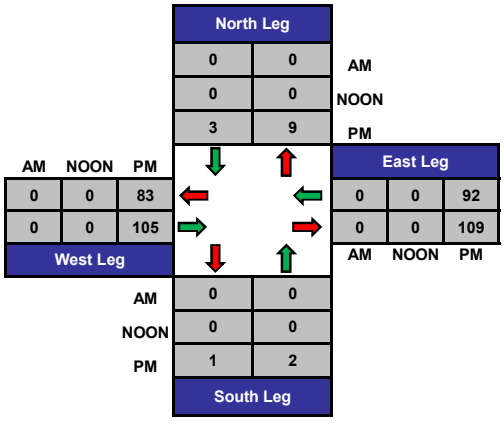
Project #: 16-7030-012



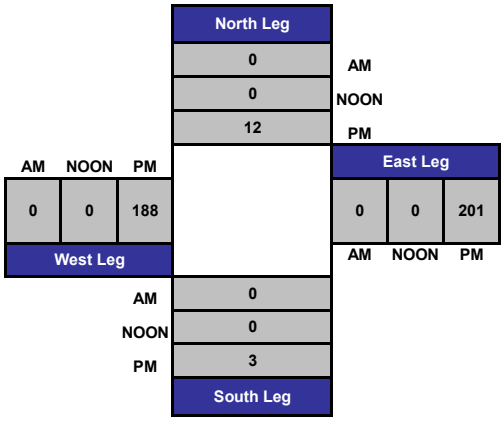
AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	18:00 - 19:00

Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Total Ins & Outs



Total Volume Per Leg



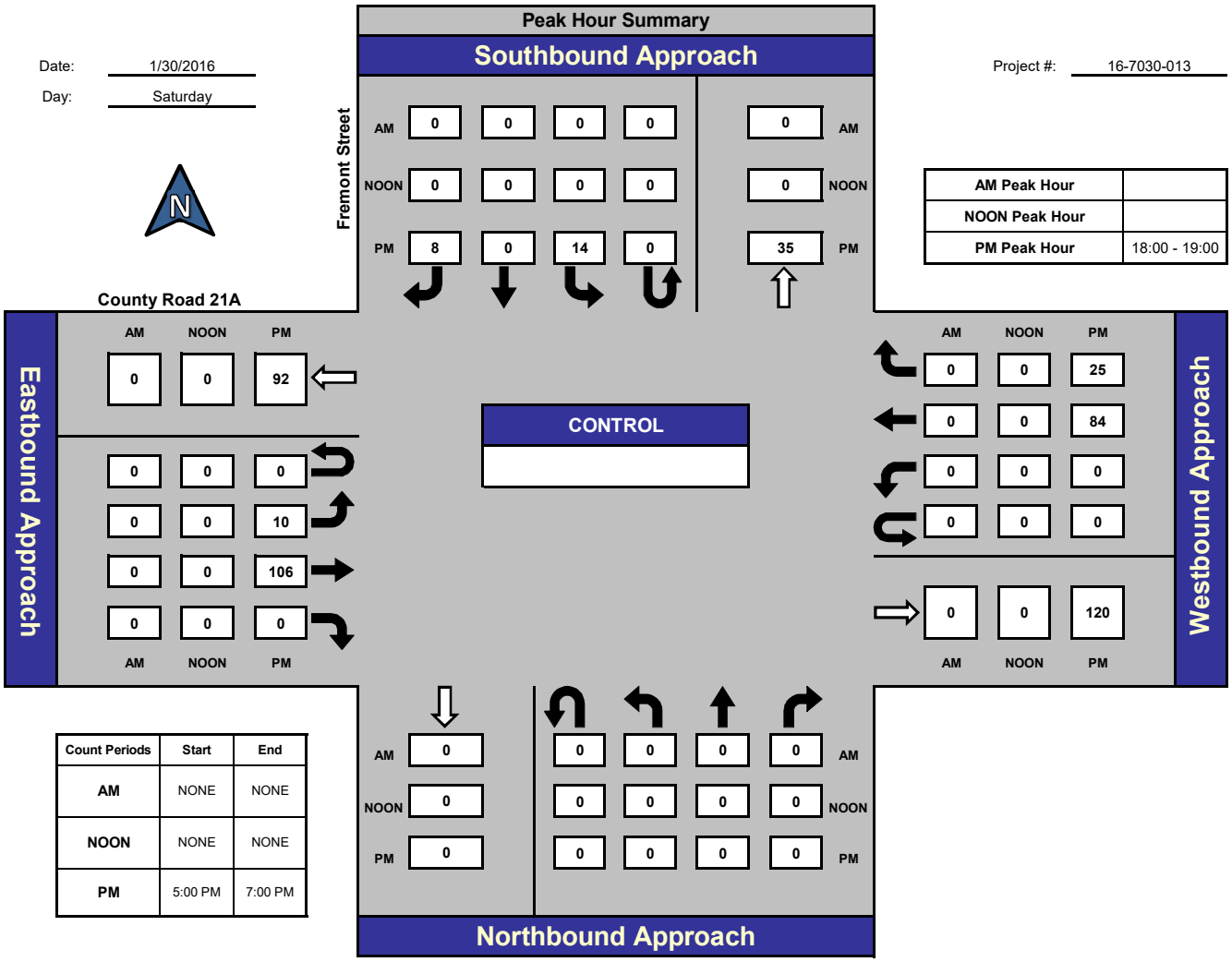
Fremont Street & County Road 21A

Date: 1/30/2016

Day: Saturday

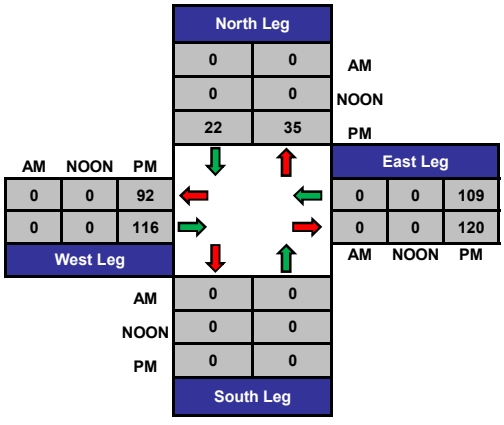
Project #: 16-7030-013

AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	18:00 - 19:00

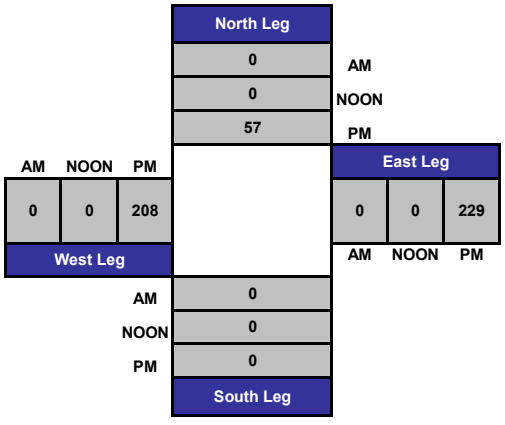


Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Total Ins & Outs



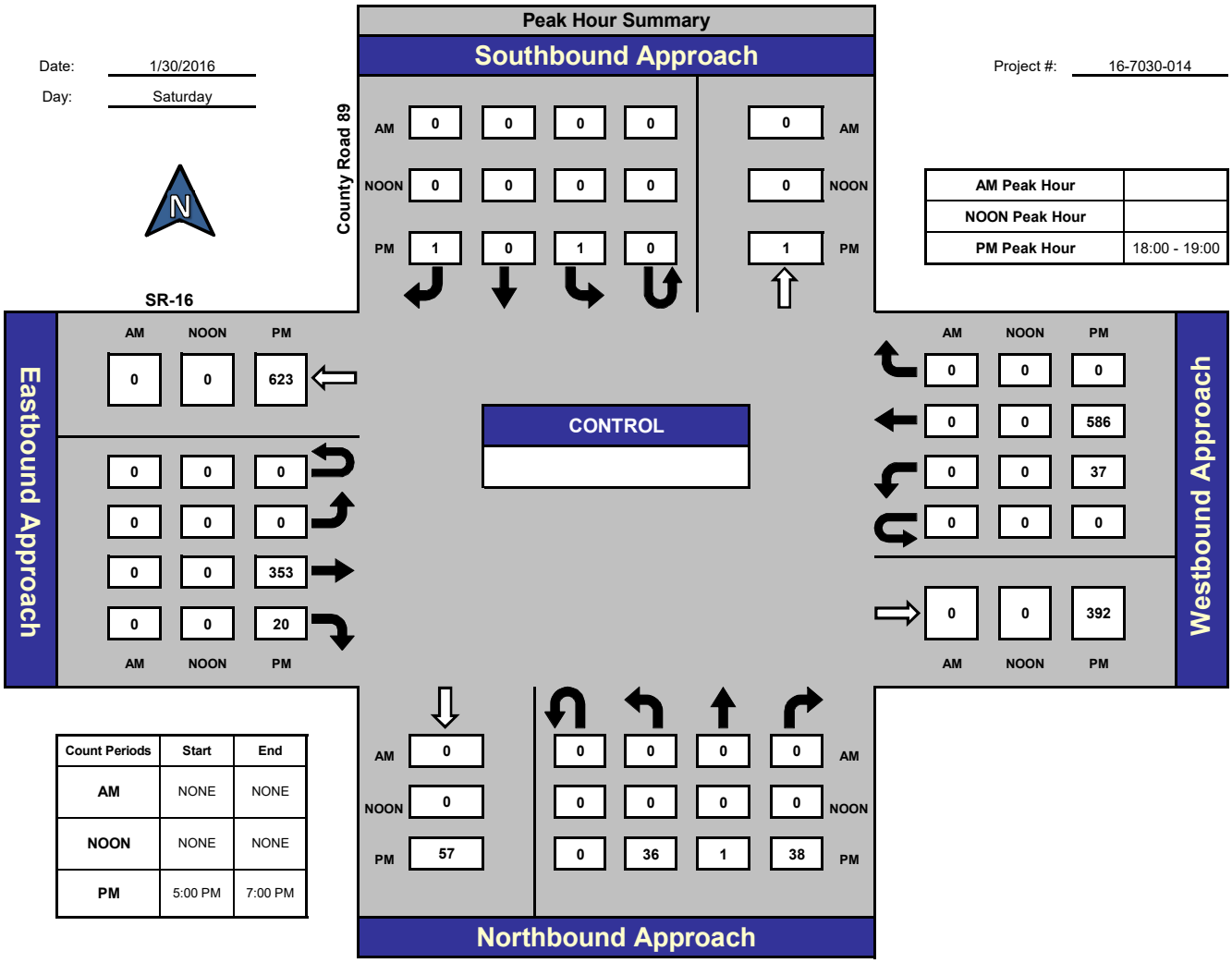
Total Volume Per Leg



County Road 89 & SR-16

Date: 1/30/2016
Day: Saturday

Project #: 16-7030-014



AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	18:00 - 19:00

Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Total Ins & Outs

	North Leg		
	0	0	AM
	0	0	NOON
	2	1	PM

West Leg				East Leg		
AM	NOON	PM		AM	NOON	PM
0	0	623		0	0	623
0	0	373		0	0	392

	South Leg	
AM	0	0
NOON	0	0
PM	57	75

Total Volume Per Leg

	North Leg	
	0	AM
	0	NOON
	3	PM

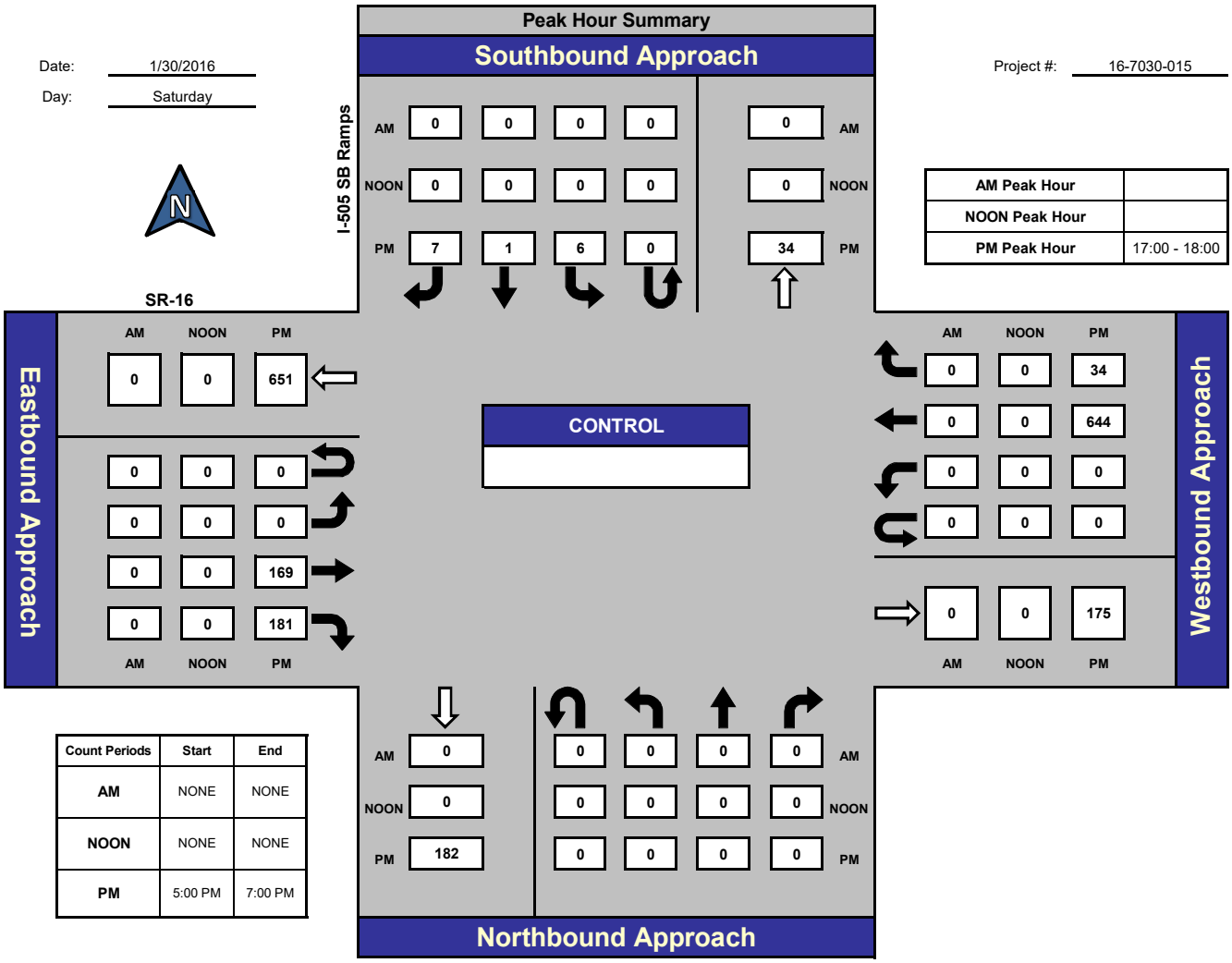
West Leg			East Leg		
AM	NOON	PM	AM	NOON	PM
0	0	996	0	0	1015

	South Leg
AM	0
NOON	0
PM	132

I-505 SB Ramps & SR-16

Date: 1/30/2016
Day: Saturday

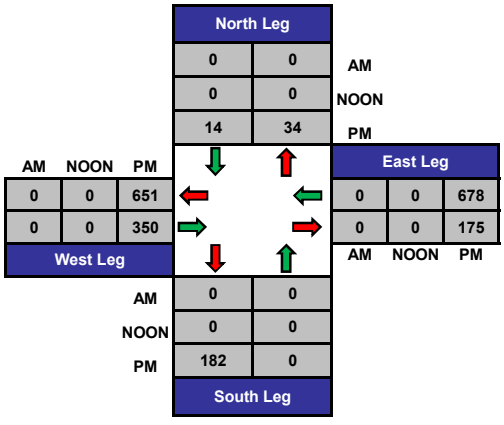
Project #: 16-7030-015



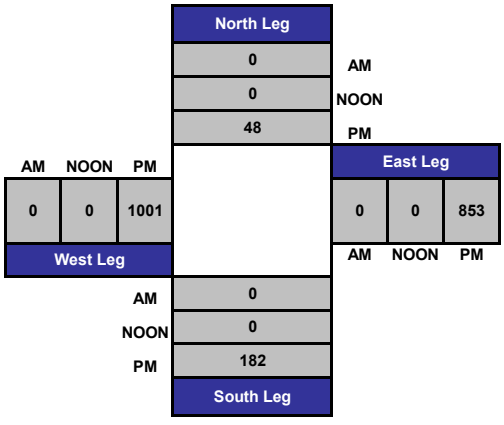
AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	17:00 - 18:00

Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Total Ins & Outs



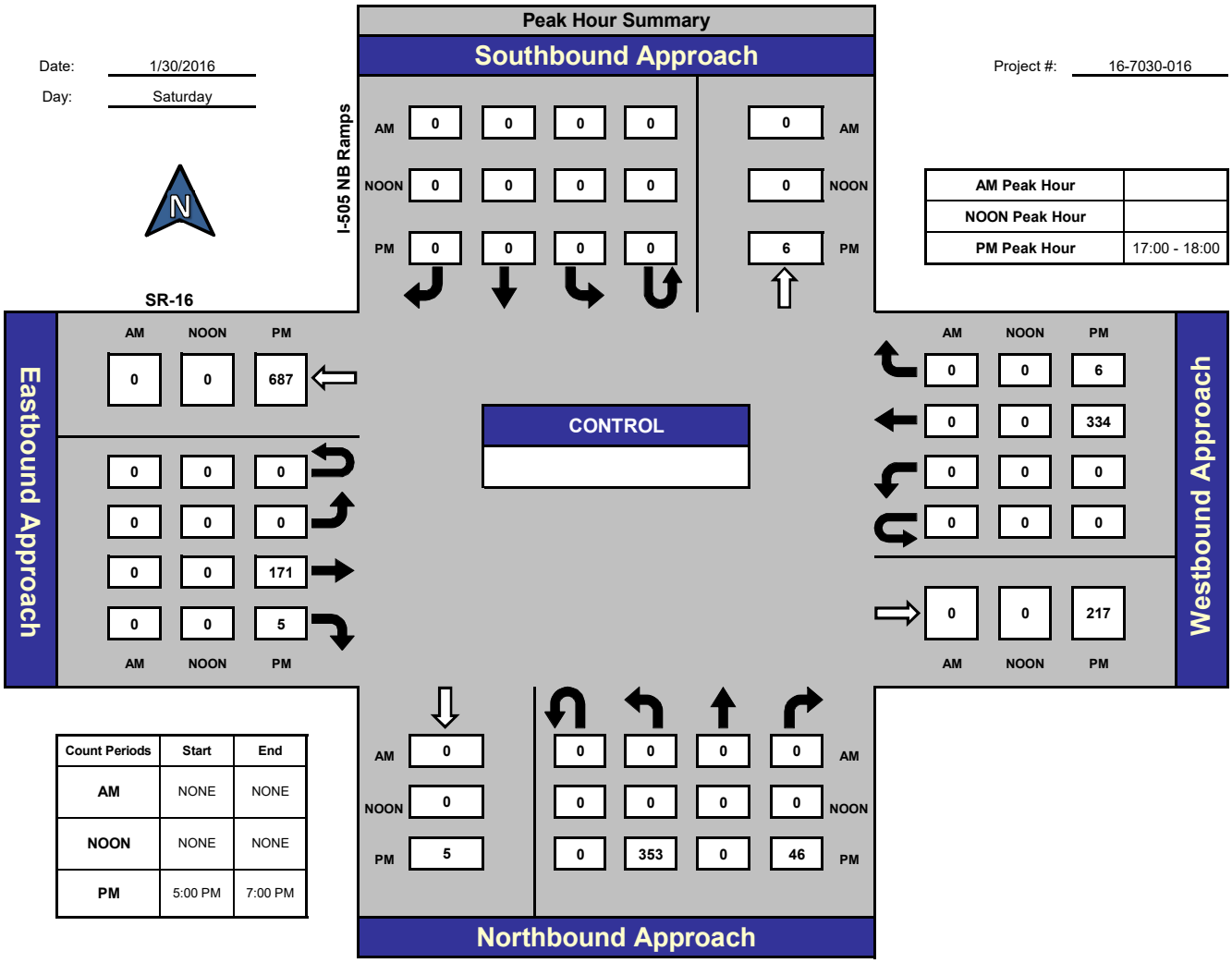
Total Volume Per Leg



I-505 NB Ramps & SR-16

Date: 1/30/2016
Day: Saturday

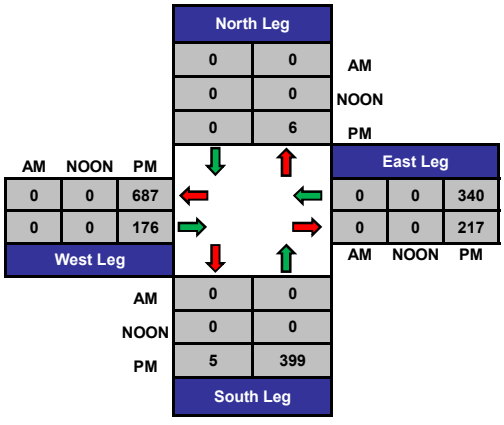
Project #: 16-7030-016



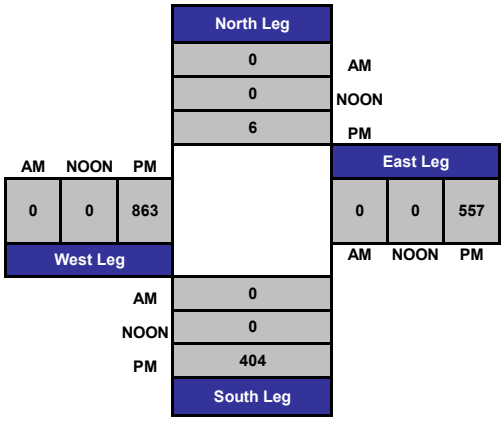
AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	17:00 - 18:00

Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Total Ins & Outs



Total Volume Per Leg

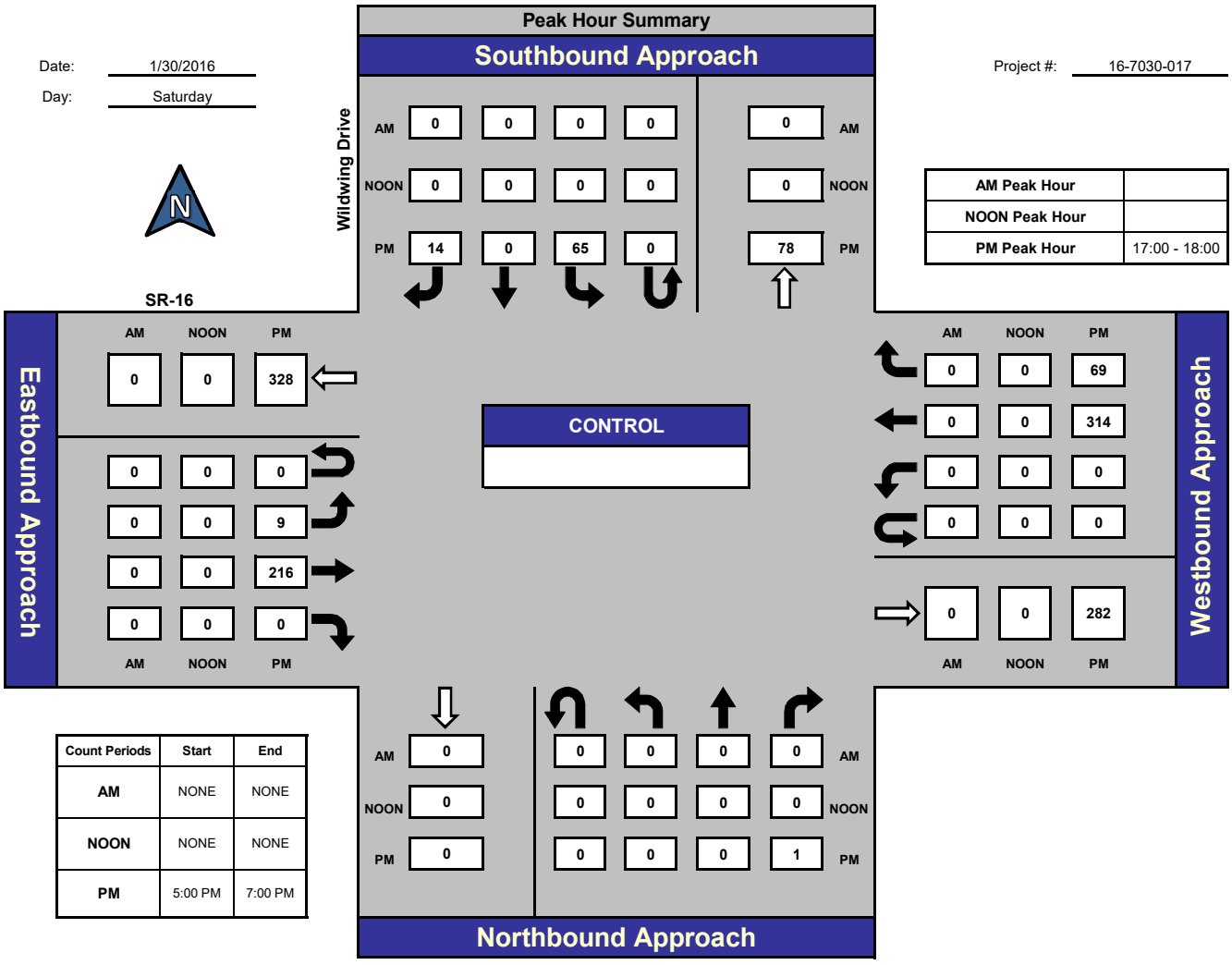


Wildwing Drive & SR-16

Date: 1/30/2016

Day: Saturday

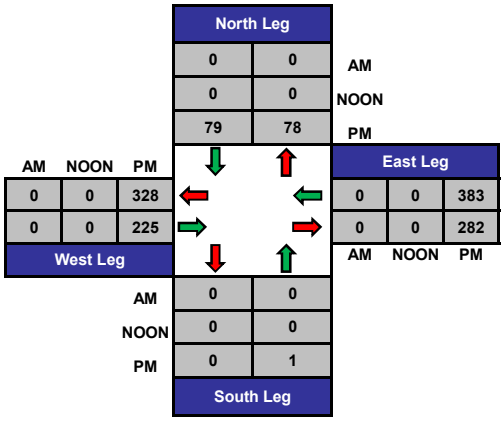
Project #: 16-7030-017



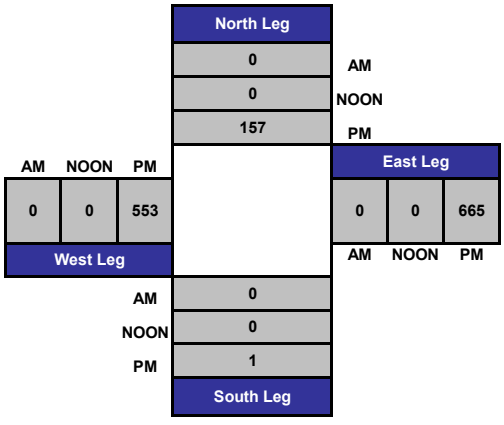
AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	17:00 - 18:00

Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Total Ins & Outs



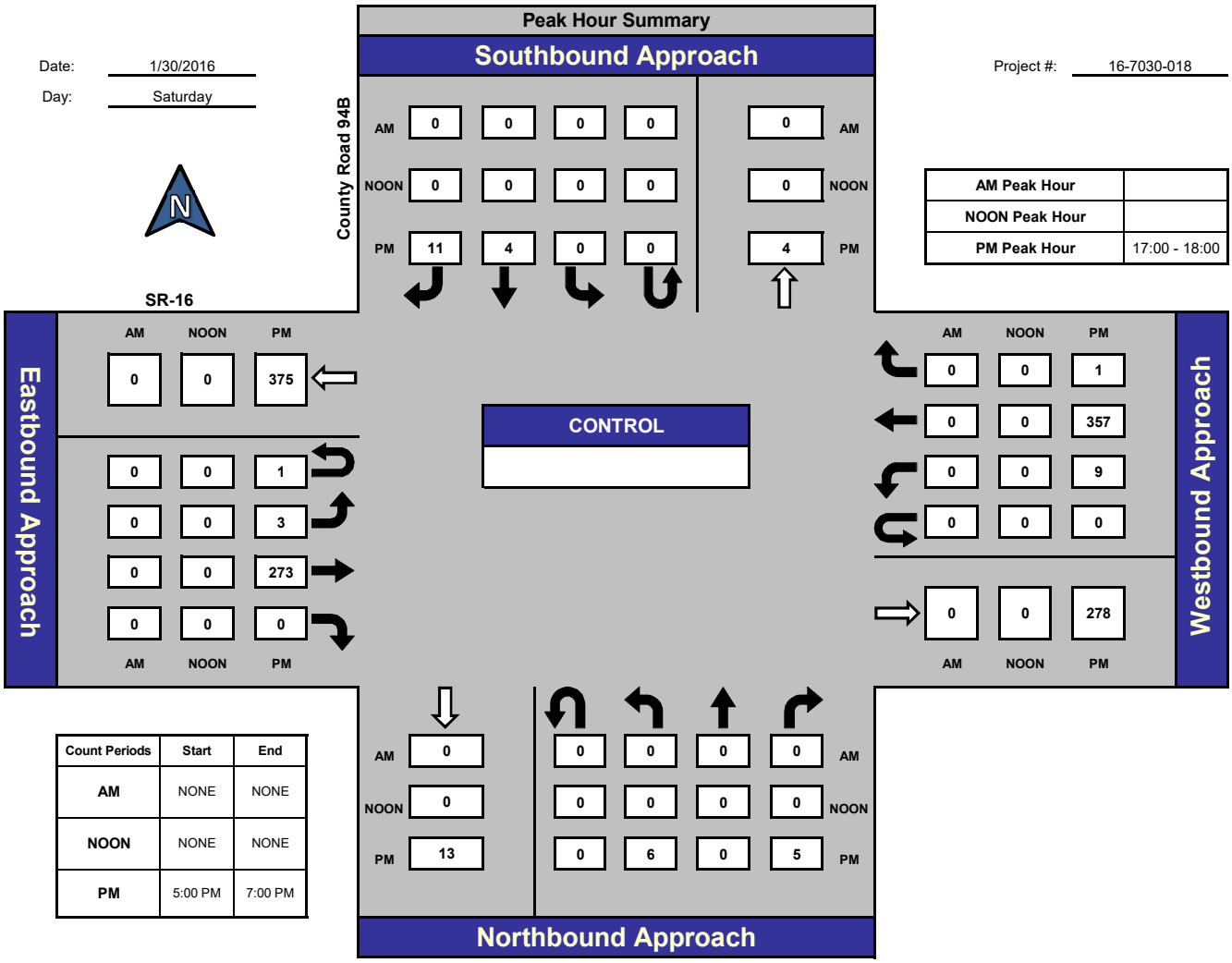
Total Volume Per Leg



County Road 94B & SR-16

Date: 1/30/2016
Day: Saturday

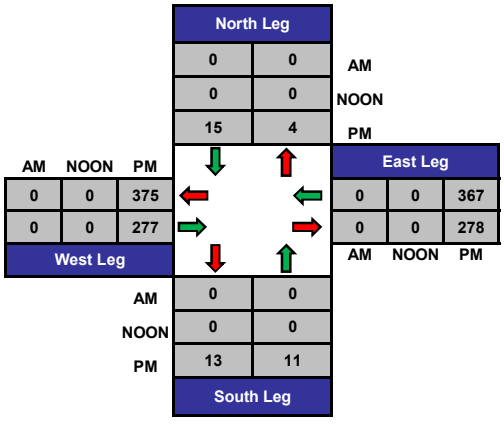
Project #: 16-7030-018



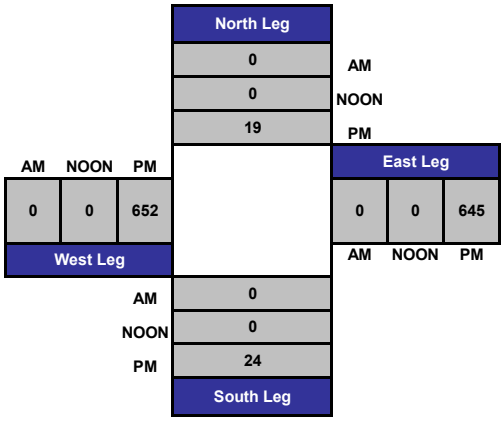
AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	17:00 - 18:00

Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Total Ins & Outs



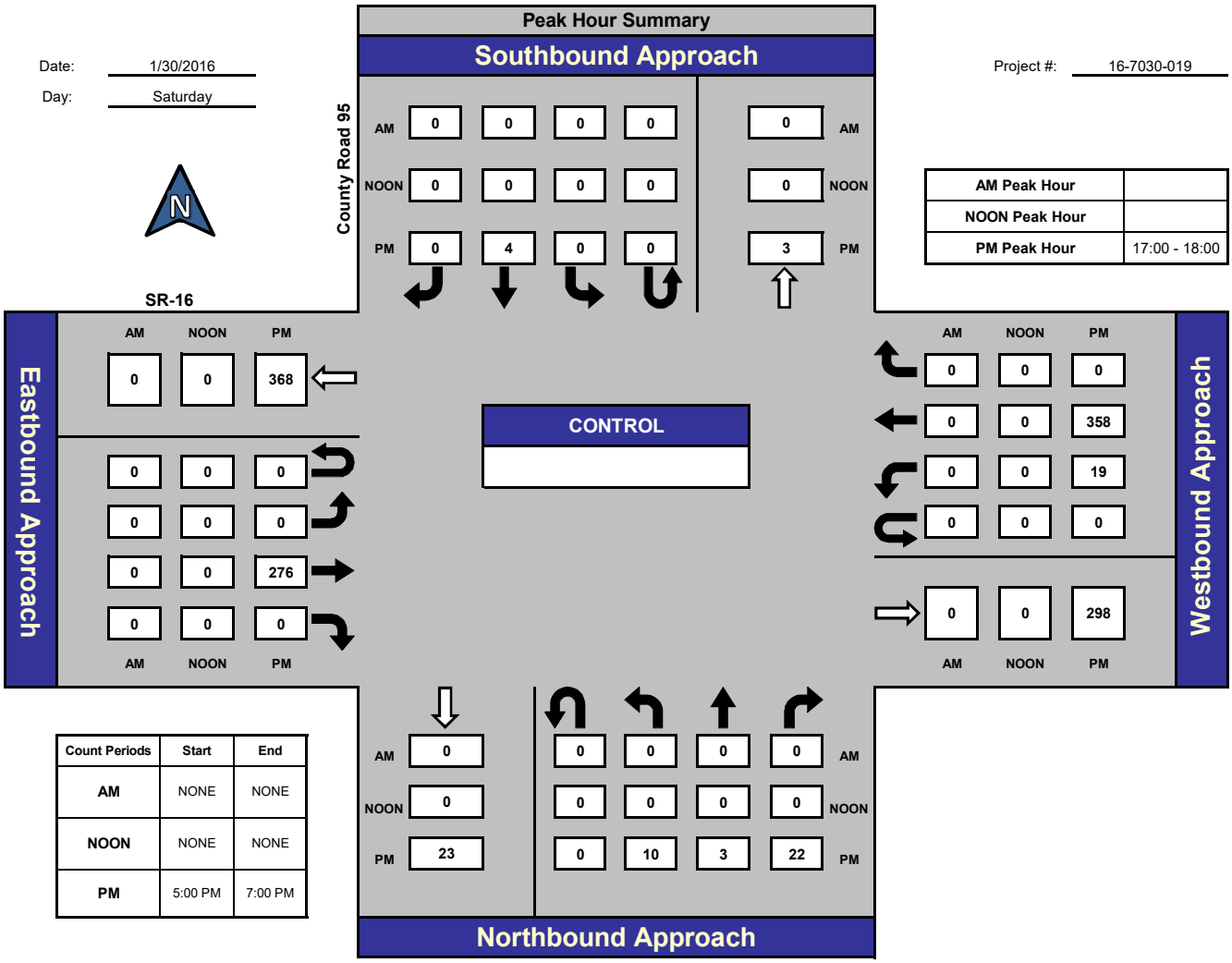
Total Volume Per Leg



County Road 95 & SR-16

Date: 1/30/2016
Day: Saturday

Project #: 16-7030-019



AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	17:00 - 18:00

Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Total Ins & Outs

	North Leg		
	0	0	AM
	0	0	NOON
	4	3	PM

West Leg				East Leg		
AM	NOON	PM		AM	NOON	PM
0	0	368		0	0	377
0	0	276		0	0	298

	South Leg	
AM	0	0
NOON	0	0
PM	23	35

Total Volume Per Leg

	North Leg	
	0	AM
	0	NOON
	7	PM

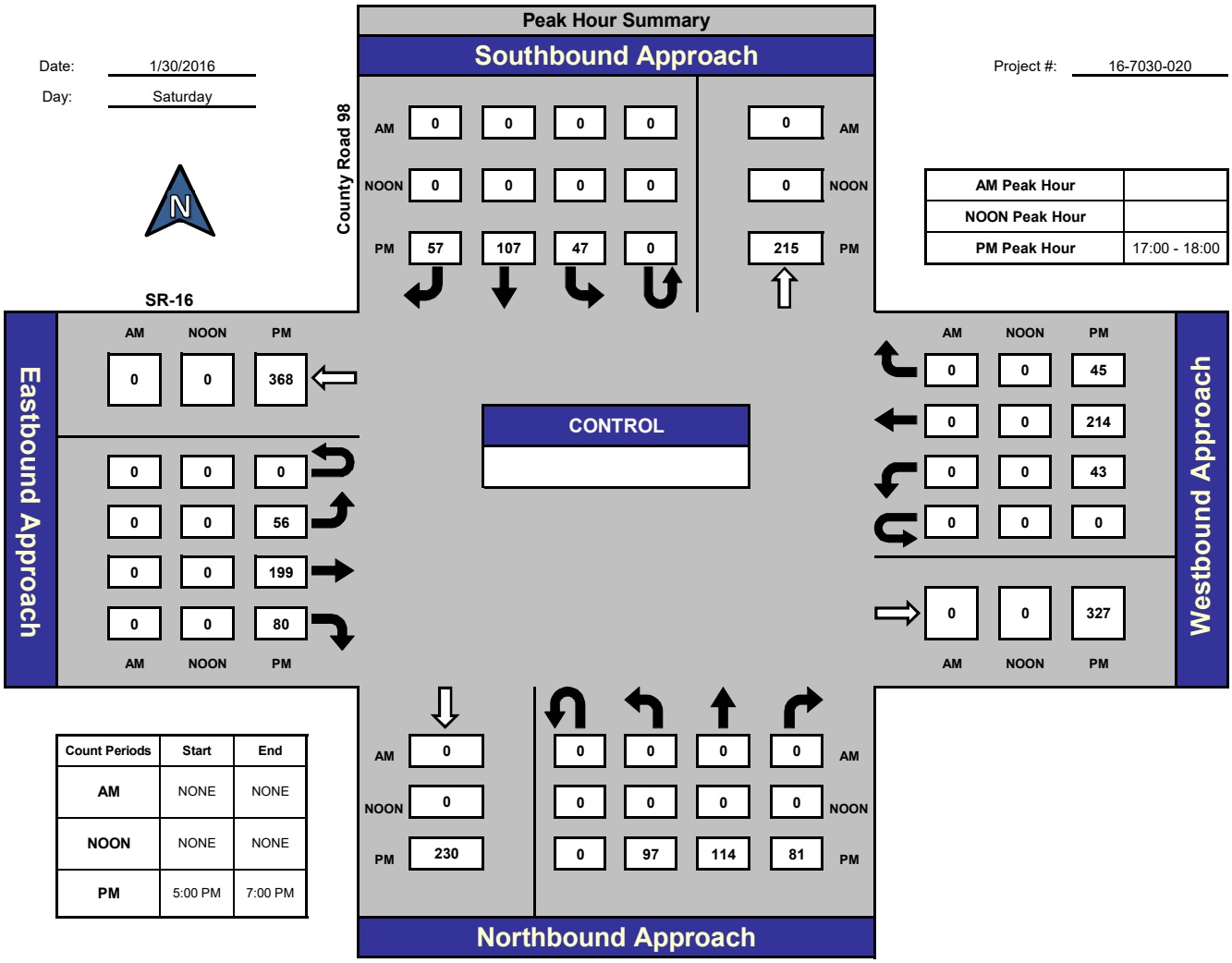
West Leg			East Leg		
AM	NOON	PM	AM	NOON	PM
0	0	644	0	0	675

	South Leg
AM	0
NOON	0
PM	58

County Road 98 & SR-16

Date: 1/30/2016
Day: Saturday

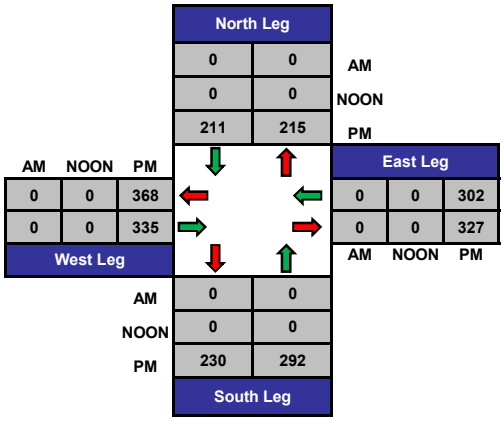
Project #: 16-7030-020



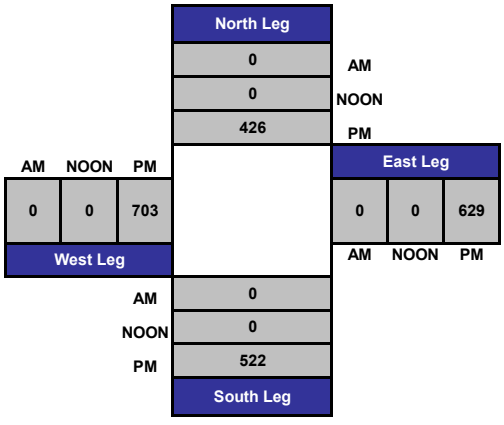
AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	17:00 - 18:00

Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Total Ins & Outs



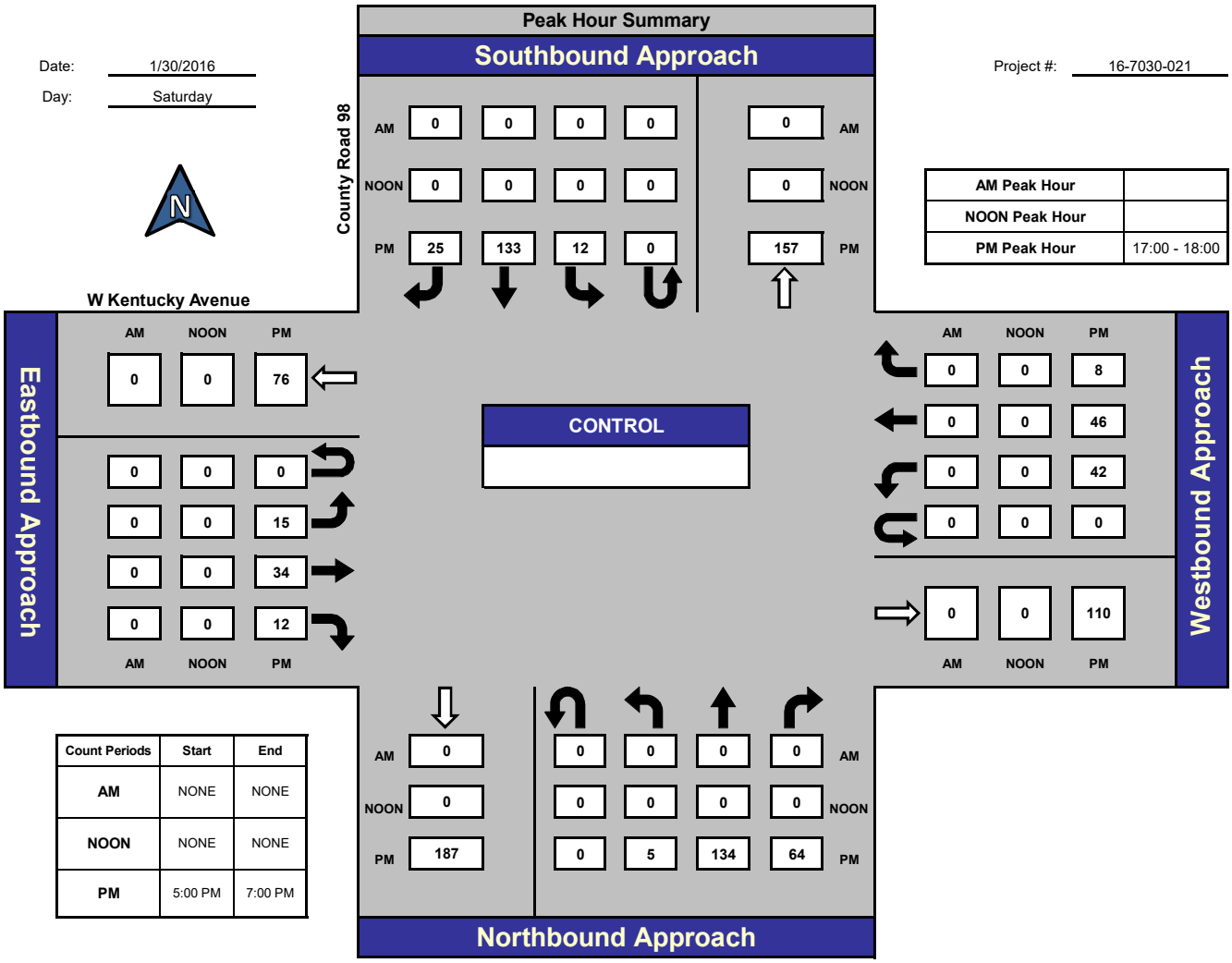
Total Volume Per Leg



County Road 98 & W Kentucky Avenue

Date: 1/30/2016
Day: Saturday

Project #: 16-7030-021



AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	17:00 - 18:00

Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	5:00 PM	7:00 PM

Total Ins & Outs

	North Leg		
	0	0	AM
	0	0	NOON
	170	157	PM

West Leg				East Leg		
AM	NOON	PM		AM	NOON	PM
0	0	76		0	0	96
0	0	61		0	0	110

	South Leg	
AM	0	0
NOON	0	0
PM	187	203

Total Volume Per Leg

North Leg	
0	AM
0	NOON
327	PM

West Leg			East Leg		
AM	NOON	PM	AM	NOON	PM
0	0	137	0	0	206

South Leg	
AM	0
NOON	0
PM	390

COLLISION DATA

Primary Rd **COUNT ST** *Distance (ft)* **0** *Direction* *Secondary Rd* **SECOND ST** *NCIC* **5703** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* **22** *Beat* **001** *Type* **0** *CalTrans* *Badge* **882** *Collision Date* **20130110** *Time* **1435** *Day* **THU**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20140625**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **FELONY** *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	998	-		HBD-UNK		PROC ST	W	-	0000	-		-	A	20002	F	-	-
2	DRVR	53	F	W	HNBD		PROC ST	W	A	0800	TOYOT	1999	-	3	N		-	-	-

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **COUNTRY ROAD 95** *Distance (ft)* **700** *Direction* **S** *Secondary Rd* **RT 16** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **002** *Type* **3** *CalTrans* *Badge* **17800** *Collision Date* **20131026** *Time* **1245** *Day* **SAT**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20141112**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	47	M	H	HNBD		PROC ST	N	D	2200	FORD	2000	-	3	N		-	M	G
2	DRVR	23	F	W	HNBD		STOPPED	N	A	0100	HYUND	2006	-	3	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		44	M	3	0	M	G

Primary Rd **COUNTY ROAD 100** *Distance (ft)* **0** *Direction* *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **002** *Type* **3** *CalTrans* *Badge* **12272** *Collision Date* **20130506** *Time* **1130** *Day* **MON**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **N** *Process Date* **20140220**
Weather1 **CLOUDY** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	82	M	O	HNBD		RAN OFF RD	N	A	0100	TOYOT	2002	-	3	N		-	L	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS	COMP PN	79	-	6	0	P	G

Primary Rd **COUNTY ROAD 101** *Distance (ft)* **390** *Direction* **N** *Secondary Rd* **COUNTY ROAD 15** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **002** *Type* **3** *CalTrans* *Badge* **16632** *Collision Date* **20130808** *Time* **1351** *Day* **THU**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **OVERTURNED** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20140327**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	19	F	H	HNBD		UNS TURN	N	A	0100	TOYOT	1996	-	3	N		-	L	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	COMP PN	19	F	1	0	L	G

Primary Rd **COUNTY ROAD** *Distance (ft)* **2112** *Direction* **S** *Secondary Rd* **COUNTY ROAD 29** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **002** *Type* **3** *CalTrans* *Badge* **013469** *Collision Date* **20130816** *Time* **1743** *Day* **FRI**
Primary Collision Factor **DRVR ALC\|DRG** *Violation* **23152A** *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20140328**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	60	F	W	HBD-UI		RAN OFF RD	N	A	0100	SUBAR	2003	-	3	A	22107	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	OTH VIS	60	F	1	0	M	G

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Primary Rd **COUNTY ROAD 102** *Distance (ft)* **279** *Direction* **S** *Secondary Rd* **ANDREW** *NCIC* **5703** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* **73** *Beat* **004** *Type* **0** *CalTrans* *Badge* **893** *Collision Date* **20130901** *Time* **0404** *Day* **SUN**
Primary Collision Factor **DRVR ALC|DRG** *Violation* **23152A** *Collision Type* **HEAD-ON** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20141024**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	51	M		HBD-UI		RAN OFF RD	S	A	0100	NISSA	2004	-	-	A	21650	-	B	-

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **COUNTY ROAD 102** *Distance (ft)* **0** *Direction* *Secondary Rd* **BEAMER ST** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **021** *Type* **2** *CalTrans* *Badge* **012525** *Collision Date* **20130606** *Time* **1200** *Day* **THU**
Primary Collision Factor **UNKNOWN** *Violation* *Collision Type* **BROADSIDE** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20140310**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1	DRVR	35	M	W	HNBD		PROC ST	S	D	2200	CHEVR	1997	-	3	N	-	L	G
2	DRVR	50	M	W	HNBD		PROC ST	W	D	2200	DODGE	2002	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	COMP PN	35	M	1	0	L	G

Primary Rd **COUNTY ROAD 102** *Distance (ft)* **2640** *Direction* **N** *Secondary Rd* **COUNTY ROAD 14** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **020** *Type* **1** *CalTrans* *Badge* **017351** *Collision Date* **20131220** *Time* **1905** *Day* **FRI**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150107**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	24	M	H	HNBD		PROC ST	S	A	0100	VOLVO	2000	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **COUNTY ROAD 102** *Distance (ft)* **7920** *Direction* **N** *Secondary Rd* **COUNTY ROAD 16** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **002** *Type* **3** *CalTrans* *Badge* **014853** *Collision Date* **20130824** *Time* **0515** *Day* **SAT**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20140320**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	23	F	H	HNBD		UNS TURN	S	A	0100	CHRYS	2003	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS	COMP PN	21	F	3	0	M	G

Primary Rd **COUNTY ROAD 102** *Distance (ft)* **40** *Direction* **N** *Secondary Rd* **COUNTY ROAD 16** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **002** *Type* **3** *CalTrans* *Badge* **14853** *Collision Date* **20131009** *Time* **1305** *Day* **WED**
Primary Collision Factor **TOO CLOSE** *Violation* **21703** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20141114**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1	DRVR	82	M	W	HNBD		STOPPED	N	A	0100	NISSA	2000	-	3	N	-	M	G
2F	DRVR	37	M	W	HNBD		PROC ST	N	A	0100	HONDA	2005	-	3	N	-	G	-

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		76	F	3	0	M	G

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Primary Rd **COUNTY ROAD 95** *Distance (ft)* **0** *Direction* *Secondary Rd* **COUNTY ROAD 29** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **003** *Type* **3** *CalTrans* *Badge* **17874** *Collision Date* **20131230** *Time* **1925** *Day* **MON**
Primary Collision Factor **R-O-W AUTO** *Violation* **21802A** *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20140523**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	19	F	W	HNBD		U-TURN	W	A	0100	PONTI	2000	-	3	N		-	M	G
2	DRVR	28	M	W	HNBD		PROC ST	S	A	0100	SATUR	2002	-	3	A	14601	N	L	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		19	F	3	0	M	G
DRVR	COMP PN	28	M	1	0	L	G

Primary Rd **COUNTY ROAD 97** *Distance (ft)* **2112** *Direction* **S** *Secondary Rd* **COUNTY ROAD 24** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **021** *Type* **2** *CalTrans* *Badge* **14853** *Collision Date* **20130127** *Time* **1355** *Day* **SUN**
Primary Collision Factor **UNKNOWN** *Violation* *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20140614**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1	DRVR	18	M	W	HNBD		PROC ST	N	D	2200	CHEVR	1995	-	3	N		-	M	G
2	DRVR	46	M	W	HNBD		SLOWING	N	D	2200	FORD	2012	-	3	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **COUNTY ROAD 97F** *Distance (ft)* **528** *Direction* **N** *Secondary Rd* **COUNTY ROAD 17** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **002** *Type* **3** *CalTrans* *Badge* **16292** *Collision Date* **20130831** *Time* **0500** *Day* **SAT**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20140327**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER OBJ** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	90	M	W	HNBD		PROC ST	N	D	2200	TOYOT	2000	-	3	J		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	OTH VIS	90	M	1	0	M	G

Primary Rd **COUNTY ROAD 98** *Distance (ft)* **3696** *Direction* **N** *Secondary Rd* **COUNTY ROAD 20** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **002** *Type* **3** *CalTrans* *Badge* **016144** *Collision Date* **20130810** *Time* **1745** *Day* **SAT**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **SIDESWIPE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20141017**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1	DRVR	41	M	W	HNBD		PASSING	S	D	2200	FORD	2006	-	3	N		-	M	G
2F	DRVR	19	M	H	HNBD		LFT TURN	S	A	0100	OLDSM	1989	-	3	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **COUNTY ROAD 98** *Distance (ft)* **0** *Direction* *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **025** *Type* **2** *CalTrans* *Badge* **012272** *Collision Date* **20130423** *Time* **1115** *Day* **TUE**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **INJURY** *#Killed* **0** *#Injured* **3** *Tow Away?* **Y** *Process Date* **20140214**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	77	F	W	HNBD		PROC ST	N	A	0100	FORD	1999	-	3	N		-	L	G
2	DRVR	43	F	W	HNBD		LFT TURN	N	A	0700	HONDA	2005	-	3	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	COMP PN	77	F	1	0	L	G
DRVR	COMP PN	43	F	1	0	M	G
PASS	COMP PN	12	F	3	0	M	G
PASS		6	F	4	0	M	Q

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Primary Rd **COUNTY ROAD 98** *Distance (ft)* **0** *Direction* *Secondary Rd* **W EL DORADO DR** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **025** *Type* **2** *CalTrans* *Badge* **13469** *Collision Date* **20130718** *Time* **1600** *Day* **THU**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **SIDESWIPE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20140926**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	84	F	W	HNBD		RGT TURN	W	A	0100	PONTI	2002	-	3	N	-	M	G
2	DRVR	33	F	W	HNBD		STOPPED	S	A	0800	DODGE	2011	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		3	F	4	0	M	Q
PASS		10	M	6	0	M	G
PASS		6	M	9	0	M	G

Primary Rd **COUNTY ROAD 98** *Distance (ft)* **0** *Direction* *Secondary Rd* **WEST BEAMER RD** *NCIC* **5703** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* *Beat* **002** *Type* **0** *CalTrans* *Badge* **808** *Collision Date* **20130714** *Time* **1943** *Day* **SUN**
Primary Collision Factor **R-O-W AUTO** *Violation* **21802A** *Collision Type* **BROADSIDE** *Severity* **INJURY** *#Killed* **0** *#Injured* **2** *Tow Away?* **Y** *Process Date* **20140317**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	18	F	W	HNBD		ENT TRAF	W	A	0100	HONDA	2008	-	3	N	-	L	G
2	DRVR	31	M	W	HNBD		PROC ST	N	A	0100	HONDA	1997	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	OTH VIS	18	F	1	0	L	G
PASS		18	M	3	0	L	G
PASS		18	M	4	0	L	G
DRVR	OTH VIS	31	M	1	0	M	G

Primary Rd **COUNTY ROAD 98** *Distance (ft)* **49** *Direction* **N** *Secondary Rd* **WEST GIBSON RD** *NCIC* **5703** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* **74** *Beat* **003** *Type* **0** *CalTrans* *Badge* **882** *Collision Date* **20130113** *Time* **1521** *Day* **SUN**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20140621**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **PKD MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	75	M	W	HNBD		PROC ST	N	D	2200	FORD	2004	-	3	F	-	M	G
2	PRKD	998	-				PARKED	N	A	0100	HONDA	1988	-	3	N	-	-	-

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **COUNTY ROAD 98** *Distance (ft)* **0** *Direction* *Secondary Rd* **WEST GIBSON RD** *NCIC* **5703** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* **74** *Beat* **003** *Type* **0** *CalTrans* *Badge* **863** *Collision Date* **20130610** *Time* **1128** *Day* **MON**
Primary Collision Factor **STOP SGN|SIG** *Violation* **22450A** *Collision Type* **OTHER** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20140911**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **BICYCLE** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	69	M	W	HNBD		PROC ST	N	A	0100	HONDA	2000	-	3	N	-	M	G
2	BICY	72	M		HNBD		PROC ST	E	L	0400	-		-	3	N	-	-	-

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **COUNTY ROAD 98** *Distance (ft)* **0** *Direction* *Secondary Rd* **WEST GIBSON RD** *NCIC* **5703** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* **74** *Beat* **003** *Type* **0** *CalTrans* *Badge* **2838** *Collision Date* **20131108** *Time* **2019** *Day* **FRI**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20141202**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	16	M	W	HNBD		PROC ST	S	A	0100	HONDA	1999	-	-	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

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Primary Rd **MAIN ST** *Distance (ft)* **55** *Direction* *Secondary Rd* **COLLEGE ST** *NCIC* **5703** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* **42** *Beat* **003** *Type* **0** *CalTrans* *Badge* **880** *Collision Date* **20130421** *Time* **1550** *Day* **SUN**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20140819**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	34	M	H	HNBD		PROC ST	E	A	0100	NISSA	2005	-	3	N	-	L	G
2	DRVR	47	M	H	HNBD		STOPPED	E	A	0700	SATUR	2003	-	3	N	-	L	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **MAIN ST** *Distance (ft)* **225** *Direction* **W** *Secondary Rd* **COLLEGE ST** *NCIC* **5703** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* **32** *Beat* **003** *Type* **0** *CalTrans* *Badge* **845** *Collision Date* **20130905** *Time* **1721** *Day* **THU**
Primary Collision Factor **IMPROP TURN** *Violation* **22102** *Collision Type* **BROADSIDE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20141027**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	36	F	H	HNBD		U-TURN	W	A	0700	SCION	2012	-	-	N	-	M	G
2	DRVR	39	F	H	HNBD		PROC ST	E	A	0700	DODGE	2013	-	-	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **MAIN ST** *Distance (ft)* **0** *Direction* *Secondary Rd* **COUNTY ROAD 98** *NCIC* **5703** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* **72** *Beat* **003** *Type* **0** *CalTrans* *Badge* **835** *Collision Date* **20130414** *Time* **0115** *Day* **SUN**
Primary Collision Factor **STOP SGN|SIG** *Violation* **21453A** *Collision Type* **BROADSIDE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20140821**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1	DRVR	16	F		HNBD		PROC ST	N	-	0000	FORD	1995	-	3	N	-	M	G
2	DRVR	36	M	W	HNBD		PROC ST	E	-	0000	TOYOT	2008	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **MAIN ST** *Distance (ft)* **0** *Direction* *Secondary Rd* **EAST ST** *NCIC* **5703** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* **22** *Beat* **001** *Type* **0** *CalTrans* *Badge* **895** *Collision Date* **20130411** *Time* **1528** *Day* **THU**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20140813**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1	DRVR	32	F	H	HNBD		STOPPED	E	A	0100	HYUND	2000	-	3	N	-	M	G
2F	DRVR	78	M	H	HNBD		SLOWING	E	A	0100	CHEVR	2000	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **MAIN ST** *Distance (ft)* **0** *Direction* *Secondary Rd* **EAST ST** *NCIC* **5703** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* **11** *Beat* **001** *Type* **0** *CalTrans* *Badge* **840** *Collision Date* **20130806** *Time* **0829** *Day* **TUE**
Primary Collision Factor **STOP SGN|SIG** *Violation* **21453A** *Collision Type* **BROADSIDE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20141028**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1	DRVR	33	F	W	HNBD		PROC ST	N	A	0700	FORD	2005	-	3	N	-	G	M
2	DRVR	18	M	W	HNBD		PROC ST	W	A	0700	BMW	2002	-	3	N	-	G	M

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		19	F	4	0	M	G
PASS		19	F	6	0	M	G
PASS		16	F	3	0	M	G

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Primary Rd **RT 16** *Distance (ft)* **131** *Direction* **W** *Secondary Rd* **2ND ST** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **32.33** *Side of Hwy* **E**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **015485** *Collision Date* **20130608** *Time* **1420** *Day* **SAT**
Primary Collision Factor **DRVR ALC|DRG** *Violation* **23152A** *Collision Type* **HEAD-ON** *Severity* **INJURY** *#Killed* **0** *#Injured* **2** *Tow Away?* **Y** *Process Date* **20140303**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	25	F	A	HBD-UI		UNS TURN	E	A	0100	MERCE	2006	-	3	A	22107	- L G
2	DRVR	51	M	O	HNBD		PROC ST	W	A	0700	TOYOT	2008	-	3	N		- L G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		32	F	3	0	L	G
DRVR	COMP PN	51	M	1	0	L	G
PASS	COMP PN	48	F	3	0	L	G

Primary Rd **RT 16** *Distance (ft)* **50** *Direction* **N** *Secondary Rd* **BEAMER ST** *NCIC* **5703** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **R** *Postmile* **41.06** *Side of Hwy* **W**
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* *Beat* *Type* **0** *CalTrans* **3** *Badge* **00001** *Collision Date* **20131113** *Time* **1845** *Day* **WED**
Primary Collision Factor **NOT STATED** *Violation* *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* *Process Date* **20140711**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **ANIMAL** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1	DRVR	24	F	H	HNBD		PROC ST	S	A	0100	NISSA	2010	-	3	N		- M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		6	F	4	0	P	Q

Primary Rd **RT 16** *Distance (ft)* **300** *Direction* **W** *Secondary Rd* **CALL BX YL16 61** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **5.94** *Side of Hwy* **W**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **14306** *Collision Date* **20130201** *Time* **2040** *Day* **FRI**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **OTHER** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20141029**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **ANIMAL** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	62	F	W	HNBD		PROC ST	W	A	0100	MERCE	2007	-	3	N		- M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	COMP PN	62	F	1	0	M	G

Primary Rd **RT 16** *Distance (ft)* **3168** *Direction* **E** *Secondary Rd* **COLUSA CO LN** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **.6** *Side of Hwy* **W**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **15353** *Collision Date* **20130803** *Time* **2235** *Day* **SAT**
Primary Collision Factor **DRVR ALC|DRG** *Violation* **23152A** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150618**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	26	M	W	HBD-UI		OTHER	W	A	0100	VOLKS	2012	-	3	A	22107	- L G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 16** *Distance (ft)* **100** *Direction* **E** *Secondary Rd* **COUNTY RD 86A** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **28.57** *Side of Hwy* **E**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **017800** *Collision Date* **20131109** *Time* **1945** *Day* **SAT**
Primary Collision Factor **NOT DRIVER** *Violation* *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20141209**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **ANIMAL** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1	DRVR	64	F	H	HNBD		PROC ST	E	A	0700	KIA	2006	-	3	N		- M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

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Primary Rd **RT 16** *Distance (ft)* **600** *Direction* **S** *Secondary Rd* **COUNTY ROAD 20** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **R** *Postmile* **41.45** *Side of Hwy* **W**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **024** *Type* **1** *CalTrans* **3** *Badge* **13469** *Collision Date* **20130712** *Time* **2000** *Day* **FRI**
Primary Collision Factor **NOT DRIVER** *Violation* *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150618**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1	DRVR	26	F	O	HNBD		PROC ST	S	A	0800	CHEVR	1995	-	3	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 16** *Distance (ft)* **24** *Direction* **W** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **28.266** *Side of Hwy* **W**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **16929** *Collision Date* **20131022** *Time* **1744** *Day* **TUE**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **BROADSIDE** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20140426**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **I** *Ramp/Int* **5**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	40	M	H	HNBD		PROC ST	W	A	0100	FORD	1995	-	3	N		-	M	G
2	DRVR	29	F	H	HNBD		STOPPED	E	A	0100	HONDA	2000	-	3	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	COMP PN 29	F	1	0	M	G	

Primary Rd **RT 16** *Distance (ft)* **113** *Direction* **E** *Secondary Rd* **COUNTY ROAD 52** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **11.77** *Side of Hwy* **E**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **016929** *Collision Date* **20130113** *Time* **1953** *Day* **SUN**
Primary Collision Factor **DRVR ALC|DRG** *Violation* **23152A** *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20141113**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	65	M	W	HBD-UI		UNS TURN	E	D	2200	DODGE	2008	-	3	A	22107	-	L	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	OTH VIS	65	M	1	0	L	G

Primary Rd **RT 16** *Distance (ft)* **30** *Direction* **E** *Secondary Rd* **COUNTY ROAD 52** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **11.76** *Side of Hwy* **E**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **013390** *Collision Date* **20130706** *Time* **2330** *Day* **SAT**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20140317**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	58	M	W	HNBD		PROC ST	E	C	0200	HARLE	1999	-	3	N		-	P	W

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	OTH VIS	58	M	1	1	P	W

Primary Rd **RT 16** *Distance (ft)* **528** *Direction* **W** *Secondary Rd* **COUNTY ROAD 71** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **16.6** *Side of Hwy* **E**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **014853** *Collision Date* **20131225** *Time* **1742** *Day* **WED**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20141217**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1	OTHR	998	-		HNBD		PROC ST	E	D	2200	FORD	1997	-	3	N		-	-	-
2F	DRVR	65	F	W	HNBD		UNS TURN	E	A	0700	FORD	1994	-	3	N		-	P	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

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Primary Rd **RT 16** *Distance (ft)* **1584** *Direction* **S** *Secondary Rd* **COUNTY ROAD 76** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **18.04** *Side of Hwy* **E**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **15079** *Collision Date* **20131005** *Time* **1610** *Day* **SAT**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20140513**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	
1F	DRVR	24	F	H	HNBD		UNS TURN	E	A	0100	HONDA	2001	-	3	N		-	L G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	COMP PN	24	F	1	0	L	G

Primary Rd **RT 16** *Distance (ft)* **400** *Direction* **E** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **20.25** *Side of Hwy* **E**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **14853** *Collision Date* **20130619** *Time* **1300** *Day* **WED**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20140911**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	
1F	DRVR	90	M	W	HNBD		UNS TURN	E	A	0100	INFIN	2001	-	3	N		-	M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	COMP PN	90	M	1	0	M	G

Primary Rd **RT 16** *Distance (ft)* **1056** *Direction* **W** *Secondary Rd* **COUNTY ROAD 79** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **18.68** *Side of Hwy* **W**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **16351** *Collision Date* **20130410** *Time* **0505** *Day* **WED**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20140218**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	
1F	DRVR	81	M	W	HNBD		OTHER	W	A	0100	CHEVR	1995	-	3	N		-	L G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	SEVERE	81	M	1	1	L	G

Primary Rd **RT 16** *Distance (ft)* **2640** *Direction* **W** *Secondary Rd* **COUNTY ROAD 79** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **20.36** *Side of Hwy* **E**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **016027** *Collision Date* **20130411** *Time* **0225** *Day* **THU**
Primary Collision Factor **DRVR ALC|DRG** *Violation* **23152A** *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20140204**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	
1F	DRVR	36	M	H	HBD-UI		UNS TURN	E	A	0100	TOYOT	1997	-	3	A	22107	-	M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	OTH VIS	36	M	1	0	M	G

Primary Rd **RT 16** *Distance (ft)* **20** *Direction* **W** *Secondary Rd* **COUNTY ROAD 82** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **22.6** *Side of Hwy* **W**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **003** *Type* **3** *CalTrans* **3** *Badge* **17351** *Collision Date* **20130117** *Time* **0110** *Day* **THU**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150223**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	
1F	DRVR	24	M	H	HNBD		PROC ST	W	A	0100	FORD	2004	-	3	N		-	M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

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Primary Rd **RT 16** *Distance (ft)* **3696** *Direction* **E** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **24.22** *Side of Hwy* **E**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **16027** *Collision Date* **20130321** *Time* **0455** *Day* **THU**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20141113**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info																		Victim Info							
Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety*	*Equip*	*ROLE*	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*
1F	DRVR	40	M	A	HNBD		UNS TURN	W	A	0100	TOYOT	2005	-	3	N	-	M	G	DRVR	OTH VIS	40	M	1	0	M	G

Primary Rd **RT 16** *Distance (ft)* **4224** *Direction* **W** *Secondary Rd* **COUNTY ROAD 85** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **24.87** *Side of Hwy* **W**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **17933** *Collision Date* **20130803** *Time* **2155** *Day* **SAT**
Primary Collision Factor **WRONG SIDE** *Violation* **21202A** *Collision Type* **REAR END** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **N** *Process Date* **20140325**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **FELONY** *Motor Vehicle Involved With* **BICYCLE** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info																		Victim Info							
Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety*	*Equip*	*ROLE*	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*
1F	BICY	19	M	W	HNBD		PROC ST	W	L	0400	-		-	3	N	-	-	-	BICY	COMP PN	19	M	1	0	N	V
2	DRVR	998	-		HBD-UNK		PROC ST	W	-	9900	-		-	-	N	-	B	-								

Primary Rd **RT 16** *Distance (ft)* **200** *Direction* **W** *Secondary Rd* **COUNTY ROAD 85** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **25.63** *Side of Hwy* **W**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **16144** *Collision Date* **20130911** *Time* **1838** *Day* **WED**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150618**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info																		Victim Info							
Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety*	*Equip*	*ROLE*	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*
1	DRVR	32	M	W	HNBD		LFT TURN	W	D	2200	CHEVR	2010	-	3	N	-	M	G	PASS		24	M	3	0	M	G
																			PASS		29	M	4	0	M	G
																			PASS		27	M	6	0	M	G
2F	DRVR	56	M	W	HNBD		PROC ST	W	A	0100	FORD	2001	-	3	N	-	L	G								

Primary Rd **RT 16** *Distance (ft)* **1584** *Direction* **E** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **26.67** *Side of Hwy* **E**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **17763** *Collision Date* **20130224** *Time* **1702** *Day* **SUN**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **OVERTURNED** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20140125**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **NON-CLSN** *Lighting* **DUSK/DAWN** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info																		Victim Info							
Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety*	*Equip*	*ROLE*	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*
1F	DRVR	42	M	W	HNBD		RAN OFF RD	E	C	0200	HARLE	2003	-	3	N	-	P	W	DRVR	SEVERE	42	M	1	1	P	W

Primary Rd **RT 16** *Distance (ft)* **850** *Direction* **W** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **26.21** *Side of Hwy* **W**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **917764** *Collision Date* **20130613** *Time* **0315** *Day* **THU**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20140310**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info																		Victim Info							
Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety*	*Equip*	*ROLE*	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*
1F	DRVR	24	M	H	HNBD		RAN OFF RD	W	A	0100	LEXUS	2007	-	3	N	-	M	G	DRVR	COMP PN	24	M	1	0	M	G

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Primary Rd **RT 16** *Distance (ft)* **1584** *Direction* **E** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **26.67** *Side of Hwy* **W**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **17933** *Collision Date* **20131026** *Time* **0840** *Day* **SAT**
Primary Collision Factor **NOT DRIVER** *Violation* *Collision Type* **OTHER** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20141119**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **ANIMAL** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1	DRVR	25	F	H	HNBD		PROC ST	W	A	0100	BUICK	2013	-	3	N	-	M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 16** *Distance (ft)* **1584** *Direction* **E** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **28.79** *Side of Hwy* **E**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **013469** *Collision Date* **20130531** *Time* **2025** *Day* **FRI**
Primary Collision Factor **NOT DRIVER** *Violation* *Collision Type* **OTHER** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150420**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **ANIMAL** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1	DRVR	59	M	A	HNBD		PROC ST	E	A	0100	TOYOT	1999	-	3	N	-	M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 16** *Distance (ft)* **2112** *Direction* **W** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **29.67** *Side of Hwy* **W**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **15492** *Collision Date* **20130313** *Time* **1045** *Day* **WED**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150128**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **CONS ZONE** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	33	F	O	HNBD		PROC ST	W	A	0100	FORD	2003	-	3	F	-	M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 16** *Distance (ft)* **1056** *Direction* **E** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **30.27** *Side of Hwy* **E**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **14853** *Collision Date* **20131204** *Time* **2125** *Day* **WED**
Primary Collision Factor **DRVR ALC|DRG** *Violation* **23152A** *Collision Type* **OVERTURNED** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20141216**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **NON-CLSN** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	17	M	W	HBD-UI		UNS TURN	E	A	0700	HYUND	2004	-	3	A	-	M -

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 16** *Distance (ft)* **200** *Direction* **E** *Secondary Rd* **COUNTY ROAD 89** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **31.07** *Side of Hwy* **E**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **16929** *Collision Date* **20130113** *Time* **1455** *Day* **SUN**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150128**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	38	M	H	HNBD		PROC ST	E	D	2200	TOYOT	1992	-	3	N	-	M G
2	DRVR	46	F	A	HNBD		PROC ST	E	A	0100	TOYOT	2012	-	3	N	-	M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		18	F	3	0	M	G
PASS		12	F	4	0	M	G
PASS		10	F	6	0	M	G

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Primary Rd **RT 16** *Distance (ft)* **549** *Direction* **W** *Secondary Rd* **COUNTY ROAD 89** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **30.93** *Side of Hwy* **E**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **011706** *Collision Date* **20130209** *Time* **2330** *Day* **SAT**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150128**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info																	Victim Info							
Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety Equip*		*ROLE*	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*
1F	DRVR	27	F	H	HNBD		OTHER	E	A	0700	LAND	2004	-	3	N	-	M	G	PASS		27	M	3	0	M	G

Primary Rd **RT 16** *Distance (ft)* **152** *Direction* **E** *Secondary Rd* **COUNTY ROAD 89** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **31.06** *Side of Hwy* **E**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **012272** *Collision Date* **20130303** *Time* **1340** *Day* **SUN**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150128**
Weather1 **CLOUDY** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info																	Victim Info							
Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety Equip*		*ROLE*	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*
1F	DRVR	26	M	O	HNBD		ENT TRAF	E	A	0700	GMC	2011	-	3	N	-	M	G	PASS		9	F	3	0	M	G
																			PASS		5	M	4	0	M	Q
																			PASS		10	F	6	0	M	G
2	DRVR	56	M	O	HNBD		SLOWING	E	A	0700	TOYOT	2001	-	3	N	-	M	G	PASS		55	M	3	0	M	G
																			PASS		48	F	6	0	M	G

Primary Rd **RT 16** *Distance (ft)* **253** *Direction* **W** *Secondary Rd* **COUNTY ROAD 89** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **30.98** *Side of Hwy* **E**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **17763** *Collision Date* **20130914** *Time* **2030** *Day* **SAT**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150618**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info																	Victim Info							
Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety Equip*		*ROLE*	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*
1F	DRVR	19	M	H	HNBD		PROC ST	E	A	0100	ACURA	1993	-	3	N	-	P	G								
2	DRVR	63	F	H	HNBD		STOPPED	E	A	0100	HYUND	2010	-	3	N	-	M	G								

Primary Rd **RT 16** *Distance (ft)* **500** *Direction* **E** *Secondary Rd* **COUNTY ROAD 89** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **31.18** *Side of Hwy* **E**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **016144** *Collision Date* **20130921** *Time* **1813** *Day* **SAT**
Primary Collision Factor **DRVR ALC|DRG** *Violation* **23152A** *Collision Type* **BROADSIDE** *Severity* **INJURY** *#Killed* **0** *#Injured* **2** *Tow Away?* **Y** *Process Date* **20140408**
Weather1 **RAINING** *Weather2* *Rdwy Surface* **WET** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info																	Victim Info							
Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety Equip*		*ROLE*	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*
1	DRVR	64	M	H	HNBD		PROC ST	E	A	0700	GMC	1999	-	3	N	-	M	G	PASS		67	F	3	0	M	G
																			PASS	COMP PN	43	F	4	0	M	G
																			PASS	COMP PN	8	F	6	0	M	G
																			PASS		2	F	5	0	M	Q
2F	DRVR	59	M	H	HBD-UI		ENT TRAF	N	A	0100	TOYOT	1996	-	3	A	21804	-	M	G							

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Primary Rd **RT 16** *Distance (ft)* **0** *Direction* *Secondary Rd* **COUNTY ROAD 89** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **31.04** *Side of Hwy* **W**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **17800** *Collision Date* **20131119** *Time* **1455** *Day* **TUE**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20141205**
Weather1 **CLOUDY** *Weather2* *Rdwy Surface* **WET** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	45	M	H	HNBD		PROC ST	W	A	0100	TOYOT	1996	-	3	N	-	M	G
2	DRVR	34	F	W	HNBD		STOPPED	W	A	0100	CADIL	2003	-	2	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 16** *Distance (ft)* **1056** *Direction* **W** *Secondary Rd* **COUNTY ROAD 90** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **31.48** *Side of Hwy* **W**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **12525** *Collision Date* **20130224** *Time* **1325** *Day* **SUN**
Primary Collision Factor **R-O-W AUTO** *Violation* **21801A** *Collision Type* **BROADSIDE** *Severity* **INJURY** *#Killed* **0** *#Injured* **4** *Tow Away?* **Y** *Process Date* **20141029**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	17	M	H	HBD-NUI		U-TURN	W	A	0100	FORD	2000	-	3	N	-	N	G
2	DRVR	44	M	O	HNBD		PROC ST	E	A	0100	MAZDA	2006	-	3	N	-	L	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS	COMP PN	16	M	3	0	N	G
PASS		16	F	6	0	N	G
DRVR	OTH VIS	44	M	1	0	L	G
PASS	OTH VIS	44	F	3	0	L	G
PASS	COMP PN	56	F	6	0	N	G
PASS		52	F	4	0	N	G

Primary Rd **RT 16** *Distance (ft)* **595** *Direction* **E** *Secondary Rd* **COUNTY ROAD 90** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **31.81** *Side of Hwy* **W**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **17763** *Collision Date* **20130525** *Time* **1737** *Day* **SAT**
Primary Collision Factor **TOO CLOSE** *Violation* **21703** *Collision Type* **REAR END** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20140226**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	24	F	A	HNBD		PROC ST	W	A	0100	TOYOT	2011	-	3	N	-	M	G
2	DRVR	40	F	A	HNBD		SLOWING	W	A	0700	HONDA	2006	-	3	N	-	M	G
3	DRVR	52	F	H	HNBD		SLOWING	W	D	2200	TOYOT	2005	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		48	M	3	0	M	G
PASS	COMP PN	55	M	4	0	P	G
PASS		52	M	5	0	P	G
PASS		49	F	6	0	P	G

Primary Rd **RT 16** *Distance (ft)* **628** *Direction* **W** *Secondary Rd* **COUNTY ROAD 90** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **31.56** *Side of Hwy* **W**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **16027** *Collision Date* **20131003** *Time* **2335** *Day* **THU**
Primary Collision Factor **DRVR ALC|DRG** *Violation* **23152A** *Collision Type* **HEAD-ON** *Severity* **FATAL** *#Killed* **1** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20150112**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	31	M	H	HNBD	DRUG	OPPOS LN	W	A	0100	VOLKS	2000	-	3	A	21650	-	L	G
2	DRVR	66	M	W	HNBD		PROC ST	E	A	0700	GMC	2012	-	3	N		-	L	G
3	DRVR	29	F	W	HNBD		PROC ST	E	A	0100	TOYOT	2006	-	3	N		-	L	G
4	DRVR	52	M	A	HNBD		PROC ST	E	A	0100	ACURA	2000	-	3	N		-	L	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	KILLED	31	M	1	0	L	G
DRVR	COMP PN	52	M	1	0	L	G

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Primary Rd **RT 16** *Distance (ft)* **0** *Direction* *Secondary Rd* **COUNTY ROAD 90** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **31.681** *Side of Hwy* **W**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **014853** *Collision Date* **20131023** *Time* **1354** *Day* **WED**
Primary Collision Factor **R-O-W AUTO** *Violation* **21802A** *Collision Type* **BROADSIDE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20141114**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **I** *Ramp/Int* **5**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	18	M	H	HNBD		LFT TURN	N	D	2200	CHEVR	2000	-	3	N		-	M	G
2	DRVR	47	M	H	HNBD		PROC ST	W	E	2235	FORD	2011	-	3	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 16** *Distance (ft)* **528** *Direction* **E** *Secondary Rd* **COUNTY ROAD 93** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **35.46** *Side of Hwy* **E**
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **016632** *Collision Date* **20130221** *Time* **1054** *Day* **THU**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150128**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **CONS ZONE** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	33	M	W	HNBD		PROC ST	E	A	0100	HONDA	2010	-	3	N		-	L	G
2	DRVR	76	F	W	HNBD		STOPPED	E	A	0100	BUICK	2002	-	3	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 16** *Distance (ft)* **3696** *Direction* **W** *Secondary Rd* **COUNTY ROAD 93** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **34.66** *Side of Hwy* **E**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **016929** *Collision Date* **20130805** *Time* **1555** *Day* **MON**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150618**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	22	M	H	HNBD		PROC ST	E	D	2200	CHEVR	2002	-	3	N		-	L	G
2	DRVR	28	F	H	HNBD		STOPPED	E	A	0700	CHEVR	2012	-	3	N		-	M	G
3	DRVR	35	M	H	HNBD		STOPPED	E	G	2732	PETER	2001	-	3	N		-	P	G
4	DRVR	49	M	W	HNBD		PROC ST	W	A	0100	PONTI	2000	-	3	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 16** *Distance (ft)* **528** *Direction* **E** *Secondary Rd* **COUNTY ROAD 95** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **37.62** *Side of Hwy* **W**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **024** *Type* **1** *CalTrans* **3** *Badge* **016351** *Collision Date* **20130120** *Time* **2347** *Day* **SUN**
Primary Collision Factor **DRVR ALC|DRG** *Violation* **23152A** *Collision Type* **OVERTURNED** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20141113**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	22	F	W	HBD-UI		OTHER	W	A	0100	HONDA	2001	-	3	A	22107	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	SEVERE	22	F	1	0	M	G

Primary Rd **RT 16** *Distance (ft)* **1584** *Direction* **W** *Secondary Rd* **COUNTY ROAD 95** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **37.22** *Side of Hwy* **W**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **015353** *Collision Date* **20130602** *Time* **2240** *Day* **SUN**
Primary Collision Factor **DRVR ALC|DRG** *Violation* **23152A** *Collision Type* **SIDESWIPE** *Severity* **INJURY** *#Killed* **0** *#Injured* **7** *Tow Away?* **Y** *Process Date* **20140305**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	22	M	H	HBD-UI		UNS TURN	W	A	0100	OLDSM	1998	-	3	A	22107	N	L	G
2	DRVR	46	F	A	HNBD		PROC ST	E	A	0100	HONDA	2011	-	3	N		-	L	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	SEVERE	22	M	1	0	-	-
DRVR	COMP PN	46	F	1	0	L	G
PASS	COMP PN	35	F	6	0	P	G
PASS	COMP PN	52	M	3	0	M	G

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																			PASS	COMP PN	40	M	4	0	P	G
3	DRVR	42	F	A	HNBD		PROC ST	E	A	0100	TOYOT	2003	-	3	N	-	L	G	DRVR	COMP PN	42	F	1	0	L	G
																			PASS	COMP PN	44	M	3	0	L	G

Primary Rd RT 16 Distance (ft) 1056 Direction E Secondary Rd COUNTY ROAD 95 NCIC 9280 State Hwy? Y Route 16 Postmile Prefix - Postmile 37.72 Side of Hwy E
City UNINCORP. County Yolo Population 9 Rpt Dist Beat 024 Type 1 CalTrans 3 Badge 16929 Collision Date 20130622 Time 1635 Day SAT
Primary Collision Factor NOT DRIVER Violation Collision Type HIT OBJECT Severity PDO #Killed 0 #Injured 0 Tow Away? N Process Date 20150420
Weather1 CLEAR Weather2 Rdwy Surface DRY Rdwy Cond1 NO UNUSL CND Rdwy Cond2 Spec Cond 0
Hit and Run Motor Vehicle Involved With OTHER OBJ Lighting DAYLIGHT Ped Action Cntrl Dev NT PRS/FCTR Loc Type H Ramp/Int -

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1	DRVR	21	F	W	HNBD		PROC ST	E	A	0100	HONDA	1998	-	3	N	-	M	G								

Primary Rd RT 16 Distance (ft) 1056 Direction W Secondary Rd COUNTY ROAD 95 NCIC 9280 State Hwy? Y Route 16 Postmile Prefix - Postmile 37.32 Side of Hwy W
City UNINCORP. County Yolo Population 9 Rpt Dist Beat 034 Type 1 CalTrans 3 Badge 016632 Collision Date 20131120 Time 0815 Day WED
Primary Collision Factor UNSAFE SPEED Violation 22350 Collision Type REAR END Severity INJURY #Killed 0 #Injured 2 Tow Away? Y Process Date 20140502
Weather1 CLOUDY Weather2 Rdwy Surface WET Rdwy Cond1 NO UNUSL CND Rdwy Cond2 Spec Cond 0
Hit and Run Motor Vehicle Involved With OTHER MV Lighting DAYLIGHT Ped Action Cntrl Dev NT PRS/FCTR Loc Type H Ramp/Int -

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	28	F	W	HNBD		PROC ST	W	A	0700	TOYOT	2011	-	3	N	-	L	G	DRVR	COMP PN	28	F	1	0	L	G
2	DRVR	26	M	W	HNBD		SLOWING	W	D	2200	CHEVR	2001	-	3	N	-	M	G	DRVR	COMP PN	26	M	1	0	M	G

Primary Rd RT 16 Distance (ft) 528 Direction W Secondary Rd COUNTY ROAD 95 NCIC 9280 State Hwy? Y Route 16 Postmile Prefix - Postmile 37.42 Side of Hwy E
City UNINCORP. County Yolo Population 9 Rpt Dist Beat 034 Type 1 CalTrans 3 Badge 17375 Collision Date 20131208 Time 0945 Day SUN
Primary Collision Factor IMPROP TURN Violation 22107 Collision Type OVERTURNED Severity PDO #Killed 0 #Injured 0 Tow Away? N Process Date 20141216
Weather1 CLEAR Weather2 Rdwy Surface DRY Rdwy Cond1 NO UNUSL CND Rdwy Cond2 Spec Cond 0
Hit and Run Motor Vehicle Involved With FIXED OBJ Lighting DAYLIGHT Ped Action Cntrl Dev NT PRS/FCTR Loc Type H Ramp/Int -

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	33	M	W	HNBD		UNS TURN	E	A	0100	CADIL	2005	-	3	N	-	N	-	PASS		34	F	3	0	M	G
																			PASS		7	M	4	0	M	Q
																			PASS		12	F	6	0	P	G

Primary Rd RT 16 Distance (ft) 1056 Direction W Secondary Rd COUNTY ROAD 96 NCIC 9280 State Hwy? Y Route 16 Postmile Prefix - Postmile 38.36 Side of Hwy W
City UNINCORP. County Yolo Population 9 Rpt Dist Beat 024 Type 1 CalTrans 3 Badge 14853 Collision Date 20130103 Time 0835 Day THU
Primary Collision Factor IMPROP TURN Violation 22107 Collision Type HIT OBJECT Severity PDO #Killed 0 #Injured 0 Tow Away? Y Process Date 20150128
Weather1 CLEAR Weather2 Rdwy Surface DRY Rdwy Cond1 NO UNUSL CND Rdwy Cond2 Spec Cond 0
Hit and Run Motor Vehicle Involved With FIXED OBJ Lighting DAYLIGHT Ped Action Cntrl Dev NT PRS/FCTR Loc Type H Ramp/Int -

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	998	M	W	HNBD		UNS TURN	W	A	0100	HONDA	1983	-	3	N	-	P	G								

Primary Rd RT 16 Distance (ft) 1200 Direction E Secondary Rd COUNTY ROAD 96 NCIC 9280 State Hwy? Y Route 16 Postmile Prefix - Postmile 38.79 Side of Hwy E
City UNINCORP. County Yolo Population 9 Rpt Dist Beat 024 Type 1 CalTrans 3 Badge 12272 Collision Date 20130121 Time 1335 Day MON
Primary Collision Factor UNSAFE SPEED Violation 22350 Collision Type REAR END Severity INJURY #Killed 0 #Injured 1 Tow Away? N Process Date 20141113
Weather1 CLEAR Weather2 Rdwy Surface DRY Rdwy Cond1 NO UNUSL CND Rdwy Cond2 Spec Cond 0
Hit and Run Motor Vehicle Involved With OTHER MV Lighting DAYLIGHT Ped Action Cntrl Dev NT PRS/FCTR Loc Type H Ramp/Int -

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	18	F	W	HNBD		SLOWING	E	A	0100	HONDA	2001	-	3	N	-	M	G	PASS		14	F	3	0	M	G
																			PASS	COMP PN	12	F	4	0	P	G
																			PASS		13	F	5	0	P	G

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Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info		OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
																				PASS		17	F	6	0	P	G
2	DRVR	17	F	W	HNBD		STOPPED	E	A	0100	FORD	2000	-	3	N		-	M	G	PASS		48	M	3	0	M	G
																				PASS		11	M	4	0	P	G
																				PASS		15	M	6	0	P	G
3	DRVR	29	F	O	HNBD		STOPPED	E	A	0100	TOYOT	2009	-	3	N		-	M	G								

Primary Rd RT 16 *Distance (ft)* 2112 *Direction* W *Secondary Rd* COUNTY ROAD 96 *NCIC* 9280 *State Hwy?* Y *Route* 16 *Postmile Prefix* - *Postmile* 38.16 *Side of Hwy* W
City UNINCORP. *County* Yolo *Population* 9 *Rpt Dist* *Beat* 024 *Type* 1 *CalTrans* 3 *Badge* 12272 *Collision Date* 20130423 *Time* 0835 *Day* TUE
Primary Collision Factor UNSAFE SPEED *Violation* 22350 *Collision Type* REAR END *Severity* INJURY *#Killed* 0 *#Injured* 3 *Tow Away?* Y *Process Date* 20140214
Weather1 CLEAR *Weather2* *Rdwy Surface* DRY *Rdwy Cond1* CONS ZONE *Rdwy Cond2* *Spec Cond* 0
Hit and Run *Motor Vehicle Involved With* OTHER MV *Lighting* DAYLIGHT *Ped Action* *Cntrl Dev* FNCTNG *Loc Type* H *Ramp/Int* -

Party Info / *Victim Info*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info		OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1	DRVR	50	M	W	HNBD		STOPPED	W	D	2200	CHEVR	2007	-	3	G		-	M	G								
2F	DRVR	19	M	H	HNBD		PROC ST	W	D	2200	CHEVR	2005	-	3	G		-	L	G	PASS	COMP PN	51	F	3	0	L	G
3	DRVR	28	F	H	HNBD		PROC ST	E	A	0100	HONDA	1993	-	3	G		-	L	G	DRVR	COMP PN	28	F	1	0	L	G
																				PASS	COMP PN	50	F	3	0	L	G
																				PASS		9	F	4	0	P	G
																				PASS		998	F	5	0	P	Q

Primary Rd RT 16 *Distance (ft)* 2112 *Direction* W *Secondary Rd* COUNTY ROAD 96 *NCIC* 9280 *State Hwy?* Y *Route* 16 *Postmile Prefix* - *Postmile* 38.16 *Side of Hwy* W
City UNINCORP. *County* Yolo *Population* 9 *Rpt Dist* *Beat* 024 *Type* 1 *CalTrans* 3 *Badge* 014853 *Collision Date* 20130425 *Time* 0750 *Day* THU
Primary Collision Factor TOO CLOSE *Violation* 21703 *Collision Type* REAR END *Severity* PDO *#Killed* 0 *#Injured* 0 *Tow Away?* Y *Process Date* 20150420
Weather1 CLEAR *Weather2* *Rdwy Surface* DRY *Rdwy Cond1* NO UNUSL CND *Rdwy Cond2* *Spec Cond* 0
Hit and Run *Motor Vehicle Involved With* OTHER MV *Lighting* DAYLIGHT *Ped Action* *Cntrl Dev* NT PRS/FCTR *Loc Type* H *Ramp/Int* -

Party Info / *Victim Info*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info		OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1	DRVR	59	F	H	HNBD		STOPPED	W	A	0100	HONDA	2009	-	3	N		-	M	G								
2F	DRVR	22	M	W	HNBD		PROC ST	W	A	0100	BMW	2000	-	3	N		-	M	G	PASS		27	M	3	0	M	G

Primary Rd RT 16 *Distance (ft)* 0 *Direction* *Secondary Rd* COUNTY ROAD 96 *NCIC* 9280 *State Hwy?* Y *Route* 16 *Postmile Prefix* - *Postmile* 38.556 *Side of Hwy* W
City UNINCORP. *County* Yolo *Population* 9 *Rpt Dist* *Beat* 024 *Type* 1 *CalTrans* 3 *Badge* 015492 *Collision Date* 20130830 *Time* 1745 *Day* FRI
Primary Collision Factor R-O-W AUTO *Violation* 21802A *Collision Type* BROADSIDE *Severity* INJURY *#Killed* 0 *#Injured* 1 *Tow Away?* Y *Process Date* 20140327
Weather1 CLEAR *Weather2* *Rdwy Surface* DRY *Rdwy Cond1* NO UNUSL CND *Rdwy Cond2* *Spec Cond* 0
Hit and Run *Motor Vehicle Involved With* OTHER MV *Lighting* DAYLIGHT *Ped Action* *Cntrl Dev* FNCTNG *Loc Type* I *Ramp/Int* 5

Party Info / *Victim Info*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info		OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	27	M	W	HNBD		PROC ST	N	A	0100	CHEVR	2004	-	3	N		-	L	G	DRVR	COMP PN	27	M	1	0	L	G
2	DRVR	58	M	H	HNBD		PROC ST	W	D	2200	CHEVR	2008	-	3	N		-	M	G								

Primary Rd RT 16 *Distance (ft)* 2112 *Direction* W *Secondary Rd* COUNTY ROAD 96 *NCIC* 9280 *State Hwy?* Y *Route* 16 *Postmile Prefix* - *Postmile* 38.16 *Side of Hwy* E
City UNINCORP. *County* Yolo *Population* 9 *Rpt Dist* *Beat* 024 *Type* 1 *CalTrans* 3 *Badge* 13469 *Collision Date* 20131005 *Time* 2210 *Day* SAT
Primary Collision Factor IMPROP TURN *Violation* 22107 *Collision Type* OVERTURNED *Severity* PDO *#Killed* 0 *#Injured* 0 *Tow Away?* Y *Process Date* 20141114
Weather1 CLEAR *Weather2* *Rdwy Surface* DRY *Rdwy Cond1* NO UNUSL CND *Rdwy Cond2* *Spec Cond* 0
Hit and Run MSDMNR *Motor Vehicle Involved With* NON-CLSN *Lighting* DARK - NO *Ped Action* *Cntrl Dev* NT PRS/FCTR *Loc Type* H *Ramp/Int* -

Party Info / *Victim Info*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info		OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	998	-		IMP UNK	IMP UNK	RAN OFF RD	E	A	0700	HONDA	1995	-	3	N		-	M	B								

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Primary Rd **RT 16** *Distance (ft)* **850** *Direction* **E** *Secondary Rd* **COUNTY ROAD 97** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **39.72** *Side of Hwy* **W**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **024** *Type* **1** *CalTrans* **3** *Badge* **015492** *Collision Date* **20130621** *Time* **1450** *Day* **FRI**
Primary Collision Factor **NOT DRIVER** *Violation* *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150420**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1	DRVR	28	F	H	HNBD		PROC ST	W	A	0100	LEXUS	2001	-	3	N	-	M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 16** *Distance (ft)* **0** *Direction* *Secondary Rd* **COUNTY ROAD 97** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **39.558** *Side of Hwy* **W**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **025** *Type* **2** *CalTrans* **3** *Badge* **016351** *Collision Date* **20130826** *Time* **0945** *Day* **MON**
Primary Collision Factor **R-O-W AUTO** *Violation* **21802A** *Collision Type* **BROADSIDE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150618**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **I** *Ramp/Int* **5**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	22	M	H	HNBD		LFT TURN	N	A	0100	FORD	2004	-	3	N	-	M G
2	DRVR	998	M	W	HNBD		PROC ST	W	A	0700	CHEVR	1985	-	3	N	-	M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		2	F	6	0	P	Q

Primary Rd **RT 16** *Distance (ft)* **420** *Direction* **E** *Secondary Rd* **COUNTY ROAD 97** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **39.64** *Side of Hwy* **W**
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* *Beat* **024** *Type* **1** *CalTrans* **3** *Badge* **17800** *Collision Date* **20131026** *Time* **1625** *Day* **SAT**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* *Process Date* **20140426**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	25	F	H	HNBD		PROC ST	W	A	0100	DODGE	2013	-	3	N	-	M G
2	DRVR	34	F	B	HNBD		SLOWING	W	A	0100	CHRYS	1998	-	3	N	-	M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	COMP PN	34	F	1	0	M	G

Primary Rd **RT 16** *Distance (ft)* **100** *Direction* **W** *Secondary Rd* **COUNTY ROAD 98** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **40.55** *Side of Hwy* **E**
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* *Beat* **024** *Type* **1** *CalTrans* **3** *Badge* **015079** *Collision Date* **20130325** *Time* **1445** *Day* **MON**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **INJURY** *#Killed* **0** *#Injured* **2** *Tow Away?* **N** *Process Date* **20140401**
Weather1 **CLOUDY** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	30	F	H	HNBD		PROC ST	E	A	0100	TOYOT	1996	-	3	N	-	L G
2	DRVR	50	M	H	HNBD		STOPPED	E	D	2200	FORD	2001	-	3	N	-	L G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS	OTH VIS	9	M	3	0	L	G
DRVR	COMP PN	50	M	1	0	L	G

Primary Rd **RT 16** *Distance (ft)* **1584** *Direction* **W** *Secondary Rd* **COUNTY ROAD 98** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **40.27** *Side of Hwy* **W**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **024** *Type* **1** *CalTrans* **3** *Badge* **015485** *Collision Date* **20130714** *Time* **1135** *Day* **SUN**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **REAR END** *Severity* **INJURY** *#Killed* **0** *#Injured* **2** *Tow Away?* **Y** *Process Date* **20140313**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	58	F	W	HNBD		RAN OFF RD	W	A	0700	FORD	2010	-	3	M	N	M G
2	DRVR	54	F	A	HNBD		RGT TURN	W	A	0800	HONDA	1999	-	3	N	-	M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	COMP PN	58	F	1	0	M	G
DRVR	COMP PN	54	F	1	0	M	G

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Primary Rd **RT 16** *Distance (ft)* **67** *Direction* **N** *Secondary Rd* **GRAFTON ST** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **27.92** *Side of Hwy* **W**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **16929** *Collision Date* **20130119** *Time* **1820** *Day* **SAT**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150128**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	78	M	B	HNBD		PROC ST	N	A	0100	MERCE	1991	-	3	N		-	L	G
2	DRVR	55	M	A	HNBD		STOPPED	N	A	0100	CHEVR	2005	-	3	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 16** *Distance (ft)* **2640** *Direction* **E** *Secondary Rd* **GRAVEL PLANT** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **32.9** *Side of Hwy* **W**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **017375** *Collision Date* **20130714** *Time* **1133** *Day* **SUN**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **OVERTURNED** *Severity* **INJURY** *#Killed* **0** *#Injured* **2** *Tow Away?* **N** *Process Date* **20140313**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	32	M	O	HNBD		UNS TURN	W	A	0100	LEXUS	2001	-	3	A	22107	-	M	C

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	COMP PN	32	M	1	0	M	C
PASS	COMP PN	26	M	3	0	M	G

Primary Rd **RT 16** *Distance (ft)* **5280** *Direction* **E** *Secondary Rd* **GRAVEL PLANT** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **33.48** *Side of Hwy* **E**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **15492** *Collision Date* **20131009** *Time* **2020** *Day* **WED**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20140513**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	28	F	H	HNBD		PROC ST	E	A	0100	HONDA	2009	-	3	F		-	L	G
2	DRVR	28	M	W	HNBD		PROC ST	E	A	0100	FORD	2001	-	3	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	COMP PN	28	F	1	0	L	G
PASS		28	M	3	0	M	G

Primary Rd **RT 16** *Distance (ft)* **0** *Direction* *Secondary Rd* **KENTUCKY AV** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **R** *Postmile* **41.556** *Side of Hwy* **E**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **020** *Type* **1** *CalTrans* **3** *Badge* **017772** *Collision Date* **20131031** *Time* **0745** *Day* **THU**
Primary Collision Factor **IMPROP PASS** *Violation* **21755** *Collision Type* **SIDESWIPE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20141114**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **I** *Ramp/Int* **5**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	24	M	W	HNBD		RGT TURN	N	A	0100	TOYOT	1994	-	3	N		-	M	G
2	DRVR	36	M	W	HNBD		RGT TURN	N	G	2531	KENW	2011	-	3	N		-	P	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 16** *Distance (ft)* **106** *Direction* **E** *Secondary Rd* **LONE OAK LN** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **36.17** *Side of Hwy* **W**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **017874** *Collision Date* **20131124** *Time* **1650** *Day* **SUN**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **SIDESWIPE** *Severity* **INJURY** *#Killed* **0** *#Injured* **2** *Tow Away?* **Y** *Process Date* **20140512**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DUSK/DAWN** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	30	M	H	HNBD		OPPOS LN	W	D	2200	FORD	2007	-	3	A	22350	-	M	G
2	DRVR	17	M	W	HNBD		PROC ST	E	A	0100	TOYOT	2006	-	3	N		-	L	G
3	DRVR	44	M	H	HNBD		PROC ST	E	A	0700	HONDA	1997	-	3	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		55	M	3	0	M	G
PASS		54	F	4	0	P	G
DRVR	COMP PN	17	M	1	0	L	G
DRVR	COMP PN	44	M	1	0	M	G

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Primary Rd **RT 16** *Distance (ft)* **50** *Direction* **E** *Secondary Rd* **MEFFORD LN** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **25.57** *Side of Hwy* **W**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **017375** *Collision Date* **20130819** *Time* **0857** *Day* **MON**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **BROADSIDE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150626**
Weather1 **CLOUDY** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **PKD MV** *Lighting* *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F		31	M	O	HNBD		UNS TURN	W	A	0700	JEEP	2000	-	3	F		-	M	G
2		998	-				PARKED	W	A	0100	NISSA	1993	-	-	N		-	-	-

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 16** *Distance (ft)* **2** *Direction* **W** *Secondary Rd* **ORLEANS ST** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **27.546** *Side of Hwy* **W**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **17375** *Collision Date* **20131201** *Time* **0610** *Day* **SUN**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20141222**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DUSK/DAWN** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **I** *Ramp/Int* **5**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	25	M	A	HNBD		UNS TURN	W	A	0700	LEXUS	2000	-	3	A	22350	-	M	-

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		24	M	3	0	M	G

Primary Rd **RT 16** *Distance (ft)* **600** *Direction* **E** *Secondary Rd* **RT 505** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **31.73** *Side of Hwy* **E**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **017800** *Collision Date* **20130323** *Time* **2105** *Day* **SAT**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **INJURY** *#Killed* **0** *#Injured* **3** *Tow Away?* **N** *Process Date* **20140206**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	22	M	W	HNBD		PROC ST	E	A	0700	GMC	1993	-	3	N		-	M	G
2	DRVR	63	F	H	HNBD		STOPPED	E	A	0100	NISSA	1994	-	3	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		20	M	3	0	M	G
PASS		3	M	4	0	M	Q
PASS		0	M	6	0	M	Q
DRVR	COMP PN	63	F	1	0	M	G
PASS	COMP PN	84	F	3	0	M	G
PASS	COMP PN	79	F	4	0	M	G

Primary Rd **RT 16** *Distance (ft)* **0** *Direction* *Secondary Rd* **RT 505** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **32.355** *Side of Hwy* **E**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **14853** *Collision Date* **20130407** *Time* **1233** *Day* **SUN**
Primary Collision Factor **STOP SGN\|SIG** *Violation* **21453A** *Collision Type* **BROADSIDE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150420**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **I** *Ramp/Int* **5**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1	DRVR	65	F	A	HNBD		LFT TURN	N	A	0100	TOYOT	1988	-	3	N		-	P	G
2F	DRVR	50	M	W	HNBD		PROC ST	E	A	0700	CADIL	2003	-	3	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		72	F	3	0	P	G

Primary Rd **RT 16** *Distance (ft)* **100** *Direction* **E** *Secondary Rd* **RT 505** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **32.27** *Side of Hwy* **E**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **017351** *Collision Date* **20130725** *Time* **2330** *Day* **THU**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150618**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	25	M	A	HNBD		U-TURN	E	A	0100	HONDA	2013	-	3	N		-	L	G
2	DRVR	33	M	W	HNBD		PROC ST	E	A	0100	HONDA	2003	-	3	A	22350	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		24	F	3	0	M	G

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Primary Rd **RT 16** *Distance (ft)* **60** *Direction* **E** *Secondary Rd* **RT 82 B** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **23.53** *Side of Hwy* **E**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **13399** *Collision Date* **20131203** *Time* **0125** *Day* **TUE**
Primary Collision Factor **NOT DRIVER** *Violation* *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20141216**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **ANIMAL** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	
1	DRVR	44	M	W	HNBD		PROC ST	E	A	0700	CHEVR	1999	-	3	A	22107	-	L

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		43	F	3	0	L	G

Primary Rd **RT 16** *Distance (ft)* **1320** *Direction* **W** *Secondary Rd* **RUMSEY CANYON** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **3.86** *Side of Hwy* **E**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **016027** *Collision Date* **20130308** *Time* **2240** *Day* **FRI**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **OVERTURNED** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150128**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **NON-CLSN** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	
1F	DRVR	29	M	H	HNBD		UNS TURN	E	A	0700	MAZDA	2003	-	3	N		-	M

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 16** *Distance (ft)* **8976** *Direction* **W** *Secondary Rd* **RUMSEY CANYON** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **4.75** *Side of Hwy* **W**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **12272** *Collision Date* **20131007** *Time* **1100** *Day* **MON**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **OVERTURNED** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20141107**
Weather1 **CLOUDY** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	
1F	DRVR	40	M	W	HNBD		RAN OFF RD	W	G	2732	KENW	1994	-	3	N		-	P

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 16** *Distance (ft)* **19** *Direction* **E** *Secondary Rd* **TABERS CORNER** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **21.81** *Side of Hwy* **E**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **016632** *Collision Date* **20130627** *Time* **0558** *Day* **THU**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20140306**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	
1F	DRVR	51	M	W	HNBD		PROC ST	E	C	0200	HONDA	1980	-	3	N		-	P

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	OTH VIS	51	M	1	1	P	W

Primary Rd **RT 16** *Distance (ft)* **86** *Direction* **W** *Secondary Rd* **TABERS CORNER** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **21.8** *Side of Hwy* **W**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **17763** *Collision Date* **20130729** *Time* **2007** *Day* **MON**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20140318**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	
1F	DRVR	41	F	A	HNBD		UNS TURN	W	A	7100	HONDA	2012	-	3	N		-	L

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	COMP PN	41	F	1	0	L	G

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Primary Rd **RT 16** *Distance (ft)* **85** *Direction* **E** *Secondary Rd* **TUTT ST** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **017883** *Collision Date* **20130427** *Time* **2030** *Day* **SAT**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20140819**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	41	F	H	HNBD		PROC ST	E	A	0100	TOYOT	2012	-	3	N	-	M	G
2	DRVR	58	M	A	HNBD		SLOWING	E	A	0100	NISSA	2013	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		64	F	3	0	M	G

Primary Rd **RT 16** *Distance (ft)* **205** *Direction* **E** *Secondary Rd* **TUTT ST** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **30.77** *Side of Hwy* **E**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **17351** *Collision Date* **20130728** *Time* **0305** *Day* **SUN**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **FATAL** *#Killed* **1** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20150116**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - ST** *Ped Action* **IN RD,** *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	71	M	A	HNBD		PROC ST	E	A	0100	INFIN	2004	-	3	N	-	L	G
2	PED	24	M	W		DRUG		E	N	6000	-		-	-	N	-	-	-
3	OTHR	998	-				OTHER	E	F	5500	DODGE	2010	-	-	N	-	-	-
4	OTHR	998	-				OTHER	E	A	0100	NISSA	1997	-	-	N	-	-	-

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	COMP PN	71	M	1	0	L	G
PED	KILLED	24	M	9	0	P	-

Primary Rd **RT 16** *Distance (ft)* **208** *Direction* **W** *Secondary Rd* **WEST WOODLAND** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **R** *Postmile* **41.26** *Side of Hwy* **W**
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* *Beat* **024** *Type* **1** *CalTrans* **3** *Badge* **12272** *Collision Date* **20131026** *Time* **0530** *Day* **SAT**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20141114**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	21	M			FATG	RAN OFF RD	W	A	0100	HONDA	1995	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		22	M	3	0	M	G

Primary Rd **RT 16** *Distance (ft)* **1056** *Direction* **W** *Secondary Rd* **WILD WINGS DR** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **35.71** *Side of Hwy* **E**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **16144** *Collision Date* **20130425** *Time* **2120** *Day* **THU**
Primary Collision Factor **NOT DRIVER** *Violation* *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150420**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1	DRVR	67	M	W	HNBD		PROC ST	E	A	0100	BMW	2012	-	3	N	-	G	-

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		66	F	3	0	M	G

Primary Rd **RT 16** *Distance (ft)* **1056** *Direction* **E** *Secondary Rd* **WINNERS WY** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **19.53** *Side of Hwy* **W**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **016027** *Collision Date* **20130607** *Time* **2140** *Day* **FRI**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20140306**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	24	M	H	HNBD		PROC ST	W	A	0100	INFIN	2008	-	3	N	-	M	G
2	DRVR	37	M	A	HNBD		STOPPED	W	A	0800	TOYOT	2012	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		23	F	3	0	M	G
PASS	COMP PN	26	M	3	0	M	G
PASS		54	F	4	0	M	G
PASS		52	F	6	0	M	G

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Primary Rd **RT 5** *Distance (ft)* **0** *Direction* **E** *Secondary Rd* **RT 113** *NCIC* **9280** *State Hwy?* **Y** *Route* **5** *Postmile Prefix* **R** *Postmile* **7.968** *Side of Hwy* **N**
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* *Beat* **020** *Type* **1** *CalTrans* **3** *Badge* **015128** *Collision Date* **20131207** *Time* **0825** *Day* **SAT**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20141222**
Weather1 **CLOUDY** *Weather2* **FOG** *Rdwy Surface* **WET** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **R** *Ramp/Int* **2**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	63	F	W	HNBD		RAN OFF RD	N	E	2216	TOYOT	2005	-	3	H		N	L	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		16	F	3	0	L	G

Primary Rd **RT 5** *Distance (ft)* **3168** *Direction* **N** *Secondary Rd* **RT 16** *NCIC* **9280** *State Hwy?* **Y** *Route* **5** *Postmile Prefix* **R** *Postmile* **11.4** *Side of Hwy* **N**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **020** *Type* **1** *CalTrans* **3** *Badge* **16929** *Collision Date* **20130331** *Time* **1755** *Day* **SUN**
Primary Collision Factor **DRVR ALC|DRG** *Violation* **23152A** *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20141029**
Weather1 **RAINING** *Weather2* *Rdwy Surface* **WET** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	50	M	W	HBD-UI		OTHER	N	D	2200	CHEVR	2012	-	3	A	22107	-	L	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	OTH VIS	50	M	1	0	L	G

Primary Rd **RT 5** *Distance (ft)* **500** *Direction* **N** *Secondary Rd* **RT 16** *NCIC* **9280** *State Hwy?* **Y** *Route* **5** *Postmile Prefix* **R** *Postmile* **11.02** *Side of Hwy* **S**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **002** *Type* **3** *CalTrans* **3** *Badge* **17764** *Collision Date* **20130811** *Time* **0300** *Day* **SUN**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20140327**
Weather1 *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	21	F	H	HNBD		PROC ST	S	A	0100	NISSA	2005	-	3	H	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	COMP PN	21	F	1	0	M	G
PASS		21	F	3	0	M	G
PASS		1	F	5	0	P	Q

Primary Rd **RT 5** *Distance (ft)* **3168** *Direction* **S** *Secondary Rd* **RT 16** *NCIC* **9280** *State Hwy?* **Y** *Route* **5** *Postmile Prefix* **R** *Postmile* **10.21** *Side of Hwy* **S**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **020** *Type* **1** *CalTrans* **3** *Badge* **17763** *Collision Date* **20131105** *Time* **0629** *Day* **TUE**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **FATAL** *#Killed* **1** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20150112**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DUSK/DAWN** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	24	M	A	HNBD		OTHER	S	A	0100	DODGE	2003	-	3	N	-	L	H

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	KILLED	24	M	1	1	L	H
PASS	SEVERE	27	M	3	0	L	H

Primary Rd **RT 5** *Distance (ft)* **4224** *Direction* **S** *Secondary Rd* **RT 505** *NCIC* **9280** *State Hwy?* **Y** *Route* **5** *Postmile Prefix* **R** *Postmile* **21.8** *Side of Hwy* **N**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **030** *Type* **1** *CalTrans* **3** *Badge* **12873** *Collision Date* **20130118** *Time* **0810** *Day* **FRI**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150114**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	21	M	B	HNBD		RAN OFF RD	N	A	0100	FORD	1996	-	3	A	22350	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

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Primary Rd **RT 505** *Distance (ft)* **5808** *Direction* **N** *Secondary Rd* **RT 128** *NCIC* **9280** *State Hwy?* **Y** *Route* **505** *Postmile Prefix* **-** *Postmile* **1.5** *Side of Hwy* **N**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **031** *Type* **1** *CalTrans* **3** *Badge* **012272** *Collision Date* **20130815** *Time* **1205** *Day* **THU**
Primary Collision Factor **NOT DRIVER** *Violation* *Collision Type* **OVERTURNED** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20140327**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1	DRVR	48	F	W	HNBD		RAN OFF RD	N	D	2200	FORD	1997	-	3	M	-	G	-

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	OTH VIS	48	F	1	0	G	-

Primary Rd **RT 505** *Distance (ft)* **1584** *Direction* **N** *Secondary Rd* **RT 128** *NCIC* **9280** *State Hwy?* **Y** *Route* **505** *Postmile Prefix* **-** *Postmile* **.7** *Side of Hwy* **S**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **031** *Type* **1** *CalTrans* **3** *Badge* **122725** *Collision Date* **20131027** *Time* **0730** *Day* **SUN**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **OVERTURNED** *Severity* **INJURY** *#Killed* **0** *#Injured* **2** *Tow Away?* **Y** *Process Date* **20140426**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DUSK/DAWN** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	71	M	W	HNBD		RAN OFF RD	S	A	0700	CHEVR	2003	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	OTH VIS	71	M	1	0	M	G
PASS	COMP PN	63	F	3	0	M	G

Primary Rd **RT 505** *Distance (ft)* **9504** *Direction* **N** *Secondary Rd* **RT 16** *NCIC* **9280** *State Hwy?* **Y** *Route* **505** *Postmile Prefix* **-** *Postmile* **12.42** *Side of Hwy* **N**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **031** *Type* **1** *CalTrans* **3** *Badge* **12272** *Collision Date* **20130115** *Time* **1620** *Day* **TUE**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150128**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DUSK/DAWN** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	29	F	H		FATG	RAN OFF RD	N	A	0700	DODGE	2000	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		4	F	4	0	P	Q

Primary Rd **RT 505** *Distance (ft)* **0** *Direction* *Secondary Rd* **RT 16** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **32.355** *Side of Hwy* **E**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **12272** *Collision Date* **20130506** *Time* **1120** *Day* **MON**
Primary Collision Factor **STOP SGN\|SIG** *Violation* **21453A** *Collision Type* **BROADSIDE** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20140220**
Weather1 **CLOUDY** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **I** *Ramp/Int* **5**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	91	M	O	HNBD		RGT TURN	N	A	0100	NISSA	2006	-	3	N	-	M	G
2	DRVR	20	F	W	HNBD		PROC ST	E	A	0100	HYUND	1994	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	COMP PN	91	M	1	0	M	G

Primary Rd **RT 505** *Distance (ft)* **1000** *Direction* **S** *Secondary Rd* **RT 16** *NCIC* **9280** *State Hwy?* **Y** *Route* **505** *Postmile Prefix* **-** *Postmile* **10.43** *Side of Hwy* **N**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **031** *Type* **1** *CalTrans* **3** *Badge* **17800** *Collision Date* **20130513** *Time* **2305** *Day* **MON**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150407**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	21	M	W	HNBD		PROC ST	N	A	0100	NISSA	2004	-	3	N	-	L	G
2	DRVR	52	F	H	HNBD		STOPPED	N	A	0100	TOYOT	2005	-	3	A	22400	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		20	M	3	0	L	G
PASS		22	M	6	0	P	G
PASS		37	M	3	0	M	G

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Primary Rd **RT 505** *Distance (ft)* **945** *Direction* **N** *Secondary Rd* **RT 16** *NCIC* **9280** *State Hwy?* **Y** *Route* **505** *Postmile Prefix* **-** *Postmile* **10.8** *Side of Hwy* **N**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **031** *Type* **1** *CalTrans* **3** *Badge* **015353** *Collision Date* **20131216** *Time* **0315** *Day* **MON**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20141231**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info																Victim Info							
Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety Equip*	*ROLE*	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*
1F	DRVR	26	M	H	HNBD		UNS TURN	N	A	0100	CHEVR	2004	-	3	N	-	M G								

Primary Rd **RT 505** *Distance (ft)* **3696** *Direction* **N** *Secondary Rd* **RT 5** *NCIC* **9280** *State Hwy?* **Y** *Route* **5** *Postmile Prefix* **R** *Postmile* **23.207** *Side of Hwy* **N**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **030** *Type* **1** *CalTrans* **3** *Badge* **016632** *Collision Date* **20130713** *Time* **0718** *Day* **SAT**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **SIDESWIPE** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20140313**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **R** *Ramp/Int* **1**

Party Info																		Victim Info							
Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety Equip*	*ROLE*	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*
1F	DRVR	67	M	A	HNBD		PASSING	N	A	0800	TOYOT	1992	-	3	A	21750	N M G	PASS		63	-	3	0	M	G
																		PASS		92	F	4	0	M	G
2	DRVR	54	M	W	HNBD		PROC ST	N	D	2200	TOYOT	1993	-	3	N	-	M G	DRVR	COMP PN	54	M	1	0	M	G

Primary Rd **RT 505** *Distance (ft)* **50** *Direction* **N** *Secondary Rd* **UNION SCHOOL** *NCIC* **9280** *State Hwy?* **Y** *Route* **505** *Postmile Prefix* **-** *Postmile* **5.72** *Side of Hwy* **S**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **031** *Type* **1** *CalTrans* **3** *Badge* **16632** *Collision Date* **20130109** *Time* **0808** *Day* **WED**
Primary Collision Factor **R-O-W AUTO** *Violation* **21804A** *Collision Type* **SIDESWIPE** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **N** *Process Date* **20141113**
Weather1 **FOG** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info																		Victim Info							
Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety Equip*	*ROLE*	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*
1F	DRVR	48	M	H	HNBD		ENT TRAF	S	G	2533	PETER	2008	-	3	N	-	P G								
2	DRVR	62	M	W	HNBD		PROC ST	S	D	2200	CHEVR	2007	-	3	N	-	M G	DRVR	COMP PN	62	M	1	0	M	G

Primary Rd **RT 80** *Distance (ft)* **2112** *Direction* **E** *Secondary Rd* **CAPITOL AV** *NCIC* **9280** *State Hwy?* **Y** *Route* **80** *Postmile Prefix* **R** *Postmile* **10.59** *Side of Hwy* **W**
City **West Sacramento** *County* **Yolo** *Population* **4** *Rpt Dist* *Beat* **010** *Type* **1** *CalTrans* **3** *Badge* **014853** *Collision Date* **20131226** *Time* **1543** *Day* **THU**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20140515**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info																		Victim Info							
Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety Equip*	*ROLE*	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*
1	DRVR	47	F	W	HNBD		STOPPED	W	A	0800	HONDA	2006	-	3	N	-	M G	PASS	COMP PN	52	M	3	0	M	G
																		PASS		8	F	4	0	P	G
																		PASS		10	F	6	0	P	G
2F	DRVR	24	F	W	HNBD		CHANG LN	W	A	0100	CHEVR	2011	-	3	N	-	L G								

Primary Rd **RT 80** *Distance (ft)* **244** *Direction* **N** *Secondary Rd* **CHILES RD** *NCIC* **9280** *State Hwy?* **Y** *Route* **80** *Postmile Prefix* **-** *Postmile* **5.693** *Side of Hwy* **W**
City **Davis** *County* **Yolo** *Population* **5** *Rpt Dist* *Beat* **010** *Type* **1** *CalTrans* **3** *Badge* **15485** *Collision Date* **20130317** *Time* **1755** *Day* **SUN**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **SIDESWIPE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150114**
Weather1 **CLOUDY** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **R** *Ramp/Int* **2**

Party Info																		Victim Info							
Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety Equip*	*ROLE*	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*
1F	DRVR	24	M	B	HNBD		RAN OFF RD	E	A	0100	LEXUS	1995	-	3	N	-	M B	PASS		20	F	3	0	L	B
																		PASS		16	F	4	0	M	B
																		PASS		3	F	6	0	M	Q

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Primary Rd **WITHAM DR** *Distance (ft)* **0** *Direction* *Secondary Rd* **WITHAM DR 1993** *NCIC* **5703** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* **73** *Beat* **004** *Type* **0** *CalTrans* *Badge* **2808** *Collision Date* **20131222** *Time* **0517** *Day* **SUN**
Primary Collision Factor **WRONG SIDE** *Violation* **21650** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20141215**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	998	M		IMP UNK	IMP UNK	RAN OFF RD	E	A	0100	NISSA	2005	-	-	-	-	M -

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **YOLO AV** *Distance (ft)* **2** *Direction* **N** *Secondary Rd* **CAPAY ST** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **27.89** *Side of Hwy* **W**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **016010** *Collision Date* **20130317** *Time* **0140** *Day* **SUN**
Primary Collision Factor **PED VIOL** *Violation* **21950B** *Collision Type* **AUTO/PED** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **N** *Process Date* **20141226**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **PED** *Lighting* **DARK - NO** *Ped Action* **X-WLK AT** *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **I** *Ramp/Int* **5**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1	DRVR	43	F	W	HNBD		PROC ST	N	A	0100	FORD	2009	-	3	N	-	M G
2F	PED	57	M	W	HBD-UI			W	N	6000	-	-	-	3	N	-	- -

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PED	OTH VIS	57	M	9	3	-	-

Primary Rd **YOLO ST** *Distance (ft)* **0** *Direction* *Secondary Rd* **LISBON AV** *NCIC* **5704** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **West Sacramento** *County* **Yolo** *Population* **4** *Rpt Dist* *Beat* **001** *Type* **0** *CalTrans* *Badge* **00158** *Collision Date* **20130115** *Time* **1420** *Day* **TUE**
Primary Collision Factor **R-O-W AUTO** *Violation* **21802A** *Collision Type* **BROADSIDE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20140624**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	45	M	H	HNBD		PROC ST	S	A	0100	DAEW	2000	-	3	N	-	M G
2	DRVR	39	F	W	HNBD		PROC ST	E	A	0700	TOYOT		-	3	N	-	G -

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		14	F	5	0	P	G
PASS		17	F	3	0	M	G

Primary Rd **YOLO ST** *Distance (ft)* **0** *Direction* *Secondary Rd* **MIKON ST** *NCIC* **5704** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **West Sacramento** *County* **Yolo** *Population* **4** *Rpt Dist* *Beat* **001** *Type* **0** *CalTrans* *Badge* **126** *Collision Date* **20130405** *Time* **2342** *Day* **FRI**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20140809**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **PKD MV** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	998	-		HBD-UNK		PROC ST	W	A	0100	FORD	2002	-	-	A	20002	- - -
2	PRKD	998	-				PARKED	S	C	0200	HARLE	2010	-	-	-		- - -
3	PRKD	998	-				PARKED	W	A	0100	TOYOT	2002	-	-	-		- - -

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

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Primary Rd **CLOVER ST** *Distance (ft)* **63** *Direction* **W** *Secondary Rd* **4TH ST** *NCIC* **5703** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* *Beat* **001** *Type* **0** *CalTrans* *Badge* **2835** *Collision Date* **20140520** *Time* **0055** *Day* **TUE**
Primary Collision Factor **DRVR ALC|DRG** *Violation* **23152A** *Collision Type* **REAR END** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20140730**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **PKD MV** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	40	F	H	HBD-UI		PROC ST	W	A	0100	CHEVR	2011	-	-	A	21650	-	M	G
2	PRKD	998	-			null		-	-	0000	VOLVO	2006	-	-	-		-	-	-
3	PRKD	998	-			null		-	-	0000	FORD	1994	-	-	-		-	-	-

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	OTH VIS	40	F	1	3	M	G

Primary Rd **CLOVER ST** *Distance (ft)* **215** *Direction* **E** *Secondary Rd* **OLIVE WY** *NCIC* **5703** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* **42** *Beat* **003** *Type* **0** *CalTrans* *Badge* **2894** *Collision Date* **20140306** *Time* **0806** *Day* **THU**
Primary Collision Factor **NOT STATED** *Violation* *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150223**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	60	F		HNBD		PROC ST	W	A	0100	PONTI	2008	-	3	N		-	L	G
2	DRVR	59	F	W	HNBD		RGT TURN	W	A	0100	VOLVO	2005	-	3	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **CO RD 20** *Distance (ft)* **0** *Direction* *Secondary Rd* **RT 16** *NCIC* **5703** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* **84** *Beat* **002** *Type* **0** *CalTrans* *Badge* *Collision Date* **20140919** *Time* **0700** *Day* **FRI**
Primary Collision Factor **NOT STATED** *Violation* *Collision Type* **BROADSIDE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150522**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1	DRVR	31	M	H	HNBD		PROC ST	E	D	2200	GMC	2002	-	3	-		-	M	G
2	DRVR	28	M	W	HNBD		PROC ST	N	A	0700	FORD	1989	-	3	-		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **CO RD 6** *Distance (ft)* **3** *Direction* **E** *Secondary Rd* **CO RD 89W** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **017351** *Collision Date* **20140419** *Time* **0001** *Day* **SAT**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **OTHER** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20140710**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **NON-CLSN** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	49	M	W	HNBD		PROC ST	S	D	2200	FORD	2013	-	3	N		-	L	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	COMP PN	49	M	1	0	L	G

Primary Rd **CO RD 98** *Distance (ft)* **6** *Direction* **S** *Secondary Rd* **CO RD 27** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **002** *Type* **3** *CalTrans* *Badge* **015168** *Collision Date* **20140306** *Time* **1440** *Day* **THU**
Primary Collision Factor **R-O-W AUTO** *Violation* **21802A** *Collision Type* **BROADSIDE** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20140623**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **MV ON OTHER RD** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	19	M	H	HNBD		PROC ST	E	A	0100	MITSU	2004	-	3	N		-	L	G
2	DRVR	45	M	W	HNBD		PROC ST	S	D	2200	FORD	2014	-	3	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	COMP PN	19	M	1	0	L	G

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Primary Rd **CO RD 98** *Distance (ft)* **0** *Direction* *Secondary Rd* **W MAIN ST** *NCIC* **5703** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* *Beat* **003** *Type* **0** *CalTrans* *Badge* **2888** *Collision Date* **20140721** *Time* **1730** *Day* **MON**
Primary Collision Factor **STRTNG|BCKNG** *Violation* **22106** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150416**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	25	M	W	HNBD		PROC ST	S	-	0000	TOYOT	1994	-	3	-	-	-	-
2	DRVR	46	M	H	HNBD		STOPPED	S	-	0000	TOYOT	1998	-	3	-	-	-	-

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **CO RD 99W** *Distance (ft)* **0** *Direction* *Secondary Rd* **CO RD 12** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **17629** *Collision Date* **20140715** *Time* **1200** *Day* **TUE**
Primary Collision Factor **IMPROP PASS** *Violation* **21750** *Collision Type* **SIDESWIPE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150420**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	65	M	H	HNBD		PASSING	S	G	2631	PETER	1999	-	3	N	-	P	C
2	DRVR	36	M	W	HNBD		LFT TURN	S	G	2533	PETER	2009	-	3	N	-	P	C

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **COFFEEBERRY RD** *Distance (ft)* **0** *Direction* *Secondary Rd* **SNAPDRAGON CIR** *NCIC* **5704** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **West Sacramento** *County* **Yolo** *Population* **4** *Rpt Dist* *Beat* *Type* **0** *CalTrans* *Badge* **155** *Collision Date* **20140820** *Time* **0400** *Day* **WED**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **HEAD-ON** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150429**
Weather1 *Weather2* *Rdwy Surface* *Rdwy Cond1* *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER OBJ** *Lighting* *Ped Action* *Cntrl Dev* *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	998	-			null		E	-	0000	MERCU	1997	-	-	-	-	-	-

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **COIL LN** *Distance (ft)* **15** *Direction* **E** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **002** *Type* **3** *CalTrans* *Badge* **15485** *Collision Date* **20140324** *Time* **1255** *Day* **MON**
Primary Collision Factor **WRONG SIDE** *Violation* **21650** *Collision Type* **HEAD-ON** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150226**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	46	M	H	HNBD		OPPOS LN	E	M	4600	JOHN	2013	-	3	N	-	P	C
2	DRVR	76	M	W	HNBD		STOPPED	W	A	0700	TOYOT	2007	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **COLLEGE ST** *Distance (ft)* **400** *Direction* **S** *Secondary Rd* **BEAMER ST** *NCIC* **5703** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* **22** *Beat* **002** *Type* **0** *CalTrans* *Badge* **2863** *Collision Date* **20140625** *Time* **0707** *Day* **WED**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150408**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **PKD MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	32	M	H		FATG	PROC ST	S	A	0100	CHEVR	2001	-	3	N	-	L	G
2	PRKD	998	-				PARKED	S	A	0100	NISSA	2011	-	-	N	-	-	-

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

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PASS		17	M	6	0	P	B
PASS		16	F	5	0	P	B
PASS		17	F	6	0	P	E
PASS		18	F	8	1	P	A
PASS		17	M	8	1	P	A
PASS		17	M	8	1	P	A

Primary Rd **COUNTY ROAD 20** *Distance (ft)* **40** *Direction* **W** *Secondary Rd* **RT 16** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **020** *Type* **1** *CalTrans* *Badge* **017351** *Collision Date* **20140606** *Time* **1835** *Day* **FRI**
Primary Collision Factor **STRTNG|BCKNG** *Violation* **22106** *Collision Type* **BROADSIDE** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **N** *Process Date* **20140808**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety Equip*
1F	DRVR	26	M	W	HNBD		STOPPED	W	D	2200	CHEVR	1981	-	3	N	-	M G
2	DRVR	72	M	A	HNBD		STOPPED	W	A	0100	MERCE	2013	-	3	N	-	M G

Victim Info

ROLE	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*
DRVR	COMP PN	72	M	1	0	M	G
		67	F	3	0	M	G
		72	F	4	0	M	G

Primary Rd **COUNTY ROAD 22** *Distance (ft)* **300** *Direction* **E** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **020** *Type* **1** *CalTrans* *Badge* **17351** *Collision Date* **20141212** *Time* **0335** *Day* **FRI**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **OVERTURNED** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150717**
Weather1 **RAINING** *Weather2* *Rdwy Surface* **WET** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **NON-CLSN** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety Equip*
1F	DRVR	48	M	W	HNBD		PROC ST	N	G	2531	KENW	2009	-	3	N	-	P G

Victim Info

ROLE	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*

Primary Rd **COUNTY ROAD 22** *Distance (ft)* **1584** *Direction* **E** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **003** *Type* **3** *CalTrans* *Badge* **016144** *Collision Date* **20140725** *Time* **1345** *Day* **FRI**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150417**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety Equip*
1F	DRVR	31	M	H	HNBD		UNS TURN	E	A	0100	HONDA	1997	-	3	N	-	L G

Victim Info

ROLE	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*

Primary Rd **COUNTY ROAD 22** *Distance (ft)* **2640** *Direction* **W** *Secondary Rd* **RT 5** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* *Beat* **002** *Type* **3** *CalTrans* *Badge* **017933** *Collision Date* **20140316** *Time* **0310** *Day* **SUN**
Primary Collision Factor **NOT DRIVER** *Violation* *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150213**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety Equip*
1	DRVR	33	F	B	HNBD		PROC ST	E	A	0100	CHRYS	2010	-	3	N	-	B G

Victim Info

ROLE	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*

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Primary Rd **COUNTY ROAD 85** *Distance (ft)* **1584** *Direction* **N** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **003** *Type* **3** *CalTrans* *Badge* **16632** *Collision Date* **20140706** *Time* **0601** *Day* **SUN**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **OVERTURNED** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150417**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **NON-CLSN** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	51	F	O	HNBD		UNS TURN	S	A	0100	TOYOT	2009	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		79	M	3	0	M	G
PASS		44	F	4	0	M	G
PASS		52	F	6	0	M	G

Primary Rd **COUNTY ROAD 85** *Distance (ft)* **0** *Direction* *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **003** *Type* **3** *CalTrans* *Badge* **16520** *Collision Date* **20140329** *Time* **2230** *Day* **SAT**
Primary Collision Factor **R-O-W AUTO** *Violation* **21802A** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150220**
Weather1 **CLOUDY** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F		998	-		IMP UNK	IMP UNK	RGT TURN	N	A	0100	HONDA		-	3	N	-	B	-
2	DRVR	45	M	W	HNBD		PROC ST	N	D	2200	CHEVR	1967	-	3	N	-	P	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **COUNTY ROAD 85** *Distance (ft)* **1056** *Direction* **N** *Secondary Rd* **RT 16** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **017629** *Collision Date* **20140708** *Time* **0550** *Day* **TUE**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **OVERTURNED** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150528**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **OTHER OBJ** *Lighting* **DUSK/DAWN** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	998	M	H	IMP UNK	IMP UNK	PROC ST	S	D	2200	DODGE	2000	-	3	N	-	M	B

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **COUNTY ROAD 85B** *Distance (ft)* **120** *Direction* **N** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **003** *Type* **3** *CalTrans* *Badge* **16929** *Collision Date* **20141128** *Time* **1620** *Day* **FRI**
Primary Collision Factor **WRONG SIDE** *Violation* **21460A** *Collision Type* **SIDESWIPE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150701**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	998	-		IMP UNK	IMP UNK	PROC ST	S	M	4600	OTHER		-	3	N	-	-	-
2	DRVR	56	F	W	HNBD		PROC ST	N	F	2600	FORD	2001	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **COUNTY ROAD 85B** *Distance (ft)* **0** *Direction* *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **017629** *Collision Date* **20140605** *Time* **0750** *Day* **THU**
Primary Collision Factor **R-O-W AUTO** *Violation* **21801A** *Collision Type* **HEAD-ON** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20140814**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	24	F	W	HNBD		LFT TURN	S	A	0100	OLDSM	1992	-	3	N	-	M	G
2	DRVR	32	F	B	HNBD		PROC ST	N	A	0100	HONDA	2009	-	3	N	-	M	G
3	DRVR	17	F	W	HNBD		STOPPED	W	A	0100	ACURA	2008	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	COMP PN	32	F	1	0	M	G

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Primary Rd **COUNTY ROAD 85B** *Distance (ft)* **0** *Direction* *Secondary Rd* **COUNTY ROAD 22** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **017772** *Collision Date* **20140713** *Time* **1653** *Day* **SUN**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20140829**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	34	M	H	HNBD		PASSING	N	A	0700	NISSA	1997	-	3	N	-	L	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	OTH VIS	34	M	1	0	L	G

Primary Rd **COUNTY ROAD 86** *Distance (ft)* **1056** *Direction* **S** *Secondary Rd* **COUNTY ROAD 6** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **003** *Type* **3** *CalTrans* *Badge* **17800** *Collision Date* **20140908** *Time* **1540** *Day* **MON**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20151221**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	48	M	H	HNBD		UNS TURN	N	D	2200	TOYOT	2001	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **COUNTY ROAD 87** *Distance (ft)* **89** *Direction* **S** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **003** *Type* **3** *CalTrans* *Badge* **17883** *Collision Date* **20140511** *Time* **0915** *Day* **SUN**
Primary Collision Factor **WRONG SIDE** *Violation* **21460C** *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20140724**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	34	F	A	HNBD		OPPOS LN	S	A	0100	LEXUS	2009	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	COMP PN	34	F	1	0	M	G

Primary Rd **COUNTY ROAD 87** *Distance (ft)* **0** *Direction* *Secondary Rd* **RT 16** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **003** *Type* **3** *CalTrans* *Badge* **16214** *Collision Date* **20141022** *Time* **1600** *Day* **WED**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150402**
Weather1 **CLOUDY** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	998	-		HBD-UNK		RGT TURN	S	-	9900	-		-	-	N	-	B	P

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **COUNTY ROAD 89** *Distance (ft)* **383** *Direction* **N** *Secondary Rd* **COUNTY ROAD 23** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **301** *Type* **1** *CalTrans* *Badge* **016929** *Collision Date* **20140817** *Time* **0100** *Day* **SUN**
Primary Collision Factor **DRVR ALC|DRG** *Violation* **23152A** *Collision Type* *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20140918**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	23	F	H	HBD-UI		UNS TURN	N	A	0100	MITSU	1999	-	3	A	22107	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	OTH VIS	23	F	1	0	M	G

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Primary Rd **COUNTY ROAD 98** *Distance (ft)* **0** *Direction* *Secondary Rd* **HARLAN LN** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **002** *Type* **3** *CalTrans* *Badge* **016144** *Collision Date* **20140313** *Time* **2105** *Day* **THU**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20140625**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1	DRVR	33	F	H	HNBD		SLOWING	S	A	0800	FORD	2007	-	3	N	-	M	G	PASS		35	M	3	0	M	G
2F	DRVR	93	M	W	HNBD		PROC ST	S	A	0800	FORD	1998	-	3	N	-	L	G	DRVR	OTH VIS	93	M	1	0	L	G

Primary Rd **COUNTY ROAD 98** *Distance (ft)* **150** *Direction* **N** *Secondary Rd* **HUTCHISON DR** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **025** *Type* **2** *CalTrans* *Badge* **015492** *Collision Date* **20140629** *Time* **1100** *Day* **SUN**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150415**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	32	M	H	HNBD		PROC ST	S	D	2200	GMC	1998	-	3	N	-	M	G	PASS		67	F	2	0	M	C
																			PASS		70	M	3	0	M	G
																			PASS		6	F	4	0	P	Q
																			PASS		34	F	5	0	P	C
																			PASS		5	F	6	0	P	Q
2	DRVR	36	F	A	HNBD		SLOWING	S	A	0100	TOYOT	2013	-	3	J	-	M	G	PASS		37	M	3	0	M	G

Primary Rd **COUNTY ROAD 98** *Distance (ft)* **4224** *Direction* **S** *Secondary Rd* **HUTCHISON DR** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **002** *Type* **3** *CalTrans* *Badge* **16144** *Collision Date* **20141115** *Time* **1211** *Day* **SAT**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **2** *Tow Away?* **Y** *Process Date* **20150126**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	31	M	W	HNBD		UNS TURN	S	A	0100	NISSA	2010	-	3	N	-	L	G	DRVR	OTH VIS	31	M	1	0	L	G
																			PASS	COMP PN	3	M	6	0	L	Q

Primary Rd **COUNTY ROAD 98** *Distance (ft)* **0** *Direction* *Secondary Rd* **RT 16** *NCIC* **5703** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* **82** *Beat* **002** *Type* **0** *CalTrans* *Badge* **2859** *Collision Date* **20140805** *Time* **1932** *Day* **TUE**
Primary Collision Factor **STOP SGN|SIG** *Violation* **21453A** *Collision Type* **BROADSIDE** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20140919**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	51	M	W	HNBD		LFT TURN	E	A	0700	FORD	2004	-	3	F	-	M	E	DRVR	COMP PN	51	M	1	3	-	-
																			PASS		12	F	3	3	-	-
2	DRVR	20	M		HNBD		PROC ST	N	A	0100	HONDA	2008	-	3	-	-	M	E								

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Primary Rd **COUNTY ROAD 98** *Distance (ft)* **0** *Direction* *Secondary Rd* **RUSSELL BL** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **025** *Type* **2** *CalTrans* *Badge* **16214** *Collision Date* **20141009** *Time* **1545** *Day* **THU**
Primary Collision Factor **R-O-W AUTO** *Violation* **21800B** *Collision Type* **BROADSIDE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150109**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	34	F	H	HNBD		PROC ST	N	A	0100	HONDA	1996	-	3	N	-	P	Q
2	DRVR	40	F	A	HNBD		PROC ST	N	A	0100	HYUND	2012	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		5	F	6	0	M	Q

Primary Rd **COUNTY ROAD 98** *Distance (ft)* **380** *Direction* **N** *Secondary Rd* **W BEAMER ST** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* *Beat* **025** *Type* **2** *CalTrans* *Badge* **16929** *Collision Date* **20141119** *Time* **2100** *Day* **WED**
Primary Collision Factor **DRVR ALC|DRG** *Violation* **23152A** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150307**
Weather1 **CLOUDY** *Weather2* **RAINING** *Rdwy Surface* **WET** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	45	F	W	HBD-UI		RAN OFF RD	N	A	0100	HONDA	2002	-	3	A	22107	-	L	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **COUNTY ROAD 98** *Distance (ft)* **0** *Direction* *Secondary Rd* **WEST GIBSON RD** *NCIC* **5703** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* **76** *Beat* **003** *Type* **0** *CalTrans* *Badge* **2863** *Collision Date* **20140821** *Time* **0759** *Day* **THU**
Primary Collision Factor **STOP SGN|SIG** *Violation* **22450A** *Collision Type* **BROADSIDE** *Severity* **INJURY** *#Killed* **0** *#Injured* **2** *Tow Away?* **Y** *Process Date* **20140916**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	32	M		HNBD		PROC ST	N	A	0100	TOYOT	2012	-	3	N	-	M	G
2	DRVR	77	F	W	HNBD		PROC ST	E	A	0100	ACURA	1991	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	COMP PN	32	M	1	0	M	G
DRVR	COMP PN	77	F	1	0	M	G

Primary Rd **COUNTY ROAD 98** *Distance (ft)* **150** *Direction* **S** *Secondary Rd* **WEST MAIN ST** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* *Beat* **025** *Type* **2** *CalTrans* *Badge* **17351** *Collision Date* **20140502** *Time* **2045** *Day* **FRI**
Primary Collision Factor **R-O-W AUTO** *Violation* **21804A** *Collision Type* **BROADSIDE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150318**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	998	-		IMP UNK	IMP UNK	LFT TURN	S	-	9900	-		-	3	N	-	B	-
2	DRVR	48	M	W	HNBD		LFT TURN	S	A	0100	NISSA	2014	-	3	N	-	L	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **COUNTY ROAD 98A** *Distance (ft)* **2112** *Direction* **S** *Secondary Rd* **RT 45** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **002** *Type* **3** *CalTrans* *Badge* **15492** *Collision Date* **20140428** *Time* **1120** *Day* **MON**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **OVERTURNED** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20150311**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **LOOSE MATRL** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **NON-CLSN** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	44	M	B	HNBD		UNS TURN	S	A	0100	FORD	2005	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	OTH VIS	44	M	1	3	M	G

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Primary Rd **RT 16** *Distance (ft)* **104** *Direction* **W** *Secondary Rd* **2ND ST** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **012272** *Collision Date* **20141221** *Time* **0745** *Day* **SUN**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **N** *Process Date* **20150212**
Weather1 **FOG** *Weather2* *Rdwy Surface* **WET** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DUSK/DAWN** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	
1F	DRVR	60	F	O	HNBD		RAN OFF RD	E	A	0100	TOYOT	1996	-	3	N		-	M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS	OTH VIS	60	F	3	0	M	G

Primary Rd **RT 16** *Distance (ft)* **50** *Direction* **W** *Secondary Rd* **ANTELOPE ST** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **016144** *Collision Date* **20141126** *Time* **1400** *Day* **WED**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150703**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	
1F	DRVR	16	M	W	HNBD		OTHER	E	A	0100	FORD	2003	-	3	N		-	M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 16** *Distance (ft)* **1750** *Direction* **W** *Secondary Rd* **CO RD 41A** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* *Beat* **003** *Type* **3** *CalTrans* *Badge* **17883** *Collision Date* **20140617** *Time* **0530** *Day* **TUE**
Primary Collision Factor **NOT DRIVER** *Violation* *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150409**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **ANIMAL** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	
1	DRVR	38	M	H	HNBD		PROC ST	W	A	0100	TOYOT	2009	-	3	N		-	M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 16** *Distance (ft)* **10** *Direction* **N** *Secondary Rd* **COUNTY ROAD 20** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **024** *Type* **1** *CalTrans* *Badge* **015492** *Collision Date* **20140630** *Time* **1130** *Day* **MON**
Primary Collision Factor **STRTNG\|BCKNG** *Violation* **22106** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* *Process Date* **20150415**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	
1F	DRVR	30	F	W	HNBD		PROC ST	S	D	2200	TOYOT	2006	-	3	N		-	M G
2	DRVR	51	F	W	HNBD		SLOWING	S	A	0100	HONDA	2006	-	3	J		N	M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		10	F	3	0	M	G
PASS		0	F	4	0	M	Q
PASS		3	F	5	0	P	Q
PASS		2	M	6	0	P	Q
PASS		74	F	3	0	M	G

Primary Rd **RT 16** *Distance (ft)* **0** *Direction* *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* *Beat* **003** *Type* **3** *CalTrans* *Badge* **017800** *Collision Date* **20140909** *Time* **1807** *Day* **TUE**
Primary Collision Factor **R-O-W AUTO** *Violation* **21802A** *Collision Type* **BROADSIDE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150520**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	
1F	DRVR	24	M	H	HNBD		PROC ST	W	D	2200	FORD	2005	-	3	N		-	M G
2	DRVR	46	M	W	HNBD		PROC ST	S	A	0100	HONDA	2009	-	3	N		-	M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		46	F	3	0	M	G

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Primary Rd **RT 16** *Distance (ft)* **0** *Direction* *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **17772** *Collision Date* **20140927** *Time* **0930** *Day* **SAT**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150516**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	55	F	A	HNBD		OTHER	E	A	0100	NISSA	2012	-	3	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 16** *Distance (ft)* **150** *Direction* **W** *Secondary Rd* **COUNTY ROAD 22** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **016144** *Collision Date* **20140503** *Time* **2245** *Day* **SAT**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20140730**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	23	F	W	HNBD		UNS TURN	W	A	0100	HONDA	1996	-	3	A	22350	-	L	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	OTH VIS	23	F	1	0	L	G

Primary Rd **RT 16** *Distance (ft)* **0** *Direction* *Secondary Rd* **COUNTY ROAD 22** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **024** *Type* **1** *CalTrans* *Badge* **15168** *Collision Date* **20140509** *Time* **1411** *Day* **FRI**
Primary Collision Factor **R-O-W AUTO** *Violation* **21802A** *Collision Type* **BROADSIDE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150330**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **MV ON OTHER RD** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1	DRVR	52	M	H	HNBD		PROC ST	W	A	0100	KIA	2000	-	3	N		-	P	G
2F	DRVR	72	M	B	HNBD		LFT TURN	E	A	0100	TOYOT	2001	-	3	N		-	L	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 16** *Distance (ft)* **230** *Direction* **W** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **003** *Type* **3** *CalTrans* *Badge* **17883** *Collision Date* **20140525** *Time* **1055** *Day* **SUN**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150330**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	56	F	O	HNBD		UNS TURN	E	A	0700	CHEVR	2003	-	3	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 16** *Distance (ft)* **2640** *Direction* **W** *Secondary Rd* **COUNTY ROAD 43** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **9.19** *Side of Hwy* **W**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **014853** *Collision Date* **20140116** *Time* **2015** *Day* **THU**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **BROADSIDE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20160226**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1	OTHR	998	-				STOPPED	W	D	2200	FORD	1988	-	3	N		-	-	-
2F	DRVR	50	M	W	HNBD		PROC ST	E	A	0100	CHEVR	2012	-	3	N		-	L	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

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Primary Rd **RT 16** *Distance (ft)* **2640** *Direction* **W** *Secondary Rd* **COUNTY ROAD 71** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **016144** *Collision Date* **20141127** *Time* **1625** *Day* **THU**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20150122**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	93	M	O	HNBD		OTHER	E	A	0100	TOYOT	2014	-	3	N		-	L G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	SEVERE	29	M	1	0	L	G

Primary Rd **RT 16** *Distance (ft)* **528** *Direction* **W** *Secondary Rd* **COUNTY ROAD 71** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **017772** *Collision Date* **20141218** *Time* **1235** *Day* **THU**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **OVERTURNED** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20150205**
Weather1 **CLOUDY** *Weather2* *Rdwy Surface* **WET** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	20	M		HNBD		OTHER	E	A	0100	SATUR	2002	-	3	N		-	M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	COMP PN	20	M	1	0	M	G

Primary Rd **RT 16** *Distance (ft)* **40** *Direction* **E** *Secondary Rd* **COUNTY ROAD 76** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **17800** *Collision Date* **20140412** *Time* **1605** *Day* **SAT**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150313**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	26	M	W	HNBD		PROC ST	W	A	0100	DODGE	2008	-	3	N		-	M G
2	DRVR	26	F	W	HNBD		SLOWING	W	A	0100	FORD	1991	-	3	N		-	M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		25	F	3	0	M	G
PASS		998	M	3	0	M	G

Primary Rd **RT 16** *Distance (ft)* **3696** *Direction* **W** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **19.69** *Side of Hwy* **W**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **16632** *Collision Date* **20140124** *Time* **1145** *Day* **FRI**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **N** *Process Date* **20160222**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	24	M	W	HNBD		PROC ST	W	A	0100	NISSA	2004	-	3	N		-	M G
2	DRVR	44	F	A	HNBD		SLOWING	W	A	0100	TOYOT	2006	-	3	N		-	M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	COMP PN	44	F	1	0	M	G

Primary Rd **RT 16** *Distance (ft)* **2050** *Direction* **W** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **19.78** *Side of Hwy* **E**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **003** *Type* **3** *CalTrans* **3** *Badge* **17883** *Collision Date* **20140128** *Time* **1541** *Day* **TUE**
Primary Collision Factor **DRVR ALC|DRG** *Violation* **23152A** *Collision Type* **OVERTURNED** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20160222**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	40	F	A	HBD-UI		UNS TURN	E	A	0700	MITSU	2001	-	3	A	22107	-	B G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	OTH VIS	40	F	1	0	B	G

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Primary Rd **RT 16** *Distance (ft)* **3696** *Direction* **W** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **19.66** *Side of Hwy* **W**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **016351** *Collision Date* **20140205** *Time* **0105** *Day* **WED**
Primary Collision Factor **R-O-W AUTO** *Violation* **21801A** *Collision Type* **BROADSIDE** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20160222**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **I** *Ramp/Int* **5**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	59	M	A	HNBD		LFT TURN	S	A	0100	HONDA	2001	-	3	N	-	M G
2	DRVR	56	F	A	HNBD		PROC ST	W	D	2200	TOYOT	2001	-	3	N	-	M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	COMP PN	59	M	1	0	M	G
PASS		998	F	3	0	M	G
PASS		63	M	3	0	M	G

Primary Rd **RT 16** *Distance (ft)* **2290** *Direction* **W** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **17800** *Collision Date* **20140524** *Time* **1515** *Day* **SAT**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **OVERTURNED** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150323**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **NON-CLSN** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	47	F	W	HNBD		UNS TURN	E	A	0100	CHEVR	2011	-	3	N	-	L G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 16** *Distance (ft)* **1056** *Direction* **W** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **17874** *Collision Date* **20140924** *Time* **2128** *Day* **WED**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150516**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	72	M	W	HNBD		RAN OFF RD	W	A	0100	FORD	1992	-	3	N	-	M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 16** *Distance (ft)* **60** *Direction* **E** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **13837** *Collision Date* **20141008** *Time* **1625** *Day* **WED**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150114**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	68	F	W	HNBD		PROC ST	W	A	0100	SATUR	2002	-	3	E	-	M G
2	DRVR	68	F	W	HNBD		STOPPED	W	A	0100	FORD	2004	-	3	N	-	M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 16** *Distance (ft)* **528** *Direction* **W** *Secondary Rd* **COUNTY ROAD 79** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **13399** *Collision Date* **20141022** *Time* **2355** *Day* **WED**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150109**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **ANIMAL** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	41	F	H	HNBD		PROC ST	E	D	2200	TOYOT	2006	-	3	N	-	M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

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Primary Rd **RT 16** *Distance (ft)* **1056** *Direction* **W** *Secondary Rd* **COUNTY ROAD 81** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **21.88** *Side of Hwy* **W**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **014853** *Collision Date* **20140208** *Time* **2340** *Day* **SAT**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20160226**
Weather1 **CLOUDY** *Weather2* **RAINING** *Rdwy Surface* **WET** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	31	F	O	HNBD		OTHER	W	A	0100	NISSA	2004	-	3	N		- M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		71	F	3	0	M	G

Primary Rd **RT 16** *Distance (ft)* **120** *Direction* **E** *Secondary Rd* **COUNTY ROAD 81** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **13399** *Collision Date* **20140511** *Time* **0245** *Day* **SUN**
Primary Collision Factor **NOT DRIVER** *Violation* *Collision Type* **OTHER** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150318**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **ANIMAL** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1	DRVR	49	F	W	HNBD		PROC ST	W	A	0100	FORD	2005	-	3	N		- M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 16** *Distance (ft)* **58** *Direction* **W** *Secondary Rd* **COUNTY ROAD 81** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **22.07** *Side of Hwy* **E**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **12272** *Collision Date* **20141216** *Time* **0530** *Day* **TUE**
Primary Collision Factor **DRVR ALC|DRG** *Violation* **23152A** *Collision Type* **HIT OBJECT** *Severity* **FATAL** *#Killed* **1** *#Injured* **2** *Tow Away?* **Y** *Process Date* **20160114**
Weather1 **CLOUDY** *Weather2* *Rdwy Surface* **WET** *Rdwy Cond1* **OBSTR ON RD** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	46	F	H	HNBD	DRUG	PROC ST	E	A	0700	GMC	1999	-	3	A	22350	- L G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	COMP PN	46	F	1	0	L	G
PASS	KILLED	55	F	5	0	P	H
PASS	COMP PN	51	F	3	0	L	G

Primary Rd **RT 16** *Distance (ft)* **97** *Direction* **W** *Secondary Rd* **COUNTY ROAD 81** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **016632** *Collision Date* **20141216** *Time* **0529** *Day* **TUE**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20150205**
Weather1 **CLOUDY** *Weather2* *Rdwy Surface* **WET** *Rdwy Cond1* **OBSTR ON RD** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	45	F	W	HNBD		PROC ST	W	A	0100	HONDA	1996	-	3	N		- L G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	OTH VIS	45	F	1	0	L	G
PASS		46	M	3	0	L	G

Primary Rd **RT 16** *Distance (ft)* **58** *Direction* **W** *Secondary Rd* **COUNTY ROAD 81** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **012272** *Collision Date* **20141216** *Time* **0531** *Day* **TUE**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150710**
Weather1 **CLOUDY** *Weather2* *Rdwy Surface* **WET** *Rdwy Cond1* **OBSTR ON RD** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER OBJ** *Lighting* **DUSK/DAWN** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	52	F	W	HNBD		PROC ST	E	A	0100	DODGE	2002	-	3	N		- L G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		61	F	3	0	L	G
PASS		59	F	4	0	P	G

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Primary Rd **RT 16** *Distance (ft)* **230** *Direction* **E** *Secondary Rd* **COUNTY ROAD 82** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **13399** *Collision Date* **20141008** *Time* **2330** *Day* **WED**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150206**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	43	F	A	HNBD		RAN OFF RD	W	A	0800	CHRYS	2011	-	3	N		- M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 16** *Distance (ft)* **3168** *Direction* **W** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **22.92** *Side of Hwy* **W**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **015128** *Collision Date* **20140114** *Time* **1422** *Day* **TUE**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20160222**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	75	F	A	HNBD		RAN OFF RD	W	A	0100	HONDA	2006	-	3	M		- - G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	COMP PN	75	F	1	3	L	G

Primary Rd **RT 16** *Distance (ft)* **500** *Direction* **W** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **017629** *Collision Date* **20140613** *Time* **1430** *Day* **FRI**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150404**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	20	M	W		FATG	PROC ST	E	A	0100	FORD	1997	-	3	A	22107	- M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		21	M	3	0	M	G
PASS		18	M	4	0	M	G
PASS		19	F	6	0	M	G

Primary Rd **RT 16** *Distance (ft)* **1584** *Direction* **E** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **017375** *Collision Date* **20140815** *Time* **0055** *Day* **FRI**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **OVERTURNED** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **N** *Process Date* **20140924**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	27	F	A	HNBD		RAN OFF RD	W	A	0700	BMW	2012	-	3	N		- L G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	OTH VIS	27	F	1	0	L	G

Primary Rd **RT 16** *Distance (ft)* **71** *Direction* **W** *Secondary Rd* **COUNTY ROAD 85** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **17763** *Collision Date* **20140429** *Time* **1027** *Day* **TUE**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **INJURY** *#Killed* **0** *#Injured* **7** *Tow Away?* **Y** *Process Date* **20140714**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	59	M	B	HNBD		PROC ST	W	I	1000	OTHER	1999	-	3	F		- P G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		18	F	8	0	P	A
PASS		60	M	8	0	P	A
PASS		53	F	8	0	P	A
PASS		87	M	8	0	P	A
PASS		82	F	8	0	P	A
PASS		64	M	8	0	P	A
PASS		65	M	8	0	P	A

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Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip		ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
																			PASS	COMP PN	58	F	8	0	P	A
																			PASS	COMP PN	80	F	8	0	P	A
																			PASS	COMP PN	79	F	8	0	P	A
																			PASS	COMP PN	62	F	8	0	P	A
																			PASS	COMP PN	62	F	8	0	P	A
																			PASS		68	F	8	0	P	A
																			PASS		53	F	8	0	P	A
																			PASS		62	F	8	0	P	A
																			PASS		48	F	8	0	P	A
																			PASS		67	F	8	0	P	A
																			PASS		62	M	8	0	P	A
																			PASS		75	F	8	0	P	A
																			PASS		69	M	8	0	P	A
																			PASS		86	M	8	0	P	A
																			PASS		80	F	8	0	P	A
																			PASS		77	F	8	0	P	A
																			PASS		58	F	8	0	P	A
																			PASS		90	M	8	0	P	A
																			PASS		82	F	8	0	P	A
																			PASS		67	F	8	0	P	A
																			PASS		82	F	8	0	P	A
																			PASS		81	M	8	0	P	A
																			PASS		53	F	8	0	P	A
																			PASS		67	M	8	0	P	A
																			PASS		62	F	8	0	P	A
																			PASS		74	M	8	0	P	A
																			PASS		63	F	8	0	P	A
																			PASS		77	M	8	0	P	A
																			PASS		69	F	8	0	P	A
																			PASS		76	F	8	0	P	A
																			PASS		54	M	8	0	P	A
																			PASS		68	F	8	0	P	A
																			PASS		62	F	8	0	P	A
																			PASS		61	M	8	0	P	A
																			PASS		56	F	8	0	P	A
																			PASS		76	M	8	0	P	A
																			PASS		73	F	8	0	P	A
																			PASS		64	F	8	0	P	A
																			PASS		66	M	8	0	P	A
																			PASS		57	F	8	0	P	A
2	DRVR	64	M	A	HNBD		STOPPED	W	D	2200	FORD	2003	- 3	N		-	L	G	DRVR	COMP PN	64	M	1	0	L	G
3	DRVR	43	M	H	HNBD		STOPPED	W	A	0100	HONDA	1997	- 3	N		-	M	G	DRVR	COMP PN	43	M	1	0	M	G

Primary Rd **RT 16** *Distance (ft)* **1056** *Direction* **E** *Secondary Rd* **COUNTY ROAD 85** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **016144** *Collision Date* **20140829** *Time* **2120** *Day* **FRI**
Primary Collision Factor **NOT DRIVER** *Violation* *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150501**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER OBJ** *Lighting* *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info																			Victim Info							
Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1	DRVR	61	M	W	HNBD		PROC ST	E	A	0700	CHRYS	2007	- 3	N		-	M	G	PASS		58	F	3	0	M	G

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2	DRVR	55	F	O	HNBD		PROC ST	E	A	0100	TOYOT	2003	-	3	N		-	M	G	PASS		59	M	3	0	M	G								

Primary Rd **RT 16** *Distance (ft)* **0** *Direction* *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **26.369** *Side of Hwy* **E**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **017351** *Collision Date* **20140214** *Time* **2035** *Day* **FRI**
Primary Collision Factor **R-O-W AUTO** *Violation* **21802A** *Collision Type* **BROADSIDE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20160226**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **I** *Ramp/Int* **5**

Party Info																			Victim Info							
Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety*	*Equip*	*ROLE*	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*
1F	DRVR	52	F	A	HNBD		LFT TURN	N	A	0100	HONDA	2013	-	3	N		-	M	G	PASS		85	M	3	0	M	G
																				PASS		108	F	6	0	P	G
2	DRVR	64	M	H	HNBD		PROC ST	E	A	0700	LEXUS	2006	-	3	N		-	M	G	PASS		58	M	3	0	M	G
																				PASS		64	F	4	0	P	G
																				PASS		53	F	6	0	P	G

Primary Rd **RT 16** *Distance (ft)* **40** *Direction* **E** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **26.35** *Side of Hwy* **E**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **14853** *Collision Date* **20140313** *Time* **2150** *Day* **THU**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20160222**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info																			Victim Info							
Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety*	*Equip*	*ROLE*	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*
1F	DRVR	21	M	W	HNBD		UNS TURN	E	C	0200	KAWA	2011	-	3	N		-	P	W	DRVR	OTH VIS	21	M	1	0	P	W

Primary Rd **RT 16** *Distance (ft)* **1584** *Direction* **E** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **012272** *Collision Date* **20140811** *Time* **1250** *Day* **MON**
Primary Collision Factor **IMPROP PASS** *Violation* **21751** *Collision Type* **SIDESWIPE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150427**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info																			Victim Info							
Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety*	*Equip*	*ROLE*	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*
1F	DRVR	23	M		HNBD		PASSING	E	A	0100	SATUR	2000	-	3	N		-	M	G	PASS		40	F	3	0	M	G
2	DRVR	47	M		HNBD		PROC ST	E	G	2510	VOLVO	2009	-	3	N		-	M	G								

Primary Rd **RT 16** *Distance (ft)* **1500** *Direction* **E** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **28.61** *Side of Hwy* **E**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **003** *Type* **3** *CalTrans* **3** *Badge* **17883** *Collision Date* **20140113** *Time* **1530** *Day* **MON**
Primary Collision Factor **IMPROP PASS** *Violation* **21751** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20160226**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info																			Victim Info							
Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety*	*Equip*	*ROLE*	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*
1F	DRVR	998	M	H	IMP UNK	IMP UNK	OPPOS LN	E	-	9900	HONDA		-	-	N		-	B	-							
2	DRVR	21	F	W	HNBD		PROC ST	W	A	0100	NISSA	2004	-	3	N		-	M	G	PASS		23	M	3	0	M	G

Primary Rd **RT 16** *Distance (ft)* **1320** *Direction* **E** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **17933** *Collision Date* **20140709** *Time* **0010** *Day* **WED**
Primary Collision Factor **DRVR ALC|DRG** *Violation* **23152A** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150417**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info																			Victim Info							
Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety*	*Equip*	*ROLE*	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*
1F	DRVR	45	F	W	HBD-UI		RAN OFF RD	W	A	0100	LEXUS	2007	-	3	A	22107	N	L	G								

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Primary Rd **RT 16** *Distance (ft)* **140** *Direction* **E** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **17772** *Collision Date* **20140921** *Time* **0635** *Day* **SUN**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150516**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	38	M	H	HNBD		OTHER	E	A	0700	FORD	1997	-	3	N		- M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 16** *Distance (ft)* **300** *Direction* **W** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **16144** *Collision Date* **20141003** *Time* **1800** *Day* **FRI**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150206**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	52	F	W	HNBD		UNS TURN	W	A	0700	FORD	2006	-	3	F		- M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 16** *Distance (ft)* **1584** *Direction* **W** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **015492** *Collision Date* **20141220** *Time* **2213** *Day* **SAT**
Primary Collision Factor **WRONG SIDE** *Violation* **21650** *Collision Type* **SIDESWIPE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150720**
Weather1 **CLEAR** *Weather2* **CLOUDY** *Rdwy Surface* **WET** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	60	F	W	HNBD		UNS TURN	E	A	0100	FORD	2004	-	3	N		- L G
2	DRVR	43	M	H	HNBD		PROC ST	W	D	2200	TOYOT	2000	-	3	N		- M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 16** *Distance (ft)* **60** *Direction* **W** *Secondary Rd* **COUNTY ROAD 89** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **017772** *Collision Date* **20140715** *Time* **1535** *Day* **TUE**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20150415**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	77	F	W	HNBD		PROC ST	E	A	0700	HONDA	2011	-	3	N		- M G
2	DRVR	43	M	O	HNBD		STOPPED	E	A	0100	HONDA	1993	-	3	N		- M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	COMP PN 43	M	1	0	M	G	

Primary Rd **RT 16** *Distance (ft)* **0** *Direction* *Secondary Rd* **COUNTY ROAD 89** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **016929** *Collision Date* **20140803** *Time* **1735** *Day* **SUN**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **SIDESWIPE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150427**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	67	F	A	HNBD		PROC ST	W	D	2200	NISSA	2001	-	3	A	22350	- M G
2	DRVR	38	M	O	HNBD		STOPPED	W	A	0100	HONDA	2010	-	3	N		- M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

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Primary Rd **RT 16** *Distance (ft)* **100** *Direction* **E** *Secondary Rd* **COUNTY ROAD 89** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **003** *Type* **3** *CalTrans* *Badge* **017874** *Collision Date* **20141004** *Time* **1422** *Day* **SAT**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **INJURY** *#Killed* **0** *#Injured* **2** *Tow Away?* **Y** *Process Date* **20150123**
Weather1 *Weather2* *Rdwy Surface* *Rdwy Cond1* *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	76	M	O	HNBD		PROC ST	W	A	0700	JEEP	2014	-	3	N	-	M	G
2	DRVR	47	F	B	HNBD		STOPPED	W	A	0100	HONDA	1999	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS	COMP PN	52	F	3	0	M	G
DRVR	COMP PN	47	F	1	0	M	G

Primary Rd **RT 16** *Distance (ft)* **150** *Direction* **W** *Secondary Rd* **COUNTY ROAD 89** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **015492** *Collision Date* **20141111** *Time* **1840** *Day* **TUE**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150626**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	24	M	H	HNBD		PROC ST	W	A	0100	FORD	2006	-	3	N	-	M	G
2	DRVR	61	M	W	HNBD		STOPPED	W	A	0100	HYUND	2014	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 16** *Distance (ft)* **2640** *Direction* **W** *Secondary Rd* **COUNTY ROAD 90** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **31.36** *Side of Hwy* **W**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **012272** *Collision Date* **20140315** *Time* **1315** *Day* **SAT**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **INJURY** *#Killed* **0** *#Injured* **2** *Tow Away?* **Y** *Process Date* **20160222**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1	DRVR	58	M		HNBD		SLOWING	W	A	0100	NISSA	2001	-	3	G	-	M	G
2F	DRVR	28	F		HNBD		PROC ST	W	A	0100	HONDA	2012	-	3	G	-	L	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	COMP PN	58	M	1	0	M	G
DRVR	OTH VIS	28	F	1	0	L	G

Primary Rd **RT 16** *Distance (ft)* **3168** *Direction* **E** *Secondary Rd* **COUNTY ROAD 93** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **16144** *Collision Date* **20141015** *Time* **1835** *Day* **WED**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150114**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	48	F	H	HNBD		UNS TURN	E	A	0100	TOYOT	2003	-	2	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 16** *Distance (ft)* **1584** *Direction* **E** *Secondary Rd* **COUNTY ROAD 96** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **38.84** *Side of Hwy* **E**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **024** *Type* **1** *CalTrans* **3** *Badge* **017772** *Collision Date* **20140115** *Time* **1340** *Day* **WED**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **INJURY** *#Killed* **0** *#Injured* **3** *Tow Away?* **Y** *Process Date* **20151110**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	46	F	W	HNBD		PROC ST	E	A	0100	PONTI	2007	-	3	N	-	L	G
2	DRVR	55	F	W	HNBD		STOPPED	E	A	0700	HONDA	1997	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	COMP PN	46	F	1	0	L	G
DRVR	COMP PN	55	F	1	0	M	G
PASS	COMP PN	17	M	3	0	M	G

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Primary Rd **RT 16** *Distance (ft)* **1056** *Direction* **E** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **16632** *Collision Date* **20141006** *Time* **0731** *Day* **MON**
Primary Collision Factor **NOT DRIVER** *Violation* *Collision Type* **OTHER** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150115**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **ANIMAL** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	Ejected
1	DRVR	75	F	W	HNBD		PROC ST	E	A	0100	CHEVR	1995	-	3	N		-	M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP

Primary Rd **RT 16** *Distance (ft)* **61** *Direction* **E** *Secondary Rd* **COUNTY ROAD 97** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **002** *Type* **3** *CalTrans* *Badge* **017800** *Collision Date* **20140914** *Time* **1944** *Day* **SUN**
Primary Collision Factor **DRVR ALC|DRG** *Violation* **23152A** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150514**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	Ejected
1F	DRVR	33	M	H	HBD-UI		UNS TURN	E	A	0100	NISSA	2001	-	3	A	22107	- L G	

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP

Primary Rd **RT 16** *Distance (ft)* **1056** *Direction* **W** *Secondary Rd* **COUNTY ROAD 97** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **024** *Type* **1** *CalTrans* *Badge* **013837** *Collision Date* **20140726** *Time* **0855** *Day* **SAT**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150417**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	Ejected
1F	DRVR	18	M	B	HNBD		RAN OFF RD	E	A	0100	HONDA	1997	-	3	N		- L G	

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP

Primary Rd **RT 16** *Distance (ft)* **528** *Direction* **E** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **40.2** *Side of Hwy* **E**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **002** *Type* **3** *CalTrans* **3** *Badge* **017874** *Collision Date* **20140111** *Time* **0409** *Day* **SAT**
Primary Collision Factor **PED VIOL** *Violation* **21954A** *Collision Type* **SIDESWIPE** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **N** *Process Date* **20160222**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **PED** *Lighting* **DARK - NO** *Ped Action* **IN RD,** *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	Ejected
1	DRVR	29	F	A	HNBD		PROC ST	E	A	0100	TOYOT	2007	-	3	N		- M G	
2F	PED	58	M	H	HBD-UI		PROC ST	W	N	6000	-	-	3	M		-	- -	

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP
PED	SEVERE	58	M	0	0	- -

Primary Rd **RT 16** *Distance (ft)* **620** *Direction* **E** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **002** *Type* **3** *CalTrans* *Badge* **017800** *Collision Date* **20140914** *Time* **1945** *Day* **SUN**
Primary Collision Factor **DRVR ALC|DRG** *Violation* **23152A** *Collision Type* **HEAD-ON** *Severity* **INJURY** *#Killed* **0** *#Injured* **2** *Tow Away?* **Y** *Process Date* **20141014**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	Ejected
1F	DRVR	33	M	H	HBD-UI		UNS TURN	E	A	0100	NISSA	2001	-	3	A	22107	- L G	
2	DRVR	79	M	W	HNBD		PROC ST	W	D	2200	FORD	2007	-	3	N		- L G	

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP
DRVR	OTH VIS	79	M	1	0	L G
PASS	COMP PN	76	F	3	0	L G

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Primary Rd **RT 16** *Distance (ft)* **3168** *Direction* **W** *Secondary Rd* **COUNTY ROAD 98** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **024** *Type* **1** *CalTrans* *Badge* **012272** *Collision Date* **20140609** *Time* **0740** *Day* **MON**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **N** *Process Date* **20140808**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	32	F	W	HNBD		PROC ST	W	A	0700	ACURA	2004	-	3	N	-	M	G
2	DRVR	52	M	H	HNBD		SLOWING	W	G	2533	PETER	2007	-	3	N	-	P	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	COMP PN	32	F	1	0	M	G

Primary Rd **RT 16** *Distance (ft)* **15** *Direction* **N** *Secondary Rd* **COUNTY ROAD 98** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **024** *Type* **1** *CalTrans* *Badge* **17629** *Collision Date* **20141018** *Time* **0830** *Day* **SAT**
Primary Collision Factor **STRTNG|BCKNG** *Violation* **22106** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150109**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	22	F	H	HNBD		STOPPED	S	A	0700	FORD	2003	-	3	F	-	M	G
2	DRVR	78	M	W	HNBD		STOPPED	S	D	2200	FORD	2009	-	3	N	-	M	G
3	DRVR	25	M	H	HNBD		STOPPED	S	I	1100	CHEVR	2013	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 16** *Distance (ft)* **1056** *Direction* **W** *Secondary Rd* **COUNTY ROAD 98** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **West Sacramento** *County* **Yolo** *Population* **4** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **17351** *Collision Date* **20141102** *Time* **0210** *Day* **SUN**
Primary Collision Factor **DRVR ALC|DRG** *Violation* **23152A** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150701**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	40	M	H	HBD-UI		PROC ST	E	A	0100	FORD	2002	-	3	A	22107	-	L	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 16** *Distance (ft)* **75** *Direction* **E** *Secondary Rd* **GRAFTON ST** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **28.01** *Side of Hwy* **W**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **12870** *Collision Date* **20140223** *Time* **1045** *Day* **SUN**
Primary Collision Factor **STRTNG|BCKNG** *Violation* **22106** *Collision Type* **BROADSIDE** *Severity* **INJURY** *#Killed* **0** *#Injured* **2** *Tow Away?* **N** *Process Date* **20160222**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **PKD MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	58	M	W	HNBD		BACKING	W	C	0200	HARLE	2012	-	3	N	-	P	W
2	PRKD	998	-				PARKED	W	D	2200	DODGE	1998	-	3	N	-	-	-

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	OTH VIS	58	M	1	0	P	W
PASS	COMP PN	53	F	2	1	P	Y

Primary Rd **RT 16** *Distance (ft)* **10** *Direction* **S** *Secondary Rd* **MADISON ST** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **016929** *Collision Date* **20140628** *Time* **2233** *Day* **SAT**
Primary Collision Factor **R-O-W PED** *Violation* **21950A** *Collision Type* **AUTO/PED** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **N** *Process Date* **20140814**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **BICYCLE** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	43	M	A	HNBD		PROC ST	W	A	0700	KIA	2011	-	3	N	-	M	G
2	BICY	6	M	H	HNBD		OTHER	E	L	0400	-		-	3	N	-	-	-

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
BICY	OTH VIS	6	M	1	1	P	W

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Primary Rd **RT 16** *Distance (ft)* **528** *Direction* **W** *Secondary Rd* **ORLEANS ST** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **017375** *Collision Date* **20140904** *Time* **2317** *Day* **THU**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **N** *Process Date* **20141021**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
																		Victim Info							
Party Info																									
1F	DRVR	18	M	H	HNBD		RAN OFF RD	W	A	0100	VOLKS	2012	-	3	F	-	M G	DRVR	COMP PN	18	M	1	0	M	G

Primary Rd **RT 16** *Distance (ft)* **119** *Direction* **W** *Secondary Rd* **RANCH RD** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **18.53** *Side of Hwy* **E**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **12272** *Collision Date* **20140120** *Time* **1405** *Day* **MON**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20160226**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **H** *Ramp/Int* **-**

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
																		Victim Info							
Party Info																									
1F	DRVR	16	F	O	HNBD		RAN OFF RD	E	A	0100	HONDA	2002	-	3	N	-	M G								

Primary Rd **RT 16** *Distance (ft)* **400** *Direction* **W** *Secondary Rd* **RANCH RD** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **016929** *Collision Date* **20141031** *Time* **2004** *Day* **FRI**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20150114**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
																		Victim Info							
Party Info																									
1F	DRVR	25	M	H	HNBD		UNS TURN	E	A	0100	CADIL	2014	-	3	N	-	M G	DRVR	COMP PN	25	M	1	0	M	G

Primary Rd **RT 16** *Distance (ft)* **150** *Direction* **W** *Secondary Rd* **RD 43** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **016929** *Collision Date* **20140903** *Time* **1810** *Day* **WED**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **OTHER** *Severity* **INJURY** *#Killed* **0** *#Injured* **2** *Tow Away?* **Y** *Process Date* **20140930**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **NON-CLSN** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
																		Victim Info							
Party Info																									
1F	DRVR	32	M	W	HNBD		UNS TURN	E	C	0200	HARLE	2001	-	3	N	-	P W	DRVR	SEVERE	32	M	1	0	P	W
																		PASS	OTH VIS	33	F	2	1	P	Y

Primary Rd **RT 16** *Distance (ft)* **528** *Direction* **E** *Secondary Rd* **ROAD 86A** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **28.59** *Side of Hwy* **E**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **13837** *Collision Date* **20140306** *Time* **0856** *Day* **THU**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20160226**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
																		Victim Info							
Party Info																									
1F	DRVR	53	M	A	HNBD		PROC ST	E	A	0100	HONDA	2001	-	3	N	-	M G								

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Primary Rd **RT 16** *Distance (ft)* **100** *Direction* **S** *Secondary Rd* **RT 5** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **024** *Type* **1** *CalTrans* *Badge* **16292** *Collision Date* **20140425** *Time* **1750** *Day* **FRI**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HEAD-ON** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150311**
Weather1 **RAINING** *Weather2* *Rdwy Surface* **WET** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	24	M	H	HNBD		OPPOS LN	N	A	0100	HONDA	2000	-	3	N		-	M	G
2	DRVR	36	F	W	HNBD		PROC ST	S	A	0100	BMW	2000	-	3	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		1	F	6	0	P	Q

Primary Rd **RT 16** *Distance (ft)* **0** *Direction* *Secondary Rd* **RT 505** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **32.355** *Side of Hwy* **W**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **13837** *Collision Date* **20140319** *Time* **0958** *Day* **WED**
Primary Collision Factor **NOT STATED** *Violation* *Collision Type* **BROADSIDE** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20160222**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* **I** *Ramp/Int* **5**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	71	M	W	HNBD		LFT TURN	N	A	0100	TOYOT	2009	-	3	H		-	L	G
2	DRVR	43	M	H	HNBD		PROC ST	E	J	4898	FORD	2009	-	3	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	OTH VIS	71	M	1	0	L	G

Primary Rd **RT 16** *Distance (ft)* **300** *Direction* **W** *Secondary Rd* **RT 505** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **16929** *Collision Date* **20140722** *Time* **1731** *Day* **TUE**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150425**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	41	F	A	HNBD		PROC ST	W	A	0100	HONDA	2012	-	3	N		-	M	G
2	DRVR	53	M	H	HNBD		SLOWING	W	D	2200	TOYOT	2008	-	3	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		37	F	3	0	M	G

Primary Rd **RT 16** *Distance (ft)* **1848** *Direction* **W** *Secondary Rd* **RUMSEY CANYON** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **11706** *Collision Date* **20141004** *Time* **1105** *Day* **SAT**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20141208**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **NON-CLSN** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	57	F	A	HNBD		RAN OFF RD	W	A	0700	JEEP	2007	-	3	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	OTH VIS	57	F	1	0	M	G

Primary Rd **RT 16** *Distance (ft)* **100** *Direction* **W** *Secondary Rd* **SECOND ST** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **25.34** *Side of Hwy* **W**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **17874** *Collision Date* **20140208** *Time* **0210** *Day* **SAT**
Primary Collision Factor **DRVR ALC|DRG** *Violation* **23152A** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20160226**
Weather1 **RAINING** *Weather2* *Rdwy Surface* **WET** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	23	M	H	HBD-UI		PROC ST	W	A	0100	TOYOT	1991	-	3	A	22350	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

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Primary Rd **RT 16** *Distance (ft)* **1570** *Direction* **W** *Secondary Rd* **TUTT ST** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **30.43** *Side of Hwy* **E**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **13399** *Collision Date* **20140314** *Time* **2035** *Day* **FRI**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20160222**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info																	Victim Info							
Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety Equip*		*ROLE*	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*
1F	DRVR	17	M	W	HNBD		PROC ST	E	A	0100	FORD	2013	-	3	N	-	L	G	DRVR	OTH VIS	17	M	1	0	L	G
2	DRVR	62	M	H	HNBD		STOPPED	E	A	0100	CHEVR	1997	-	3	N	-	M	G	PASS		59	M	3	0	M	G
3	DRVR	37	F	H	HNBD		STOPPED	E	A	0100	FORD	2005	-	3	N	-	M	G								

Primary Rd **RT 16** *Distance (ft)* **0** *Direction* *Secondary Rd* **W BEAMER ST** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **024** *Type* **1** *CalTrans* *Badge* **016144** *Collision Date* **20140724** *Time* **1650** *Day* **THU**
Primary Collision Factor **R-O-W AUTO** *Violation* **21801A** *Collision Type* **HEAD-ON** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150417**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info																	Victim Info							
Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety Equip*		*ROLE*	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*
1	DRVR	30	F	H	HNBD		PROC ST	N	A	0700	CHRYS	2006	-	3	N	-	M	G								
2F	DRVR	47	M	W	HNBD		LFT TURN	W	A	0100	TOYOT	2005	-	3	N	-	M	G								

Primary Rd **RT 16** *Distance (ft)* **5** *Direction* *Secondary Rd* **WILD WINGS DR** *NCIC* **9280** *State Hwy?* **Y** *Route* **16** *Postmile Prefix* **-** *Postmile* **35.95** *Side of Hwy* **W**
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* **3** *Badge* **17629** *Collision Date* **20140207** *Time* **1410** *Day* **FRI**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20160226**
Weather1 **CLOUDY** *Weather2* **RAINING** *Rdwy Surface* **WET** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info																	Victim Info							
Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety Equip*		*ROLE*	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*
1F	DRVR	39	M	H	HNBD		PROC ST	W	A	0100	HONDA	2000	-	3	N	-	M	G								
2	DRVR	48	M	H	HNBD		STOPPED	W	D	2200	FORD	1997	-	3	N	-	M	G								

Primary Rd **RT 16** *Distance (ft)* **0** *Direction* *Secondary Rd* **YOLO AV** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **15128** *Collision Date* **20141008** *Time* **2013** *Day* **WED**
Primary Collision Factor **DRVR ALC|DRG** *Violation* **23152A** *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20141119**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info																	Victim Info							
Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety Equip*		*ROLE*	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*
1F	DRVR	24	M	W	HBD-UI		STOPPED	W	C	0300	VESPA	2015	-	3	A	22106	-	P	W	DRVR	OTH VIS	24	M	1	0	P	W

Primary Rd **RT 45** *Distance (ft)* **7920** *Direction* **S** *Secondary Rd* **CO RD 97** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **026** *Type* **1** *CalTrans* *Badge* **013837** *Collision Date* **20140730** *Time* **0840** *Day* **WED**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **OVERTURNED** *Severity* **INJURY** *#Killed* **0** *#Injured* **2** *Tow Away?* **Y** *Process Date* **20140829**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info																	Victim Info							
Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety Equip*		*ROLE*	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*
1F	DRVR	30	M	H	HNBD		RAN OFF RD	S	A	0700	CHEVR	2002	-	3	A	22350	N	M	B	DRVR	COMP PN	30	M	1	0	M	B
																				PASS	OTH VIS	46	-	3	2	M	B

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Primary Rd **RT 5** *Distance (ft)* **150** *Direction* **S** *Secondary Rd* **RT 113** *NCIC* **9280** *State Hwy?* **Y** *Route* **5** *Postmile Prefix* **R** *Postmile* **7.88** *Side of Hwy* **N**
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* *Beat* **020** *Type* **1** *CalTrans* **3** *Badge* **017629** *Collision Date* **20140319** *Time* **1425** *Day* **WED**
Primary Collision Factor **LANE CHANGE** *Violation* **21658A** *Collision Type* **SIDESWIPE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20160225**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	18	M	W	HNBD		UNS TURN	N	D	2200	DODGE	2011	-	3	N		-	M	G
2	DRVR	56	M	W	HNBD		PROC ST	N	G	2731	FREIG	2012	-	3	N		-	P	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 5** *Distance (ft)* **600** *Direction* **S** *Secondary Rd* **RT 113** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* *Beat* **020** *Type* **1** *CalTrans* *Badge* **015492** *Collision Date* **20140428** *Time* **0540** *Day* **MON**
Primary Collision Factor **LANE CHANGE** *Violation* **21658A** *Collision Type* **REAR END** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20140723**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **MV ON OTHER RD** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	23	F	H	HNBD		CHANG LN	N	A	0100	HYUND	2013	-	3	N		-	L	G
2	DRVR	48	M	H	HNBD		PROC ST	N	G	2531	FREIG	2008	-	3	N		-	P	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	COMP PN	23	F	1	0	L	G

Primary Rd **RT 5** *Distance (ft)* **1056** *Direction* **S** *Secondary Rd* **RT 113** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* *Beat* **022** *Type* **1** *CalTrans* *Badge* **014492** *Collision Date* **20140731** *Time* **1630** *Day* **THU**
Primary Collision Factor **LANE CHANGE** *Violation* **21658A** *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20140829**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	70	M	W	HNBD		CHANG LN	N	A	0100	SUBAR	2012	-	3	N		-	M	G
2	DRVR	36	F	A	HNBD		PROC ST	N	A	0100	NISSA	2010	-	3	A	22107	-	L	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		71	F	3	0	M	G
DRVR	COMP PN	36	F	1	0	L	G

Primary Rd **RT 5** *Distance (ft)* **1584** *Direction* **S** *Secondary Rd* **RT 113** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **020** *Type* **1** *CalTrans* *Badge* **14492** *Collision Date* **20141126** *Time* **2320** *Day* **WED**
Primary Collision Factor **DRVR ALC|DRG** *Violation* **23152A** *Collision Type* **SIDESWIPE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150701**
Weather1 **CLOUDY** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	25	M	W	HBD-UI		PROC ST	S	A	0100	TOYOT	1997	-	3	A	21658	N	M	G
2	DRVR	27	M	W	HNBD		PROC ST	S	E	2232	CHEVR	1996	-	3	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		20	M	3	0	M	G

Primary Rd **RT 5** *Distance (ft)* **528** *Direction* **N** *Secondary Rd* **RT 16** *NCIC* **9280** *State Hwy?* **Y** *Route* **5** *Postmile Prefix* **R** *Postmile* **10.91** *Side of Hwy* **S**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **020** *Type* **1** *CalTrans* **3** *Badge* **14853** *Collision Date* **20140221** *Time* **1828** *Day* **FRI**
Primary Collision Factor **LANE CHANGE** *Violation* **21658A** *Collision Type* **SIDESWIPE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20160225**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1	DRVR	998	-		IMP UNK	IMP UNK	PROC ST	S	G	2532	OTHER		-	3	N		-	B	-
2F	DRVR	21	M	O	HNBD		CHANG LN	S	A	0100	HONDA	2009	-	3	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

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Primary Rd **RT 5** *Distance (ft)* **1056** *Direction* **S** *Secondary Rd* **RT 16** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **020** *Type* **1** *CalTrans* *Badge* **17874** *Collision Date* **20141017** *Time* **1600** *Day* **FRI**
Primary Collision Factor **NOT DRIVER** *Violation* *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150115**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1	DRVR	22	F	H	HNBD		PROC ST	N	A	0100	FORD	2014	-	3	N		- M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 5** *Distance (ft)* **5280** *Direction* **S** *Secondary Rd* **RT 505** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **030** *Type* **1** *CalTrans* *Badge* **16929** *Collision Date* **20141105** *Time* **1812** *Day* **WED**
Primary Collision Factor **OTHER HAZ** *Violation* **23114A** *Collision Type* **OTHER** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20141218**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **OTHER OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1	DRVR	63	F	W	HNBD		PROC ST	N	A	0100	NISSA	2004	-	3	N		- M G
2F	DRVR	998	-		IMP UNK	IMP UNK	PROC ST	-	E	2235	-		-	3	N		- - -

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		73	M	3	0	M	G

Primary Rd **RT 5** *Distance (ft)* **1584** *Direction* **N** *Secondary Rd* **SAC CO LINE** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **020** *Type* **1** *CalTrans* *Badge* **16027** *Collision Date* **20140530** *Time* **0020** *Day* **FRI**
Primary Collision Factor **NOT STATED** *Violation* *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150327**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	24	M	W		DRUG	OTHER	N	A	0100	NISSA	2005	-	3	A	22107	- L G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		51	M	3	0	L	G
PASS		52	M	4	0	P	G

Primary Rd **RT 5** *Distance (ft)* **260** *Direction* **N** *Secondary Rd* **SAC CO LINE** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **020** *Type* **1** *CalTrans* *Badge* **013399** *Collision Date* **20140630** *Time* **0415** *Day* **MON**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* *Process Date* **20150402**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	20	F	W	HNBD		OTHER	N	A	0100	AUDI	1999	-	3	A	22350	- M G
2	DRVR	78	M	O	HNBD		PROC ST	N	A	0100	CHEVR	1997	-	3	N		- M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 5** *Distance (ft)* **3168** *Direction* **N** *Secondary Rd* **SACRAMENTO CO** *NCIC* **9280** *State Hwy?* **Y** *Route* **5** *Postmile Prefix* **-** *Postmile* **.6** *Side of Hwy* **S**
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **020** *Type* **1** *CalTrans* **3** *Badge* **13837** *Collision Date* **20140221** *Time* **1541** *Day* **FRI**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **OVERTURNED** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20151114**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* **H** *Ramp/Int* **-**

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	45	M	W	HNBD		PROC ST	S	D	2200	CHEVR	2011	-	3	G		- L G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	OTH VIS	45	M	1	0	L	G

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Primary Rd **RT 505** *Distance (ft)* **1584** *Direction* **S** *Secondary Rd* **COUNTY ROAD 31** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **031** *Type* **1** *CalTrans* *Badge* **15128** *Collision Date* **20140402** *Time* **1154** *Day* **WED**
Primary Collision Factor **DRVR ALC|DRG** *Violation* **23152A** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150305**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **LOOSE MATRL** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	46	M		HNBD		PROC ST	S	G	2531	PETER	2007	-	3	N		-	M	G
2	DRVR	22	M	H	HNBD		PROC ST	S	A	0100	VOLKS	2001	-	3	N		-	M	G
3	DRVR	63	M	W	HNBD		PROC ST	S	D	2200	FORD	2013	-	3	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		30	M	3	0	M	G

Primary Rd **RT 505** *Distance (ft)* **2640** *Direction* **S** *Secondary Rd* **COUNTY ROAD 31** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **031** *Type* **1** *CalTrans* *Badge* **015128** *Collision Date* **20140402** *Time* **1155** *Day* **WED**
Primary Collision Factor **NOT DRIVER** *Violation* *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20140712**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **LOOSE MATRL** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1	DRVR	54	F	B	HNBD		PROC ST	S	D	2200	GMC	2012	-	3	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	OTH VIS	54	F	1	0	M	G

Primary Rd **RT 505** *Distance (ft)* **3168** *Direction* **N** *Secondary Rd* **CR-31** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **031** *Type* **1** *CalTrans* *Badge* **015128** *Collision Date* **20141117** *Time* **1855** *Day* **MON**
Primary Collision Factor **DRVR ALC|DRG** *Violation* **23152A** *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **2** *Tow Away?* **Y** *Process Date* **20150126**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	20	M	H	HBD-UI		OTHER	N	A	0100	HONDA	2002	-	3	A	22107	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	COMP PN	20	M	1	0	M	G
PASS	OTH VIS	18	M	3	0	M	G

Primary Rd **RT 505** *Distance (ft)* **950** *Direction* **N** *Secondary Rd* **RT 16** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **031** *Type* **1** *CalTrans* *Badge* **017874** *Collision Date* **20141113** *Time* **0625** *Day* **THU**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **BROADSIDE** *Severity* **INJURY** *#Killed* **0** *#Injured* **2** *Tow Away?* **Y** *Process Date* **20150128**
Weather1 **RAINING** *Weather2* *Rdwy Surface* **WET** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DUSK/DAWN** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	20	M	W		FATG	RAN OFF RD	S	A	0100	TOYOT	2006	-	3	A	22107	-	L	G
2	DRVR	30	M	O	HNBD		PROC ST	N	G	2531	FREIG	2010	-	3	N		-	P	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	COMP PN	20	M	1	0	L	G
DRVR	COMP PN	30	M	1	0	P	G

Primary Rd **RT 505** *Distance (ft)* **5280** *Direction* **N** *Secondary Rd* **RT 16** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **031** *Type* **1** *CalTrans* *Badge* **15492** *Collision Date* **20141210** *Time* **0125** *Day* **WED**
Primary Collision Factor **NOT DRIVER** *Violation* *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150120**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **ANIMAL** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1	DRVR	32	M	W	HNBD		PROC ST	N	J	4898	FORD	2011	-	3	F		N	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

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Primary Rd **W MAIN ST** *Distance (ft)* **310** *Direction* **W** *Secondary Rd* **CALIFORNIA ST** *NCIC* **5703** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* **YOLOS** *Beat* **002** *Type* **0** *CalTrans* *Badge* **2813** *Collision Date* **20140103** *Time* **1216** *Day* **FRI**
Primary Collision Factor **R-O-W AUTO** *Violation* **21804A** *Collision Type* **BROADSIDE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150105**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	30	M	W	HNBD		LFT TURN	S	A	0100	BUICK	1995	-	3	N		-	L	G							
2	DRVR	56	M	W	HNBD		PROC ST	W	A	0100	TOYOT	2007	-	3	N		-	M	G							

Primary Rd **W MAIN ST** *Distance (ft)* **20** *Direction* **E** *Secondary Rd* **CALIFORNIA ST** *NCIC* **5703** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* **52** *Beat* **002** *Type* **0** *CalTrans* *Badge* **832** *Collision Date* **20140707** *Time* **1532** *Day* **MON**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150415**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	83	F	W	HNBD		PROC ST	W	A	0100	BUICK	2003	-	3	N		-	N	G							
2	DRVR	42	M	H	HNBD		STOPPED	W	A	0700	CHEVR	2013	-	3	N		-	M	G							

Primary Rd **W MAIN ST** *Distance (ft)* **60** *Direction* **W** *Secondary Rd* **CALIFORNIA ST** *NCIC* **5703** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* **52** *Beat* **003** *Type* **0** *CalTrans* *Badge* **2808** *Collision Date* **20141129** *Time* **1319** *Day* **SAT**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150630**
Weather1 **RAINING** *Weather2* *Rdwy Surface* **WET** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	35	F	W	HNBD		PROC ST	W	A	0800	DODGE	2001	-	3	N		-	M	G							
2	DRVR	67	F	W	HNBD		STOPPED	E	A	0100	LINCO	2010	-	3	N		-	M	G							

Primary Rd **W MAIN ST** *Distance (ft)* **139** *Direction* **E** *Secondary Rd* **COMMUNITY LN** *NCIC* **5703** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* **52** *Beat* **003** *Type* **0** *CalTrans* *Badge* **2852** *Collision Date* **20140609** *Time* **1237** *Day* **MON**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150403**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	24	M	W	HNBD		PROC ST	W	C	0200	SUZUK	2001	-	3	A	21703	N	P	W							
2	DRVR	30	M	W	HNBD		LFT TURN	W	A	0100	MAZDA	2003	-	3	N		-	M	G							

Primary Rd **W MAIN ST** *Distance (ft)* **524** *Direction* **E** *Secondary Rd* **CORD 98** *NCIC* **5703** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* **72** *Beat* **003** *Type* **0** *CalTrans* *Badge* **2852** *Collision Date* **20140511** *Time* **1255** *Day* **SUN**
Primary Collision Factor **R-O-W AUTO** *Violation* **21801A** *Collision Type* **BROADSIDE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150327**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	31	M	H	HNBD		LFT TURN	S	A	0100	CHEVR	2005	-	-	N		-	M	G							
2	DRVR	16	F	H	HNBD		PROC ST	E	A	0100	HONDA	2008	-	-	N		-	L	G							

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Primary Rd **W MAIN ST** *Distance (ft)* **0** *Direction* *Secondary Rd* **COUNTY ROAD 98** *NCIC* **5703** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* **72** *Beat* **002** *Type* **0** *CalTrans* *Badge* **2838** *Collision Date* **20140726** *Time* **1800** *Day* **SAT**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20151221**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DUSK/DAWN** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1	DRVR	998	-		HBD-UNK		PROC ST	-	A	0100	AUDI	2000	-	-	-	-	-	-
2	DRVR	47	F	H	HNBD		STOPPED	W	A	0100	HONDA	2013	-	-	-	-	G	M

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **W MAIN ST** *Distance (ft)* **61** *Direction* **E** *Secondary Rd* **JOHNSTON ST** *NCIC* **5703** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* **21** *Beat* **000** *Type* **0** *CalTrans* *Badge* **2842** *Collision Date* **20140408** *Time* **1210** *Day* **TUE**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20150923**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	36	F	W	HNBD		PROC ST	W	A	0100	TOYOT	2008	-	3	A		F	M	G
2	DRVR	33	M	B	HNBD		PROC ST	W	A	0100	FORD	2011	-	-	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	COMP PN	33	-	9	3	-	-

Primary Rd **W MAIN ST** *Distance (ft)* **370** *Direction* **W** *Secondary Rd* **WEST ST** *NCIC* **5703** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* **62** *Beat* **003** *Type* **0** *CalTrans* *Badge* **2888** *Collision Date* **20140113** *Time* **1542** *Day* **MON**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **SIDESWIPE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150812**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	46	F	H	HNBD		RGT TURN	W	A	0800	TOYOT	2004	-	3	N		-	M	G
2	DRVR	25	F	B	HNBD		PROC ST	W	A	0100	FORD	2014	-	3	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **W MAIN ST** *Distance (ft)* **215** *Direction* **W** *Secondary Rd* **WEST ST** *NCIC* **5703** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* **52** *Beat* **002** *Type* **0** *CalTrans* *Badge* **832** *Collision Date* **20141028** *Time* **2029** *Day* **TUE**
Primary Collision Factor **DRVR ALC|DRG** *Violation* **23152A** *Collision Type* **AUTO/PED** *Severity* **FATAL** *#Killed* **1** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150114**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **FELONY** *Motor Vehicle Involved With* **PED** *Lighting* **DARK - ST** *Ped Action* **NOT IN X-** *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	24	M	W	HBD-UI		PROC ST	E	D	2200	DODGE	1989	-	-	A	22350	-	M	B
2	PED	30	M	W	IMP UNK	IMP UNK		S	N	6000	-		-	3	A	21955	-	-	-

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PED	KILLED	30	M	9	3	-	-

Primary Rd **W SOUTHWOOD DR** *Distance (ft)* **15** *Direction* **W** *Secondary Rd* **COTTONWOOD ST** *NCIC* **5703** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* **54** *Beat* **003** *Type* **0** *CalTrans* *Badge* **2854** *Collision Date* **20140801** *Time* **1348** *Day* **FRI**
Primary Collision Factor **R-O-W PED** *Violation* **21950A** *Collision Type* *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **N** *Process Date* **20140908**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **PED** *Lighting* **DAYLIGHT** *Ped Action* **X-WLK AT** *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	55	M	W	HNBD		PROC ST	W	D	2200	FORD	2011	-	3	N		-	M	G
2	PED	65	M	H	HNBD		PROC ST	N	N	6000	-		-	3	N		-	-	-

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PED	OTH VIS	67	M	1	0	P	-

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Primary Rd	Distance (ft)	Direction	Secondary Rd	NCIC	State Hwy?	Route	Postmile Prefix	Postmile	Side of Hwy
WOODLAND AV	0		YOLO AV	9280	N				

City	County	Population	Rpt Dist	Beat	Type	CalTrans	Badge	Collision Date	Time	Day
UNINCORP.	Yolo	9		034	1		17933	20140113	0315	MON

Primary Collision Factor	Violation	Collision Type	Severity	#Killed	#Injured	Tow Away?	Process Date
IMPROP TURN	22107	HEAD-ON	PDO	0	0	Y	20150120

Weather1	Weather2	Rdwy Surface	Rdwy Cond1	Rdwy Cond2	Spec Cond
CLEAR		DRY	NO UNUSL CND		0

Hit and Run	Motor Vehicle Involved With	Lighting	Ped Action	Cntrl Dev	Loc Type	Ramp/Int
MSDMNR	OTHER MV	DARK - NO		FNCTNG		

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	998	-		IMP UNK	IMP UNK	UNS TURN	S	-	9900	-		-	N		-	-	-
2	DRVR	26	M	W	HNBD		PROC ST	E	A	0100	FORD	2008	-	N	3	-	L	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd	Distance (ft)	Direction	Secondary Rd	NCIC	State Hwy?	Route	Postmile Prefix	Postmile	Side of Hwy
Z LINE RD	200	S	HAMILTON RD	9280	N				

City	County	Population	Rpt Dist	Beat	Type	CalTrans	Badge	Collision Date	Time	Day
UNINCORP.	Yolo	9		001	3		17800	20140621	1450	SAT

Primary Collision Factor	Violation	Collision Type	Severity	#Killed	#Injured	Tow Away?	Process Date
OTHER IMPROP DRV		OVERTURNED	PDO	0	0	N	20150409

Weather1	Weather2	Rdwy Surface	Rdwy Cond1	Rdwy Cond2	Spec Cond
CLEAR		DRY	NO UNUSL CND		0

Hit and Run	Motor Vehicle Involved With	Lighting	Ped Action	Cntrl Dev	Loc Type	Ramp/Int
	NON-CLSN	DAYLIGHT		NT PRS/FCTR		

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1	DRVR	25	M	H	HNBD		UNS TURN	N	M	5132	DELOR	1989	-	N	3	-	P	-

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

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Primary Rd **12992 COUNTY ROAD 102** *Distance (ft)* **4224** *Direction* **N** *Secondary Rd* **COUNTY ROAD 17** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **002** *Type* **3** *CalTrans* *Badge* **018205** *Collision Date* **20150917** *Time* **1440** *Day* **THU**
Primary Collision Factor **OTHER IMPROP DRV** *Violation* *Collision Type* **BROADSIDE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20151019**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	30	M	H	HNBD		STOPPED	N	E	2235	GMC	2007	-	3	N	-	M	G
2	DRVR	65	F	W	HNBD		LFT TURN	E	A	0100	TOYO	1998	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **13647 STATE ROUTE 16** *Distance (ft)* **1056** *Direction* **W** *Secondary Rd* **RANCH RD** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **003** *Type* **3** *CalTrans* *Badge* **018205** *Collision Date* **20151118** *Time* **2230** *Day* **WED**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20151204**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	19	M	W	HNBD		RAN OFF RD	E	A	0100	HYUN	2009	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **14TH ST** *Distance (ft)* **0** *Direction* *Secondary Rd* **B ST** *NCIC* **5701** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Davis** *County* **Yolo** *Population* **5** *Rpt Dist* **5** *Beat* **002** *Type* **0** *CalTrans* *Badge* **38** *Collision Date* **20150104** *Time* **0112** *Day* **SUN**
Primary Collision Factor **UNKNOWN** *Violation* *Collision Type* **OTHER** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **N** *Process Date* **20160209**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **BICYCLE** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1	BICY	21	M	W	HNBD		PROC ST	E	L	0400	-		-	3	N	-	-	-
2	DRVR	998	-					-	A	0100	-		-	3	-	-	-	B

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
BICY	OTH VIS	21	M	9	1	V	-

Primary Rd **15TH ST** *Distance (ft)* **0** *Direction* *Secondary Rd* **JEFFERSON BL** *NCIC* **5704** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **West Sacramento** *County* **Yolo** *Population* **4** *Rpt Dist* **WSPD** *Beat* **002** *Type* **0** *CalTrans* *Badge* **00173** *Collision Date* **20150417** *Time* **1308** *Day* **FRI**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **SIDESWIPE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150926**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	998	F	H	IMP UNK	IMP UNK	RGT TURN	S	A	0100	TOYOT	1997	-	3	N	-	L	B
2	DRVR	34	F	W	HNBD		LFT TURN	S	A	0700	TOYOT	2008	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **16647 PARKER ST** *Distance (ft)* **0** *Direction* *Secondary Rd* **LUCILLE ST** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **003** *Type* **3** *CalTrans* *Badge* **016632** *Collision Date* **20150911** *Time* **2227** *Day* **FRI**
Primary Collision Factor **STRTNG|BCKNG** *Violation* **22106** *Collision Type* **OTHER** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20151019**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **NON-CLSN** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	58	M	H	HNBD		BACKING	N	G	2531	FREI	2014	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

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Primary Rd **CO RD 98** *Distance (ft)* **30** *Direction* **S** *Secondary Rd* **W MAIN ST** *NCIC* **5703** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* **72** *Beat* **003** *Type* **0** *CalTrans* *Badge* **2875** *Collision Date* **20150520** *Time* **1040** *Day* **WED**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20151016**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	998	-		IMP UNK	IMP UNK	PROC ST	-	-	0000	HONDA		-	-	-	-	-	-
2	DRVR	31	F	W	HNBD		STOPPED	N	A	0100	HONDA	2013	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **CO RD 99W** *Distance (ft)* **2640** *Direction* **N** *Secondary Rd* **CO RD 88** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **026** *Type* **1** *CalTrans* *Badge* **16520** *Collision Date* **20150517** *Time* **1450** *Day* **SUN**
Primary Collision Factor **DRVR ALC|DRG** *Violation* **23152A** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20151019**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	31	M	W	HBD-UI		PROC ST	S	D	2200	DODGE	1999	-	3	A	22107	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		7	F	4	0	P	Q

Primary Rd **COLETTE WY** *Distance (ft)* **28** *Direction* **W** *Secondary Rd* **MATMOR RD** *NCIC* **5703** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* **31** *Beat* **001** *Type* **0** *CalTrans* *Badge* **2850** *Collision Date* **20150509** *Time* **1220** *Day* **SAT**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20151024**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	998	-		IMP UNK	IMP UNK	PROC ST	-	-	0000	-		-	-	A	20002	-	-	-
2	DRVR	52	F	H	HNBD		STOPPED	E	A	0100	TOYOT	2002	-	3	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **COLFAX PL** *Distance (ft)* **60** *Direction* **E** *Secondary Rd* **GEOFFREY ST** *NCIC* **5703** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* **11** *Beat* **001** *Type* **0** *CalTrans* *Badge* **2002** *Collision Date* **20150819** *Time* **1856** *Day* **WED**
Primary Collision Factor **R-O-W AUTO** *Violation* **21804A** *Collision Type* **BROADSIDE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20160106**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1	DRVR	89	F	W	HNBD		PROC ST	W	A	0100	FORD	1997	-	3	N		-	M	G
2F	DRVR	44	M	H	HNBD		BACKING	S	A	0100	NISSA	2011	-	3	-		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **COLLEGE ST** *Distance (ft)* **0** *Direction* *Secondary Rd* **BUENA TIERRA DR** *NCIC* **5703** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* **14** *Beat* **003** *Type* **0** *CalTrans* *Badge* **2834** *Collision Date* **20150612** *Time* **1731** *Day* **FRI**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20151104**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	40	M	W	HNBD		STOPPED	N	A	0100	FORD	2011	-	3	N		-	M	G
2	DRVR	34	F	W	HNBD		STOPPED	N	A	0100	BMW	2014	-	3	N		-	M	G
3	DRVR	35	M		HNBD		PROC ST	N	D	2200	FORD	2010	-	3	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

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PASS		42	F	3	0	L	G

Primary Rd **COTTONWOOD ST** *Distance (ft)* **8** *Direction* **S** *Secondary Rd* **W MAIN ST** *NCIC* **5703** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* **52** *Beat* **003** *Type* **0** *CalTrans* *Badge* **2834** *Collision Date* **20150717** *Time* **2110** *Day* **FRI**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20151214**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	998	-		IMP UNK	IMP UNK	PROC ST	-	-	0000	FORD	1996	-	-	N		- - -
2	DRVR	38	M	H	HNBD		STOPPED	N	A	0100	NISSA	2002	-	3	N		- M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **COUNTRY CLUB DR** *Distance (ft)* **115** *Direction* **S** *Secondary Rd* **EL MACERO DR** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* *Beat* **001** *Type* **3** *CalTrans* *Badge* **17800** *Collision Date* **20150315** *Time* **1605** *Day* **SUN**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150908**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	72	M	W	HNBD		RAN OFF RD	S	A	0800	HONDA	2012	-	3	F		- L G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **COUNTY RD 98** *Distance (ft)* **0** *Direction* *Secondary Rd* **W MAIN ST** *NCIC* **5703** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* **72** *Beat* **003** *Type* **0** *CalTrans* *Badge* **2808** *Collision Date* **20150103** *Time* **1019** *Day* **SAT**
Primary Collision Factor **R-O-W AUTO** *Violation* **21804A** *Collision Type* **SIDESWIPE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150729**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	998	M	H	IMP UNK	IMP UNK	ENT TRAF	W	A	0700	FORD	1999	-	-	N		- - -
2	DRVR	37	F	H	HNBD		PROC ST	S	A	0100	NISSA	1999	-	3	N		- M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **COUNTY ROAD 1** *Distance (ft)* **153** *Direction* **E** *Secondary Rd* **COUNTY ROAD 88** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **003** *Type* **3** *CalTrans* *Badge* **018205** *Collision Date* **20150904** *Time* **0800** *Day* **FRI**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **OVERTURNED** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20151019**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	29	M	H	HNBD		RAN OFF RD	W	G	2531	FREI	2014	-	3	N		- P G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **COUNTY ROAD 100** *Distance (ft)* **600** *Direction* **W** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **003** *Type* **3** *CalTrans* *Badge* **017375** *Collision Date* **20150119** *Time* **0900** *Day* **MON**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150804**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip
1F	DRVR	38	M	H	HNBD		RAN OFF RD	E	G	2731	KENW	2005	-	3	N		- M G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

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Primary Rd **COUNTY ROAD** *Distance (ft)* **25** *Direction* **S** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **002** *Type* **3** *CalTrans* *Badge* **016929** *Collision Date* **20151030** *Time* **1510** *Day* **FRI**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20151119**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety*	*Equip*
1F	DRVR	16	M	H	HNBD		PASSING	S	D	2200	TOYOT	2007	-	3	N		-	M	G

Victim Info

ROLE	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*

Primary Rd **COUNTY ROAD** *Distance (ft)* **1584** *Direction* **N** *Secondary Rd* **COUNTY ROAD 29** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **002** *Type* **3** *CalTrans* *Badge* **015128** *Collision Date* **20151022** *Time* **2200** *Day* **THU**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20151111**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety*	*Equip*
1F	DRVR	65	M	W	IMP UNK	IMP UNK	RAN OFF RD	N	A	0100	FORD	2004	-	3	N		-	M	G

Victim Info

ROLE	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*

Primary Rd **COUNTY ROAD 101** *Distance (ft)* **1056** *Direction* **N** *Secondary Rd* **COUNTY ROAD 17** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **002** *Type* **3** *CalTrans* *Badge* **017629** *Collision Date* **20151117** *Time* **1810** *Day* **TUE**
Primary Collision Factor **DRVR ALC|DRG** *Violation* **23152A** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20151204**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT FNCT** *Loc Type* *Ramp/Int*

Party Info

Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety*	*Equip*
1F	DRVR	40	F		HBD-UI		STOPPED	N	A	0100	HONDA	1999	-	3	A	22350	N	M	H

Victim Info

ROLE	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*

Primary Rd **COUNTY ROAD 102** *Distance (ft)* **45** *Direction* **N** *Secondary Rd* **BRONZE STAR DR** *NCIC* **5703** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* **91** *Beat* **004** *Type* **0** *CalTrans* *Badge* **2831** *Collision Date* **20150716** *Time* **1715** *Day* **THU**
Primary Collision Factor **R-O-W AUTO** *Violation* **21802A** *Collision Type* **BROADSIDE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20151123**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety*	*Equip*
1F	DRVR	21	F	H	HNBD		ENT TRAF	N	A	0100	FORD	1997	-	3	N		-	M	G
2	DRVR	29	F	H	HNBD		PROC ST	N	A	0100	HONDA	2010	-	3	N		-	M	G

Victim Info

ROLE	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*

Primary Rd **COUNTY ROAD 102** *Distance (ft)* **2640** *Direction* **N** *Secondary Rd* **COUNTY ROAD 16** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **002** *Type* **3** *CalTrans* *Badge* **017629** *Collision Date* **20150207** *Time* **0700** *Day* **SAT**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20150316**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **WET** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety*	*Equip*
1F	DRVR	49	M	O	HNBD		RAN OFF RD	S	F	2500	FREIG	2011	-	3	N		-	M	C

Victim Info

ROLE	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*
PASS	OTH VIS	36	M	3	0	P	C

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Primary Rd **COUNTY ROAD 96** *Distance (ft)* **0** *Direction* *Secondary Rd* **STATE ROUTE 16** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **002** *Type* **3** *CalTrans* *Badge* **016254** *Collision Date* **20151005** *Time* **0610** *Day* **MON**
Primary Collision Factor **STOP SGN|SIG** *Violation* **22450A** *Collision Type* **BROADSIDE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20151022**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	Ejected
1F	DRVR	27	M	H	HNBD	FATG	PROC ST	S	A	0100	HONDA	1998	-	3	N	-	M G	
2	DRVR	34	F	H	HNBD		PROC ST	W	A	0100	NISS	2015	-	3	N	-	M G	

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **COUNTY ROAD 96** *Distance (ft)* **1584** *Direction* **N** *Secondary Rd* **STATE ROUTE 16** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **002** *Type* **3** *CalTrans* *Badge* **016254** *Collision Date* **20151201** *Time* **1118** *Day* **TUE**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **SIDESWIPE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20151216**
Weather1 **CLEAR** *Weather2* **CLOUDY** *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	Ejected
1F	DRVR	58	M	O	HNBD		LFT TURN	N	D	2200	FORD	2004	-	3	N	-	M G	
2	DRVR	68	M	W	HNBD		PASSING	N	D	2200	DODG	2012	-	3	N	-	M G	

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **COUNTY ROAD 96** *Distance (ft)* **24** *Direction* **N** *Secondary Rd* **STATE ROUTE 16** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **002** *Type* **3** *CalTrans* *Badge* **015168** *Collision Date* **20151211** *Time* **1830** *Day* **FRI**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20151223**
Weather1 **CLOUDY** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	Ejected
1	DRVR	53	F	W	HNBD		STOPPED	S	A	0700	MAZDA	2015	-	3	N	-	M G	
2F	DRVR	998	-		IMP UNK	IMP UNK	SLOWING	S	-	9900	-		-	3	N	-	- -	

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **COUNTY ROAD 96B** *Distance (ft)* **400** *Direction* **N** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **002** *Type* **3** *CalTrans* *Badge* **016254** *Collision Date* **20150707** *Time* **2100** *Day* **TUE**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20151019**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	Ejected
1F	DRVR	18	F	O	HNBD		UNS TURN	N	A	0100	TOYT	2005	-	3	N	-	M G	

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **COUNTY ROAD 96B** *Distance (ft)* **1056** *Direction* **N** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **002** *Type* **3** *CalTrans* *Badge* **016929** *Collision Date* **20150715** *Time* **1343** *Day* **WED**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20151019**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **LOOSE MATRL** *Rdwy Cond2* **NO UNUSL CND** *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	Ejected
1F	DRVR	16	M	W	HNBD		UNS TURN	N	A	0100	VOLVO	1984	-	3	N	-	M G	

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

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Primary Rd **COUNTY ROAD 97** *Distance (ft)* **2112** *Direction* **N** *Secondary Rd* **COUNTY ROAD 27** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **010** *Type* **1** *CalTrans* *Badge* **016027** *Collision Date* **20150220** *Time* **2205** *Day* **FRI**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **OVERTURNED** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20150323**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **NON-CLSN** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info																	Victim Info							
Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety Equip*		*ROLE*	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*
1F	DRVR	18	M	W	HNBD		RAN OFF RD	N	A	0800	DODGE	2005	-	3	N	-	M	G	PASS	OTH VIS	16	F	3	0	M	G
																			PASS		19	M	4	0	P	H

Primary Rd **COUNTY ROAD 97** *Distance (ft)* **0** *Direction* *Secondary Rd* **RT 16** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **024** *Type* **1** *CalTrans* *Badge* **12272** *Collision Date* **20150103** *Time* **1050** *Day* **SAT**
Primary Collision Factor **R-O-W AUTO** *Violation* **21801A** *Collision Type* **HEAD-ON** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150730**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info																	Victim Info							
Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety Equip*		*ROLE*	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*
1F	DRVR	76	M	H	HNBD		LFT TURN	S	D	2200	DODGE	2012	-	3	N	-	M	G	PASS		72	F	3	0	M	G
2	DRVR	57	M	H	HNBD		PROC ST	N	D	2200	FORD	2009	-	3	N	-	L	G								

Primary Rd **COUNTY ROAD 97** *Distance (ft)* **0** *Direction* *Secondary Rd* **COUNTY ROAD 21** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **002** *Type* **3** *CalTrans* *Badge* **017375** *Collision Date* **20151123** *Time* **0658** *Day* **MON**
Primary Collision Factor **R-O-W AUTO** *Violation* **21802A** *Collision Type* **BROADSIDE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20151204**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info																	Victim Info							
Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety Equip*		*ROLE*	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*
1F	DRVR	72	M	W	HNBD		RGT TURN	E	D	2200	FORD	2010	-	3	N	-	L	G								
2	DRVR	38	M	H	HNBD		PROC ST	S	A	0100	FORD	2005	-	3	N	-	M	G								

Primary Rd **COUNTY ROAD 97** *Distance (ft)* **0** *Direction* *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **002** *Type* **3** *CalTrans* *Badge* **017772** *Collision Date* **20151123** *Time* **1940** *Day* **MON**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20151204**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info																	Victim Info							
Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety Equip*		*ROLE*	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*
1F	DRVR	998	-		IMP UNK	IMP UNK	OTHER	N	A	0700	FORD	1998	-	-	-	-	-	-								

Primary Rd **COUNTY ROAD 98** *Distance (ft)* **0** *Direction* *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **025** *Type* **2** *CalTrans* *Badge* **12272** *Collision Date* **20150331** *Time* **1030** *Day* **TUE**
Primary Collision Factor **R-O-W AUTO** *Violation* **21802A** *Collision Type* **BROADSIDE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150910**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info																	Victim Info							
Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety Equip*		*ROLE*	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*
1F	DRVR	998	M	H	HNBD		PROC ST	W	A	0700	TOYOT	2002	-	3	N	-	M	G	PASS		19	M	3	0	M	G
2	DRVR	998	M	W	HNBD		PROC ST	S	A	0800	DODGE	2014	-	3	N	-	M	G								

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Primary Rd **COUNTY ROAD 98** *Distance (ft)* **528** *Direction* **S** *Secondary Rd* **RUSSELL BL** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **002** *Type* **3** *CalTrans* *Badge* **017772** *Collision Date* **20150604** *Time* **0640** *Day* **THU**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **OVERTURNED** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20151031**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **NON-CLSN** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	65	M	W	HNBD		UNS TURN	S	G	2731	PETER	2011	-	3	F	-	P	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **COUNTY ROAD 98** *Distance (ft)* **0** *Direction* *Secondary Rd* **WEST KENTUCKY** *NCIC* **5703** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* **84** *Beat* **002** *Type* **0** *CalTrans* *Badge* **2865** *Collision Date* **20150929** *Time* **1510** *Day* **TUE**
Primary Collision Factor **STOP SGN|SIG** *Violation* **21453A** *Collision Type* **BROADSIDE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20160126**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	58	M	H	HNBD		PROC ST	W	D	2200	CHEVR	2000	-	3	N	-	M	G
2	DRVR	32	F	W	HNBD		PROC ST	N	A	0100	HONDA	2002	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **COUNTY ROAD 98** *Distance (ft)* **1056** *Direction* **N** *Secondary Rd* **COUNTY ROAD 15** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **020** *Type* **1** *CalTrans* *Badge* **017351** *Collision Date* **20151021** *Time* **0420** *Day* **WED**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **OVERTURNED** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20151027**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **NON-CLSN** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	71	M	W	HNBD		PROC ST	N	A	0100	HONDA	2011	-	3	F	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	OTH VIS	71	M	1	0	M	G

Primary Rd **COUNTY ROAD 98** *Distance (ft)* **0** *Direction* *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **025** *Type* **2** *CalTrans* *Badge* **012272** *Collision Date* **20150828** *Time* **1445** *Day* **FRI**
Primary Collision Factor **R-O-W AUTO** *Violation* **21802A** *Collision Type* **BROADSIDE** *Severity* **INJURY** *#Killed* **0** *#Injured* **2** *Tow Away?* **Y** *Process Date* **20151019**
Weather1 **CLOUDY** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1	DRVR	42	M	O	HNBD		PROC ST	S	A	0700	CHEV	2014	-	3	N	-	L	G
2F	DRVR	27	M	H	HNBD		PROC ST	W	A	0100	NISS	2001	-	3	A	22450	L	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	COMP PN	42	M	1	0	L	G
DRVR	COMP PN	27	M	1	0	L	G

Primary Rd **COUNTY ROAD 98** *Distance (ft)* **0** *Direction* *Secondary Rd* **COUNTY ROAD 27** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **025** *Type* **2** *CalTrans* *Badge* **017763** *Collision Date* **20150810** *Time* **1256** *Day* **MON**
Primary Collision Factor **STOP SGN|SIG** *Violation* **22450A** *Collision Type* **BROADSIDE** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20151019**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	79	F	A	HNBD		PROC ST	S	A	0100	TOYOT	1996	-	3	N	-	M	G
2	DRVR	44	F	H	HNBD		PROC ST	E	G	2633	FREIG	2016	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	COMP PN	79	F	1	0	M	G

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Primary Rd **I-5 SOUTHBOUND** *Distance (ft)* **3696** *Direction* **S** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **020** *Type* **1** *CalTrans* *Badge* **015168** *Collision Date* **20151217** *Time* **1735** *Day* **THU**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20151229**
Weather1 **CLOUDY** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info																	Victim Info							
Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety Equip*	*ROLE*	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*
1	DRVR	27	F	B	HNBD		STOPPED	S	A	0700	HONDA	2010	-	3	N	-	M G	DRVR	COMP PN	27	F	1	0	M	G
2F	DRVR	27	M	W	HNBD		SLOWING	S	A	0100	CHEV	1998	-	3	F	-	L G								

Primary Rd **I-5 SOUTHBOUND** *Distance (ft)* **1320** *Direction* **N** *Secondary Rd* **RIVER RD** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **020** *Type* **1** *CalTrans* *Badge* **015168** *Collision Date* **20150731** *Time* **1715** *Day* **FRI**
Primary Collision Factor **LANE CHANGE** *Violation* **21658A** *Collision Type* **SIDESWIPE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20151019**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info																	Victim Info							
Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety Equip*	*ROLE*	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*
1	DRVR	24	M	W	HNBD		PROC ST	S	A	0100	FORD	2013	-	3	N	-	M G	PASS		24	M	3	0	M	G
2F	DRVR	43	M	W	IMP UNK	IMP UNK	OTHER	S	A	0800	CHEC	2002	-	3	N	-	M G								

Primary Rd **I-505** *Distance (ft)* **2640** *Direction* **N** *Secondary Rd* **SR-16** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **031** *Type* **1** *CalTrans* *Badge* **016351** *Collision Date* **20150622** *Time* **0100** *Day* **MON**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20151019**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info																	Victim Info							
Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety Equip*	*ROLE*	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*
1F	DRVR	29	F	B	HNBD		OTHER	N	A	0700	SUBAR	2006	-	3	N	-	M G	PASS		29	F	3	0	L	G
																		PASS		10	F	5	0	P	G
																		PASS		6	F	6	0	L	Q

Primary Rd **I-505 N/B** *Distance (ft)* **1056** *Direction* **S** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **031** *Type* **1** *CalTrans* *Badge* **016027** *Collision Date* **20150917** *Time* **1825** *Day* **THU**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20151019**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info																	Victim Info							
Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety Equip*	*ROLE*	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*
1F	DRVR	21	M	W	HNBD		CHANG LN	N	A	0100	CHEVY	2009	-	3	N	-	L G								
2	DRVR	59	F	W	HNBD		PROC ST	N	A	0100	SMART	2009	-	3	N	-	M G								

Primary Rd **I-505 N/B** *Distance (ft)* **1584** *Direction* **N** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **031** *Type* **1** *CalTrans* *Badge* **016632** *Collision Date* **20151002** *Time* **0516** *Day* **FRI**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20151019**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info																	Victim Info							
Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety Equip*	*ROLE*	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*
1F	DRVR	36	M	W	HNBD		PROC ST	N	D	2200	CHEV	1993	-	3	N	-	M G								
2	DRVR	58	M	W	HNBD		PROC ST	N	G	2533	PETE	2011	-	3	N	-	M G								

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ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS	COMP PN	17	F	3	0	-	G

Primary Rd **RICHARDS BLVD TO I-80 W/B** *Distance (ft)* **528** *Direction* **E** *Secondary Rd* **RICHARDS BLVD** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **010** *Type* **1** *CalTrans* *Badge* **016254** *Collision Date* **20151024** *Time* **1540** *Day* **SAT**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20151106**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	24	M	W	HNBD		PROC ST	W	A	0700	DODG	2005	- 3	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		18	F	8	0	P	G
PASS		18	F	8	0	P	G
PASS		29	F	3	0	M	G
PASS		21	F	6	0	P	G
PASS		23	M	4	0	P	G

Primary Rd **RIVERSIDE DR** *Distance (ft)* **77** *Direction* **W** *Secondary Rd* **SONOMA WY** *NCIC* **5703** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* **02** *Beat* **002** *Type* **0** *CalTrans* *Badge* **2011** *Collision Date* **20150208** *Time* **0220** *Day* **SUN**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **SIDESWIPE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150827**
Weather1 **RAINING** *Weather2* *Rdwy Surface* **WET** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **PKD MV** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1	DRVR	20	M	H			PROC ST	W	A	0100	CADIL	2003	- 3	A	20002	N	L	B
2	PRKD	998	-				PARKED	-	A	0100	CHEVR	2014	- -	-		-	-	-
3	PRKD	998	-				PARKED	-	D	2200	GMC	1986	- -	-		-	-	-
4	PRKD	998	-				PARKED	-	D	2200	FORD	2013	- -	-		-	-	-
5	PRKD	998	-			null		-	D	2200	FORD	2003	- -	-		-	-	-

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **ROAD 8** *Distance (ft)* **87** *Direction* **W** *Secondary Rd* **ROAD 86** *NCIC* **9280** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **003** *Type* **3** *CalTrans* *Badge* **015168** *Collision Date* **20150819** *Time* **2345** *Day* **WED**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20151019**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	48	F	B	HNBD		PROC ST	W	A	0100	TOYO	1995	- 3	N		-	P	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **ROAD 98** *Distance (ft)* **55** *Direction* **S** *Secondary Rd* **WEST KENTUCKY** *NCIC* **5703** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* **84** *Beat* **002** *Type* **0** *CalTrans* *Badge* **2827** *Collision Date* **20150506** *Time* **1542** *Day* **WED**
Primary Collision Factor **NOT STATED** *Violation* *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20151024**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	61	M	W	HNBD		PROC ST	N	A	0100	HYUND	2013	- -	F		-	M	G
2	DRVR	48	F	A	HNBD		STOPPED	N	A	0100	TOYOT	2003	- -	M		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

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Primary Rd **RT 128** *Distance (ft)* **0** *Direction* *Secondary Rd* **TAYLOR ST** *NCIC* **5702** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Winters** *County* **Yolo** *Population* **2** *Rpt Dist* **C** *Beat* **00C** *Type* **0** *CalTrans* *Badge* **534** *Collision Date* **20150119** *Time* **1500** *Day* **MON**
Primary Collision Factor **R-O-W AUTO** *Violation* **21802A** *Collision Type* **BROADSIDE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150731**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	87	M	W	HNBD		LFT TURN	S	-	0000	SATUR	2005	-	-	A	22450	N	M	G
2	DRVR	72	F	W	HNBD		PROC ST	E	-	0000	CHEVR	2009	-	-	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 16** *Distance (ft)* **0** *Direction* *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **017629** *Collision Date* **20150123** *Time* **1520** *Day* **FRI**
Primary Collision Factor **STOP SGN|SIG** *Violation* **21455** *Collision Type* **BROADSIDE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150818**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	42	F	A	HNBD		PROC ST	W	A	0700	TOYOT	2003	-	3	N		-	M	G
2	DRVR	45	F	W	HNBD		LFT TURN	W	A	0100	DODGE	2007	-	3	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		64	F	5	0	M	G
PASS		55	F	3	0	M	G

Primary Rd **RT 16** *Distance (ft)* **85** *Direction* **E** *Secondary Rd* **COUNTY ROAD 52** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **016929** *Collision Date* **20150624** *Time* **2235** *Day* **WED**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20150720**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	16	F	W	HNBD		PROC ST	E	A	0100	FORD	2001	-	3	N		-	L	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	OTH VIS	16	F	1	0	L	G

Primary Rd **RT 16** *Distance (ft)* **528** *Direction* **E** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **17874** *Collision Date* **20150124** *Time* **2253** *Day* **SAT**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20150422**
Weather1 **FOG** *Weather2* *Rdwy Surface* **WET** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	33	M	W	HBD-NUI		RAN OFF RD	W	D	2200	DODGE	1996	-	1	F		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	COMP PN	33	M	1	0	M	G

Primary Rd **RT 16** *Distance (ft)* **0** *Direction* *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **15168** *Collision Date* **20150219** *Time* **1142** *Day* **THU**
Primary Collision Factor **R-O-W AUTO** *Violation* **21802A** *Collision Type* **BROADSIDE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150820**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	36	M	W	HNBD		STOPPED	N	A	0100	SUBAR	1998	-	3	N		-	M	G
2	DRVR	63	F	W	HNBD		PROC ST	E	A	0100	JAGUA	2006	-	3	N		-	L	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

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Primary Rd **RT 16** *Distance (ft)* **100** *Direction* **E** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **17772** *Collision Date* **20150415** *Time* **0840** *Day* **WED**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **INJURY** *#Killed* **0** *#Injured* **2** *Tow Away?* **Y** *Process Date* **20150515**
Weather1 **CLEAR** *Weather2* **WIND** *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1	DRVR	48	M	A	HNBD		PROC ST	W	A	0700	HONDA	2009	-	3	A	22350	-	L	G
2F	DRVR	33	M	H	HNBD		PROC ST	W	A	0100	CHEVR	1996	-	3	N		-	L	G
3	DRVR	72	M	W	HNBD		STOPPED	W	A	0100	TOYOT	2010	-	3	N		-	M	G
4	DRVR	55	F	A	HNBD		STOPPED	W	A	0100	TOYOT	2007	-	3	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	COMP PN	48	M	1	0	L	G
DRVR	COMP PN	33	M	1	0	L	G
PASS		81	F	3	0	M	G
PASS		65	F	3	0	M	G

Primary Rd **RT 16** *Distance (ft)* **300** *Direction* **E** *Secondary Rd* **COUNTY ROAD 89** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **016144** *Collision Date* **20150221** *Time* **1435** *Day* **SAT**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150827**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1	DRVR	24	F	H	HNBD		STOPPED	E	A	0100	ACURA	2004	-	3	N		-	M	G
2F	DRVR	40	M	W	HNBD		PROC ST	E	A	0700	HONDA	2008	-	3	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 16** *Distance (ft)* **10** *Direction* **E** *Secondary Rd* **COUNTY ROAD 89** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **016292** *Collision Date* **20150313** *Time* **2050** *Day* **FRI**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150918**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	31	M	W	HNBD		PROC ST	W	A	0100	CHEVR	2002	-	3	G		-	P	G
2	DRVR	42	F	A	HNBD		SLOWING	W	A	0700	MITSU	2003	-	3	G		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		45	M	3	0	M	G

Primary Rd **RT 16** *Distance (ft)* **1584** *Direction* **W** *Secondary Rd* **COUNTY ROAD 93** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **16292** *Collision Date* **20150222** *Time* **0310** *Day* **SUN**
Primary Collision Factor **DRVR ALC|DRG** *Violation* **23152A** *Collision Type* **HEAD-ON** *Severity* **INJURY** *#Killed* **0** *#Injured* **2** *Tow Away?* **Y** *Process Date* **20150402**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	25	M	H	HBD-UI		WRONG WY	W	A	0100	HYUND	2011	-	3	A	21651	-	L	G
2	DRVR	26	M	H	HNBD		PROC ST	E	A	0700	HONDA	2003	-	3	N		-	L	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	OTH VIS	25	M	1	0	L	G
DRVR	SEVERE	26	M	1	0	L	G

Primary Rd **RT 16** *Distance (ft)* **262** *Direction* **E** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **017351** *Collision Date* **20150121** *Time* **1925** *Day* **WED**
Primary Collision Factor **WRONG SIDE** *Violation* **21650** *Collision Type* **HEAD-ON** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20150305**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **FELONY** *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	998	-		IMP UNK	IMP UNK	WRONG WY	E	A	0800	CHEVR	1998	-	3	N		-	-	-
2	DRVR	16	F	W	HNBD		PROC ST	W	A	0100	BMW	2003	-	3	N		-	L	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		38	M	9	0	L	G
DRVR	OTH VIS	16	F	1	0	L	G

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Primary Rd **RT 16** *Distance (ft)* **0** *Direction* *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **016929** *Collision Date* **20150402** *Time* **1828** *Day* **THU**
Primary Collision Factor **DRVR ALC|DRG** *Violation* **23152A** *Collision Type* **HEAD-ON** *Severity* **INJURY** *#Killed* **0** *#Injured* **2** *Tow Away?* **Y** *Process Date* **20150505**
Weather1 *Weather2* *Rdwy Surface* *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	59	M	W	HBD-UI		LFT TURN	W	A	0100	HYUND	2012	-	3	A	21801	-	L	G
2	DRVR	57	F	H	HNBD		PROC ST	E	A	0100	HYUND	2004	-	3	N		-	L	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	OTH VIS	59	M	1	0	L	G
DRVR	SEVERE	57	F	1	0	L	G

Primary Rd **RT 16** *Distance (ft)* **500** *Direction* **E** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **024** *Type* **1** *CalTrans* *Badge* **16520** *Collision Date* **20150325** *Time* **1346** *Day* **WED**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **SIDESWIPE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150910**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	52	M	B	HNBD		PROC ST	E	A	0100	HYUND	2011	-	3	N		-	M	G
2	DRVR	28	M	H	HNBD		SLOWING	E	A	0700	GMC	2002	-	3	G		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 16** *Distance (ft)* **0** *Direction* *Secondary Rd* **COUNTY ROAD 97** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **024** *Type* **1** *CalTrans* *Badge* **16292** *Collision Date* **20150427** *Time* **0825** *Day* **MON**
Primary Collision Factor **R-O-W AUTO** *Violation* **21802A** *Collision Type* **BROADSIDE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20151005**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	63	M	W	HNBD		PROC ST	S	A	0100	TOYOT	1996	-	3	N		-	M	G
2	DRVR	18	M	W	HNBD		LFT TURN	N	A	0100	TOYOT	1999	-	3	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		16	F	3	0	M	G

Primary Rd **RT 16** *Distance (ft)* **1056** *Direction* **E** *Secondary Rd* **COUNTY ROAD 97** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **024** *Type* **1** *CalTrans* *Badge* **012272** *Collision Date* **20150512** *Time* **1345** *Day* **TUE**
Primary Collision Factor **STRTNG|BCKNG** *Violation* **22106** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20151104**
Weather1 **CLOUDY** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1	DRVR	73	F	W	HNBD		STOPPED	W	A	0100	FORD	2011	-	3	N		-	M	G
2F	DRVR	50	M	H	HNBD		BACKING	W	F	2600	FORD	1990	-	3	N		-	P	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 16** *Distance (ft)* **1043** *Direction* **W** *Secondary Rd* **COUNTY ROAD 98** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **024** *Type* **1** *CalTrans* *Badge* **015353** *Collision Date* **20150425** *Time* **2200** *Day* **SAT**
Primary Collision Factor **DRVR ALC|DRG** *Violation* **23152A** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150930**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	36	M	H	HBD-UI		PROC ST	E	A	0100	HONDA	1994	-	3	A	22350	-	M	G
2	DRVR	58	M	A	HNBD		PROC ST	E	A	0100	TOYOT	2008	-	3	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		59	F	3	0	M	G

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Primary Rd **RT 16** *Distance (ft)* **6** *Direction* **E** *Secondary Rd* **FREEMONT ST** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **015079** *Collision Date* **20150213** *Time* **1900** *Day* **FRI**
Primary Collision Factor **R-O-W AUTO** *Violation* **21801A** *Collision Type* **HEAD-ON** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150819**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	33	M	W	HBD-NUI		LFT TURN	W	D	2200	FORD	2003	-	3	N	-	L	G
2	DRVR	57	M	W	HNBD		PROC ST	E	D	2200	DODGE	2005	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 16** *Distance (ft)* **0** *Direction* *Secondary Rd* **MADISON ST** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **017763** *Collision Date* **20150531** *Time* **1710** *Day* **SUN**
Primary Collision Factor **R-O-W AUTO** *Violation* **21802B** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20151020**
Weather1 **CLOUDY** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1	DRVR	998	-		IMP UNK	IMP UNK	LFT TURN	E	A	0700	-		-	3	N	-	B	-
2	DRVR	33	M	O	HNBD		PROC ST	N	A	0100	BMW	2006	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **RT 16** *Distance (ft)* **528** *Direction* **E** *Secondary Rd* **RT 505** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **016929** *Collision Date* **20150618** *Time* **1930** *Day* **THU**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **SIDESWIPE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20151104**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	41	M	H	IMP UNK	IMP UNK	PROC ST	W	A	0700	JEEP	2000	-	3	N	-	M	G
2	DRVR	48	M	A	HNBD		STOPPED	W	A	0100	HONDA	2007	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		55	M	3	0	M	G
PASS		998	M	6	0	P	G

Primary Rd **RT 16** *Distance (ft)* **150** *Direction* **W** *Secondary Rd* **TUTT ST** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **015485** *Collision Date* **20150131** *Time* **1503** *Day* **SAT**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **SIDESWIPE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20150810**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	76	M	W	IMP UNK	IMP UNK	PASSING	E	D	2200	CHEVR	2002	-	3	N	-	M	G
2	DRVR	51	M	W	HNBD		PROC ST	E	A	0100	BUICK	1996	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		74	F	3	0	M	G
PASS		66	F	3	0	M	G

Primary Rd **RT 16** *Distance (ft)* **1584** *Direction* **E** *Secondary Rd* **YOLO/** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **015079** *Collision Date* **20150121** *Time* **1745** *Day* **WED**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **OVERTURNED** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20150810**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **NON-CLSN** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	63	M	W	HNBD		RAN OFF RD	W	A	0100	VOLKS	2005	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

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Primary Rd **SR-16** *Distance (ft)* **500** *Direction* **S** *Secondary Rd* **COUNTY ROAD 18** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **024** *Type* **1** *CalTrans* *Badge* **012272** *Collision Date* **20150918** *Time* **1335** *Day* **FRI**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HEAD-ON** *Severity* **INJURY** *#Killed* **0** *#Injured* **3** *Tow Away?* **Y** *Process Date* **20151026**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	Victim Info: ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	17	M	O	HNBD		RAN OFF RD	W	A	0100	HOND	1995	-	3	A	22350	- M G	DRVR	COMP PN	17	M	1	0	M	G
																		PASS	COMP PN	18	M	3	0	M	G
																		PASS	COMP PN	16	M	6	0	M	G
2	DRVR	58	M	H	HNBD		PROC ST	E	D	2200	FORD	2006	-	3	N		- M G	PASS		25	M	3	0	M	G

Primary Rd **SR-16** *Distance (ft)* **2640** *Direction* **W** *Secondary Rd* **COUNTY ROAD 42** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **017874** *Collision Date* **20150904** *Time* **2000** *Day* **FRI**
Primary Collision Factor **NOT DRIVER** *Violation* *Collision Type* **OTHER** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20151019**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **ANIMAL** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	Victim Info: ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1	DRVR	56	F	W	HNBD		PROC ST	E	A	0100	SUBA	2014	-	3	N		- M G								

Primary Rd **SR-16** *Distance (ft)* **2640** *Direction* **E** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **016027** *Collision Date* **20150924** *Time* **2015** *Day* **THU**
Primary Collision Factor **NOT DRIVER** *Violation* *Collision Type* **BROADSIDE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20151019**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **ANIMAL** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	Victim Info: ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1	DRVR	31	M	H	HNBD		OPPOS LN	W	C	0200	KAWA	2015	-	3	N		- - W								

Primary Rd **SR-16** *Distance (ft)* **1584** *Direction* **E** *Secondary Rd* **COUNTY ROAD 80** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **016929** *Collision Date* **20150628** *Time* **0111** *Day* **SUN**
Primary Collision Factor **NOT DRIVER** *Violation* *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20151019**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **ANIMAL** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	Victim Info: ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1	DRVR	25	M	H	HNBD		PROC ST	E	A	0100	BMW	2007	-	3	N		- M G								

Primary Rd **SR-16** *Distance (ft)* **350** *Direction* **W** *Secondary Rd* **COUNTY ROAD 89** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **003** *Type* **3** *CalTrans* *Badge* **015079** *Collision Date* **20150822** *Time* **1515** *Day* **SAT**
Primary Collision Factor **STRTNG|BCKNG** *Violation* **22106** *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20151019**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **FELONY** *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip	Victim Info: ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	998	-		HBD-UNK		LFT TURN	N	A	0100	-		-	3	N		- - -								
2	DRVR	32	M	H	HNBD		PROC ST	W	A	0100	TOYT	1995	-	3	N		- M G	DRVR	COMP PN	32	M	1	0	M	G

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Primary Rd **SR-16** *Distance (ft)* **965** *Direction* **W** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **024** *Type* **1** *CalTrans* *Badge* **017800** *Collision Date* **20150712** *Time* **1515** *Day* **SUN**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **INJURY** *#Killed* **0** *#Injured* **6** *Tow Away?* **Y** *Process Date* **20151019**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	48	M	W	HNBD		PROC ST	E	D	2200	GMC	2013	-	3	N	-	L	G
2	DRVR	49	M	W	HNBD		SLOWING	E	A	0700	JEEP	2015	-	3	N	-	M	G
3	DRVR	56	M	H	HNBD		STOPPED	E	A	0700	PONT	2007	-	3	N	-	M	G
4	DRVR	29	F	H	HNBD		STOPPED	E	A	0800	HOND	2000	-	3	N	-	M	G
5	DRVR	59	F	W	HNBD		STOPPED	E	A	0100	FORD	2015	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		52	F	3	0	M	G
PASS	COMP PN	70	F	3	0	M	G
PASS	COMP PN	51	F	4	0	M	G
PASS	COMP PN	49	M	5	0	M	G
PASS	COMP PN	61	M	6	0	M	G
DRVR	COMP PN	29	F	1	0	M	G
PASS	COMP PN	43	F	3	0	M	G

Primary Rd **SR-16** *Distance (ft)* **528** *Direction* **W** *Secondary Rd* **CR-23A** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **015128** *Collision Date* **20150929** *Time* **1050** *Day* **TUE**
Primary Collision Factor **R-O-W AUTO** *Violation* **21804A** *Collision Type* **BROADSIDE** *Severity* **INJURY** *#Killed* **0** *#Injured* **2** *Tow Away?* **Y** *Process Date* **20151020**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	84	M	W	HNBD		ENT TRAF	S	D	2200	FORD	1991	-	3	N	-	M	G
2	DRVR	27	F	H	HNBD		PROC ST	W	A	0700	FORD	1996	-	3	N	-	L	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	OTH VIS	84	M	1	0	M	G
DRVR	OTH VIS	27	F	1	0	L	G

Primary Rd **SR-16** *Distance (ft)* **400** *Direction* **W** *Secondary Rd* **CR-82B** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **015128** *Collision Date* **20151211** *Time* **1320** *Day* **FRI**
Primary Collision Factor **NOT STATED** *Violation* *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20151228**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	27	M	H		DRUG	UNS TURN	E	A	0100	NISSA	2007	-	3	A	22107	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	SEVERE	27	M	1	0	M	G

Primary Rd **SR-16** *Distance (ft)* **656** *Direction* **E** *Secondary Rd* **I-505 N/B** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **017874** *Collision Date* **20150724** *Time* **0835** *Day* **FRI**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20151019**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **CONS ZONE** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	56	F	W	HNBD		PROC ST	W	A	0100	TOYT	2010	-	3	N	-	M	G
2	DRVR	62	F	W	HNBD		SLOWING	W	A	0100	FORD	1997	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	COMP PN	62	F	1	0	M	G

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Primary Rd **SR-16** *Distance (ft)* **528** *Direction* **E** *Secondary Rd* **I-505 U/C** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **016929** *Collision Date* **20150618** *Time* **1930** *Day* **THU**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **SIDESWIPE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20151019**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	41	M	H	IMP UNK	IMP UNK	PROC ST	W	A	0700	JEEP	2000	-	3	N	-	M	G
2	DRVR	48	M	A	HNBD		STOPPED	W	A	0100	HONDA	2007	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		55	M	3	0	M	G
PASS		998	M	6	0	P	G

Primary Rd **SR-16** *Distance (ft)* **200** *Direction* **E** *Secondary Rd* **JENSEN LN** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **016144** *Collision Date* **20151204** *Time* **1115** *Day* **FRI**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20151222**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **WET** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	77	M	B	HNBD		UNS TURN	W	D	2200	CHEVY	2000	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **SR-16** *Distance (ft)* **1056** *Direction* **W** *Secondary Rd* **RANCH ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **016027** *Collision Date* **20150813** *Time* **0135** *Day* **THU**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20151019**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	26	M	H	HNBD		UNS TURN	E	A	0100	CADI	2013	-	3	N	-	L	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **SR-16** *Distance (ft)* **0** *Direction* *Secondary Rd* **SHADOW VALLEY** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **016144** *Collision Date* **20151217** *Time* **0715** *Day* **THU**
Primary Collision Factor **R-O-W AUTO** *Violation* **21801A** *Collision Type* **BROADSIDE** *Severity* **FATAL** *#Killed* **1** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20160115**
Weather1 **CLOUDY** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DUSK/DAWN** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	28	M	W	HNBD		LFT TURN	W	D	2200	CHEVY	2015	-	3	N	-	L	G
2	DRVR	88	F	W	HNBD		PROC ST	E	A	0700	HONDA	2003	-	3	N	-	L	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	OTH VIS	28	M	1	0	L	G
DRVR	KILLED	88	F	1	0	L	G

Primary Rd **SR-16** *Distance (ft)* **25** *Direction* **E** *Secondary Rd* **WINNERS WAY** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **012272** *Collision Date* **20150909** *Time* **1530** *Day* **WED**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20151019**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1	DRVR	70	M	H	HNBD		STOPPED	W	A	0700	SUBA	2015	-	3	N	-	M	G
2F	DRVR	40	F	H	HNBD		SLOWING	W	A	0100	TOYT	2000	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		58	F	3	0	M	G

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Primary Rd **SR-16 (32000 BLK)** *Distance (ft)* **5280** *Direction* **W** *Secondary Rd* **COUNTY ROAD 93** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **012272** *Collision Date* **20151005** *Time* **0820** *Day* **MON**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20151019**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **LOOSE MATRL** *Rdwy Cond2* **CONS ZONE** *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info																	Victim Info							
Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety Equip*	*ROLE*	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*
1	DRVR	34	F	H	HNBD		SLOWING	W	A	0100	TOYO	2014	-	3	G	-	M G	DRVR	COMP PN	34	F	1	0	M	G
2F	DRVR	27	M	H	HNBD		PROC ST	W	A	0100	SATU	2003	-	3	G	-	M G								

Primary Rd **SR-16 (34500 BLK)** *Distance (ft)* **1056** *Direction* **E** *Secondary Rd* **COUNTY ROAD 22** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **024** *Type* **1** *CalTrans* *Badge* **012272** *Collision Date* **20151124** *Time* **1650** *Day* **TUE**
Primary Collision Factor **IMPROP PASS** *Violation* **21751** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20151215**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DUSK/DAWN** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info																	Victim Info							
Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety Equip*	*ROLE*	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*
1F	DRVR	20	M	H	HNBD		PASSING	E	A	0100	CHEV	2001	-	3	N	-	M G								

Primary Rd **SR-16 (YOLO AVE.)** *Distance (ft)* **240** *Direction* **W** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **016929** *Collision Date* **20151008** *Time* **1356** *Day* **THU**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20151019**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info																	Victim Info							
Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety Equip*	*ROLE*	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*
1F	DRVR	44	M	W	HNBD		PROC ST	E	D	2200	FORD	2014	-	3	N	-	M G								
2	DRVR	33	F	H	HNBD		STOPPED	E	A	0100	HONDA	2012	-	3	N	-	M G								

Primary Rd **SR-16 E/B** *Distance (ft)* **50** *Direction* **W** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **003** *Type* **3** *CalTrans* *Badge* **016214** *Collision Date* **20150925** *Time* **2010** *Day* **FRI**
Primary Collision Factor **NOT DRIVER** *Violation* *Collision Type* **OTHER** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20151019**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **ANIMAL** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info																	Victim Info							
Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety Equip*	*ROLE*	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*
1	DRVR	37	M	W	HNBD		STOPPED	E	A	0700	HONDA	2002	-	2	N	-	M G	PASS		49	F	3	0	M	G

Primary Rd **SR-16 E/B** *Distance (ft)* **50** *Direction* **E** *Secondary Rd* **COUNTY ROAD 85** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **016027** *Collision Date* **20150805** *Time* **2350** *Day* **WED**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20151230**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info																	Victim Info							
Party	*Type*	*Age*	*Sex*	*Race*	*Sobriety1*	*Sobriety2*	*Move Pre*	*Dir*	*SW Veh*	*CHP Veh*	*Make*	*Year*	*SP Info*	*OAF1*	*Viol*	*OAF2*	*Safety Equip*	*ROLE*	*Ext Of Inj*	*AGE*	*Sex*	*Seat Pos*	*Safety*	*EQUIP*	*Ejected*
1F	DRVR	65	M	A	HNBD		PROC ST	E	A	0100	BMW	2003	-	3	N	-	M G	PASS		64	F	3	0	M	G
2	DRVR	53	F	A	HNBD		U-TURN	E	A	0700	LEXUS	2008	-	3	N	-	M G	PASS		84	F	3	0	M	G
																		PASS		56	F	6	0	P	G

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Primary Rd **SR-16 EASTBOUND** *Distance (ft)* **0** *Direction* *Secondary Rd* **I-505** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **003** *Type* **3** *CalTrans* *Badge* **018034** *Collision Date* **20151106** *Time* **0150** *Day* **FRI**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20151123**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	37	M	A	HNBD		PROC ST	E	A	0100	TOYT	1996	-	3	N	-	L	H
2	DRVR	38	M	O	HNBD		PROC ST	E	G	2533	PTRB	2006	-	3	N	-	P	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	OTH VIS	37	M	1	0	L	H

Primary Rd **SR-16 W/B** *Distance (ft)* **0** *Direction* *Secondary Rd* **WINNERS WAY** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **003** *Type* **3** *CalTrans* *Badge* **016214** *Collision Date* **20150717** *Time* **1416** *Day* **FRI**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20151019**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	37	M	B	HNBD		RGT TURN	W	A	0700	FORD	2015	-	2	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **SR-16 WESTBOUND** *Distance (ft)* **374** *Direction* **W** *Secondary Rd* **COUNTY ROAD 22** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **024** *Type* **1** *CalTrans* *Badge* **018034** *Collision Date* **20150809** *Time* **1830** *Day* **SUN**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **OVERTURNED** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20151019**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **NON-CLSN** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	31	F	W	HNBD		RAN OFF RD	W	A	0100	FORD	2001	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	SEVERE	31	F	1	0	M	G

Primary Rd **SR-84 (JEFFERSON** *Distance (ft)* **1056** *Direction* **N** *Secondary Rd* **CLARKSBURG RD** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.)** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **013** *Type* **1** *CalTrans* *Badge* **016929** *Collision Date* **20150618** *Time* **1637** *Day* **THU**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20151019**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	61	M	O	HNBD		PROC ST	N	D	2200	TOYOT	2003	-	3	N	-	M	G
2	DRVR	65	M	W	HNBD		LFT TURN	N	D	2200	FORD	2012	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **SR-84 (JEFFERSON** *Distance (ft)* **0** *Direction* *Secondary Rd* **CLARKSBURG RD** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.)** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **013** *Type* **1** *CalTrans* *Badge* **017772** *Collision Date* **20150905** *Time* **1055** *Day* **SAT**
Primary Collision Factor **IMPROP PASS** *Violation* **21751** *Collision Type* **BROADSIDE** *Severity* **INJURY** *#Killed* **0** *#Injured* **4** *Tow Away?* **Y** *Process Date* **20151019**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	17	F	W	HNBD		PASSING	S	A	0100	FORD	2012	-	3	N	-	L	G
2	DRVR	34	F	W	HNBD		LFT TURN	S	A	0700	KIA	2012	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	COMP PN	17	F	1	0	L	G
PASS	COMP PN	15	F	3	0	M	G
DRVR	COMP PN	34	F	1	0	M	G
PASS	OTH VIS	998	F	3	0	M	G

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Primary Rd **STATE ROUTE 113** *Distance (ft)* **98** *Direction* **S** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **023** *Type* **1** *CalTrans* *Badge* **016632** *Collision Date* **20151021** *Time* **0925** *Day* **WED**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **OVERTURNED** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20151026**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **NON-CLSN** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	55	F	W	HNBD		RGT TURN	N	G	2733	FRHT	1983	-	3	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **STATE ROUTE 16** *Distance (ft)* **315** *Direction* **W** *Secondary Rd* **2ND STREET** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **003** *Type* **3** *CalTrans* *Badge* **016254** *Collision Date* **20151027** *Time* **1018** *Day* **TUE**
Primary Collision Factor **NOT STATED** *Violation* *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20151119**
Weather1 **CLOUDY** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	33	F	W		DRUG	RAN OFF RD	W	A	0100	FORD	2006	-	3	A	22107	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	COMP PN	33	F	1	0	M	G

Primary Rd **STATE ROUTE 16** *Distance (ft)* **322** *Direction* **W** *Secondary Rd* **2ND STREET** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **016292** *Collision Date* **20151114** *Time* **2145** *Day* **SAT**
Primary Collision Factor **DRVR ALC|DRG** *Violation* **23152A** *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20151207**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	21	M	W	HBD-UI		RAN OFF RD	W	D	2200	FORD	2004	-	3	A	22107	-	M	G
2	PRKD	998	-				PARKED	-	D	2200	TOYO	1998	-	3	N		-	-	-

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	OTH VIS	21	M	1	0	M	G

Primary Rd **STATE ROUTE 16** *Distance (ft)* **24** *Direction* **E** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **015168** *Collision Date* **20150723** *Time* **2330** *Day* **THU**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20151019**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	32	M	H	HNBD		SLOWING	W	A	0100	HONDA	1995	-	3	N		-	L	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **STATE ROUTE 16** *Distance (ft)* **1056** *Direction* **W** *Secondary Rd* **COUNTY ROAD** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **301** *Type* **1** *CalTrans* *Badge* **017351** *Collision Date* **20150807** *Time* **2250** *Day* **FRI**
Primary Collision Factor **DRVR ALC|DRG** *Violation* **23152A** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20151019**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **NON-CLSN** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	45	F	W	HBD-UI		PROC ST	W	A	0100	CHEVY	2014	-	3	A	22107	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

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Primary Rd **STATE ROUTE 16** *Distance (ft)* **300** *Direction* **W** *Secondary Rd* **COUNTY ROAD 43** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **016351** *Collision Date* **20151220** *Time* **0100** *Day* **SUN**
Primary Collision Factor **DRVR ALC|DRG** *Violation* **23152A** *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20151229**
Weather1 **CLOUDY** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	22	F	W	HBD-UI		UNS TURN	W	A	0100	NISSA	2009	-	3	A	22107	-	L	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	OTH VIS	22	F	1	0	L	G

Primary Rd **STATE ROUTE 16** *Distance (ft)* **500** *Direction* **W** *Secondary Rd* **COUNTY ROAD 45** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **003** *Type* **3** *CalTrans* *Badge* **017629** *Collision Date* **20151124** *Time* **2318** *Day* **TUE**
Primary Collision Factor **DRVR ALC|DRG** *Violation* **23152A** *Collision Type* **OVERTURNED** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20151216**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	26	F	W	HBD-UI		UNS TURN	E	A	0700	SUBA	2014	-	3	A	22107	F	L	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS	OTH VIS	24	M	3	0	L	G

Primary Rd **STATE ROUTE 16** *Distance (ft)* **26** *Direction* **E** *Secondary Rd* **COUNTY ROAD 59** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **013837** *Collision Date* **20150830** *Time* **1620** *Day* **SUN**
Primary Collision Factor **WRONG SIDE** *Violation* **21752D** *Collision Type* **SIDESWIPE** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20151019**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **CONS ZONE** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	52	M	W	HNBD		PASSING	W	D	2200	CHEV	2004	-	3	N	-	M	G
2	DRVR	23	F	W	HNBD		SLOWING	W	D	2300	FORD	1993	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		30	F	3	0	M	G
DRVR	COMP PN	23	F	1	0	M	G
PASS		22	M	3	0	M	G

Primary Rd **STATE ROUTE 16** *Distance (ft)* **2640** *Direction* **W** *Secondary Rd* **COUNTY ROAD 81** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **013837** *Collision Date* **20150804** *Time* **1615** *Day* **TUE**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **OVERTURNED** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20151019**
Weather1 **CLOUDY** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	55	M	W	HNBD		RAN OFF RD	W	D	2200	TOYO	1999	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **STATE ROUTE 16** *Distance (ft)* **1584** *Direction* **E** *Secondary Rd* **COUNTY ROAD 82** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **016351** *Collision Date* **20150731** *Time* **0845** *Day* **FRI**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **OVERTURNED** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20151019**
Weather1 **CLOUDY** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **NON-CLSN** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	23	F	H	HNBD		UNS TURN	W	A	0100	TOYOT	2006	-	3	N	-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	OTH VIS	23	F	1	0	M	G

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Primary Rd **STATE ROUTE 16** *Distance (ft)* **143** *Direction* **W** *Secondary Rd* **SHADOW VALLEY** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **015492** *Collision Date* **20151217** *Time* **0640** *Day* **THU**
Primary Collision Factor **NOT DRIVER** *Violation* *Collision Type* **OTHER** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20151229**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **ANIMAL** *Lighting* **DUSK/DAWN** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1	DRVR	29	F	W	HNBD		PROC ST	E	A	0700	ACURA	2002	-	3	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected

Primary Rd **STATE ROUTE 16** *Distance (ft)* **528** *Direction* **W** *Secondary Rd* **TUTT STREET** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **001** *Type* **3** *CalTrans* *Badge* **018205** *Collision Date* **20151205** *Time* **2020** *Day* **SAT**
Primary Collision Factor **DRVR ALC|DRG** *Violation* **23152A** *Collision Type* **OVERTURNED** *Severity* **INJURY** *#Killed* **0** *#Injured* **3** *Tow Away?* **Y** *Process Date* **20151207**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	26	M	H	HBD-UI		RAN OFF RD	W	D	2200	FORD	2001	-	3	N		-	M	A

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	SEVERE	26	M	1	0	M	G
PASS	OTH VIS	35	F	3	0	M	G
PASS	SEVERE	26	F	6	0	P	H

Primary Rd **STATE ROUTE 16** *Distance (ft)* **0** *Direction* *Secondary Rd* **YOLO AVE** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **013837** *Collision Date* **20151210** *Time* **1535** *Day* **THU**
Primary Collision Factor **STOP SGN|SIG** *Violation* **22450A** *Collision Type* **BROADSIDE** *Severity* **INJURY** *#Killed* **0** *#Injured* **2** *Tow Away?* **Y** *Process Date* **20151216**
Weather1 **CLOUDY** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	78	M	B	HNBD		PROC ST	W	A	0700	SATRU	2007	-	3	N		-	L	G
2	DRVR	59	F	H	HNBD		LFT TURN	S	A	0700	CHEV	2014	-	3	N		-	L	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	COMP PN	78	M	1	0	L	G
DRVR	OTH VIS	59	F	1	0	L	G

Primary Rd **STATE ROUTE 16** *Distance (ft)* **1584** *Direction* **W** *Secondary Rd* **COUNTY ROAD 96** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Woodland** *County* **Yolo** *Population* **4** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **016632** *Collision Date* **20150709** *Time* **0050** *Day* **THU**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20151019**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	52	F	W	HNBD		UNS TURN	E	A	0700	SUZI	2005	-	3	N		-	L	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
DRVR	OTH VIS	52	F	1	0	L	G

Primary Rd **STATE ROUTE 16** *Distance (ft)* **528** *Direction* **W** *Secondary Rd* **TUTT ST** *NCIC* **9280** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Yolo** *Population* **9** *Rpt Dist* *Beat* **034** *Type* **1** *CalTrans* *Badge* **016632** *Collision Date* **20151031** *Time* **0505** *Day* **SAT**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20151111**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip
1F	DRVR	29	M	H	HNBD		UNS TURN	E	A	0100	MITS	2003	-	3	N		-	M	G

Victim Info

ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
PASS		54	M	3	0	M	G

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EXISTING CONDITIONS

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 SR-16 and North Casino Entrance

Cycle (sec):	65	Critical Vol./Cap.(X):	0.205
Loss Time (sec):	6	Average Delay (sec/veh):	6.9
Optimal Cycle:	62	Level Of Service:	A

Street Name:	SR-16						North Casino Entrance					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ovl			Include			Include			Include		
Min. Green:	0	8	8	5	8	0	0	0	0	5	5	5
Y+R:	4.0	5.5	5.5	4.0	5.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	1	0 1	1 0	1	0 0	0 0	0	0 0	1 0	0	0 1
Volume Module:												
Base Vol:	0	38	166	21	38	0	0	0	0	198	0	20
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	38	166	21	38	0	0	0	0	198	0	20
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	38	166	21	38	0	0	0	0	198	0	20
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
PHF Volume:	0	49	213	27	49	0	0	0	0	254	0	26
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	49	213	27	49	0	0	0	0	254	0	26
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	49	213	27	49	0	0	0	0	254	0	26
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	0.81	0.90	0.95	1.00	1.00	1.00	1.00	0.93	1.00	0.83
Lanes:	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Final Sat.:	0	1809	1537	1718	1809	0	0	0	0	1769	0	1583
Capacity Analysis Module:												
Vol/Sat:	0.00	0.03	0.14	0.02	0.03	0.00	0.00	0.00	0.00	0.14	0.00	0.02
Crit Moves:		****		****						****		
Green/Cycle:	0.00	0.13	0.83	0.08	0.21	0.00	0.00	0.00	0.00	0.70	0.00	0.70
Volume/Cap:	0.00	0.21	0.17	0.20	0.13	0.00	0.00	0.00	0.00	0.20	0.00	0.02
Uniform Del:	0.0	25.3	1.1	27.9	20.8	0.0	0.0	0.0	0.0	3.4	0.0	3.0
IncremntDel:	0.0	0.4	0.1	0.7	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Delay/Veh:	0.0	25.7	1.2	28.6	21.0	0.0	0.0	0.0	0.0	3.5	0.0	3.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	25.7	1.2	28.6	21.0	0.0	0.0	0.0	0.0	3.5	0.0	3.0
LOS by Move:	A	C	A	C	C	A	A	A	A	A	A	A
HCM2kAvgQ:	0	26	24	17	21	0	0	0	0	46	0	4

Level Of Service Computation Report
Unknown Method (Future Volume Alternative)

Intersection #2 SR-16 and Central Casino Entrance

Street Name:	SR-16						Central Casino Entrance					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0 0 1 0			0 0 1 0 0			0 0 0 0 0			0 0 0 0 0		
Volume Module:												
Base Vol:	0	203	43	0	238	0	0	0	0	0	0	0
Growth Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Bse:	0	0	0	0	0	0	0	0	0	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	0	0	0	0	0	0	0	0	0
User Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Volume:	0	0	0	0	0	0	0	0	0	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PCE Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MLF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FinalVolume:	0	0	0	0	0	0	0	0	0	0	0	0
Critical Gap Module: >> Population:0 << >> Run Speed(N/S): 30 MPH <<												
Critical Gp:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capacity Module:												
Cnflict Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Potent Cap.:	0	0	0	0	0	0	0	0	0	0	0	0
Level Of Service Module:												
LOS by Move:												
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	0	0	0	0	0	0	0	0	0	0	0	0

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #3 SR-16 and South Casino Entrance

Average Delay (sec/veh): 1.0 Worst Case Level Of Service: B[13.9]

Street Name:	SR-16						South Casino Entrance					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 1 0			0 0 1 0 0			0 0 0 0 0			1 0 0 0 1		
Volume Module:												
Base Vol:	0	244	42	0	241	0	0	0	0	39	0	2
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	244	42	0	241	0	0	0	0	39	0	2
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	244	42	0	241	0	0	0	0	39	0	2
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Volume:	0	306	53	0	302	0	0	0	0	49	0	3
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	306	53	0	302	0	0	0	0	49	0	3
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	634	xxxx	332
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	443	xxxx	710
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	443	xxxx	710
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.11	xxxx	0.00
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	9.2	xxxx	0.3
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	14.1	xxxx	10.1
LOS by Move:	*	*	*	*	*	*	*	*	*	B	*	B
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			13.9		
ApproachLOS:	*			*			*			B		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #4 SR-16 and County Rd 85

Average Delay (sec/veh): 0.6 Worst Case Level Of Service: B[10.7]

Street Name:	County Rd 85									SR-16								
Approach:	North Bound				South Bound				East Bound				West Bound					
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	0	0	0	0	0	1!	0	0	0	1	0	0	0	0	0	1	0	0
Volume Module:																				
Base Vol:	0		0		0	5		0		17	14		307		0	0		270		0
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
Initial Bse:	0		0		0	5		0		17	14		307		0	0		270		0
Added Vol:	0		0		0	0		0		0	0		0		0	0		0		0
PasserByVol:	0		0		0	0		0		0	0		0		0	0		0		0
Initial Fut:	0		0		0	5		0		17	14		307		0	0		270		0
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
PHF Adj:	0.96	0.96		0.96		0.96	0.96		0.96		0.96	0.96		0.96		0.96	0.96		0.96	
PHF Volume:	0		0		0	5		0		18	15		319		0	0		281		0
Reduct Vol:	0		0		0	0		0		0	0		0		0	0		0		0
FinalVolume:	0		0		0	5		0		18	15		319		0	0		281		0
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx	xxxxx			6.4		6.5		6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx				
FollowUpTim:	xxxxx	xxxx	xxxxx			3.5		4.0		3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx				
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx	xxxxx			630		630		281	281	xxxx	xxxxx	xxxx	xxxx	xxxxx				
Potent Cap.:	xxxx	xxxx	xxxxx			446		399		758	1264	xxxx	xxxxx	xxxx	xxxx	xxxxx				
Move Cap.:	xxxx	xxxx	xxxxx			442		394		758	1264	xxxx	xxxxx	xxxx	xxxx	xxxxx				
Volume/Cap:	xxxx	xxxx	xxxx			0.01		0.00		0.02	0.01	xxxx	xxxx	xxxx	xxxx	xxxx				
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx			0.9	xxxx	xxxxx	xxxx	xxxx	xxxxx				
Control Del:	xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			7.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx				
LOS by Move:	*		*		*	*		*		*	A		*		*	*		*		*
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx	xxxxx			xxxx		652	xxxxx		xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx		
SharedQueue:	xxxxx	xxxx	xxxxx			xxxxx		0.1	xxxxx		0.0	xxxx	xxxxx			xxxxx	xxxx	xxxxx		
Shrd ConDel:	xxxxx	xxxx	xxxxx			xxxxx		10.7	xxxxx		7.9	xxxx	xxxxx			xxxxx	xxxx	xxxxx		
Shared LOS:	*		*		*	B		*			A		*		*	*		*		*
ApproachDel:	xxxxxx					10.7					xxxxxx					xxxxxx				
ApproachLOS:	*					B					*					*				

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #5 SR-16 and County Rd 85B

Average Delay (sec/veh): 0.9 Worst Case Level Of Service: A[8.5]

Street Name:	County Rd 85B						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0	0	0 0 0	0	0	0 0 1	0	1	1 0 1	0	0
Volume Module:												
Base Vol:	59	0	2	0	0	0	0	201	118	3	217	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	59	0	2	0	0	0	0	201	118	3	217	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	59	0	2	0	0	0	0	201	118	3	217	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
PHF Volume:	64	0	2	0	0	0	0	217	127	3	234	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	64	0	2	0	0	0	0	217	127	3	234	0
Critical Gap Module:												
Critical Gp:	6.4	6.5	6.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	458	458	217	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	344	xxxx	xxxxx
Potent Cap.:	561	499	823	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1198	xxxx	xxxxx
Move Cap.:	560	498	823	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1198	xxxx	xxxxx
Volume/Cap:	0.11	0.00	0.00	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.00	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.2	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.0	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	1094	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	8.5	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	A	*	*	*	*	*	*	*	*	*	*
ApproachDel:		8.5			xxxxxx			xxxxxx			xxxxxx	
ApproachLOS:		A			*			*			*	

Note: Queue reported is the distance per lane in feet.

6: Yolo Ave & Woodland Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR	All
Denied Del/Veh (s)	0.2	0.2	0.2	0.1	0.1	0.1	0.3	0.4	3.6	0.1	0.1	0.4
Total Del/Veh (s)	5.8	9.8	4.1	6.3	11.8	1.3	0.9	1.9	0.3	7.3	3.2	3.2

Total Network Performance

Denied Del/Veh (s)	0.4
Total Del/Veh (s)	4.1

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #7 SR-16 and Capay St

Average Delay (sec/veh): 1.1 Worst Case Level Of Service: B[12.9]

Street Name:	SR-16						Capay St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			0 0 0 1 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	23	255	10	3	179	7	0	4	14	6	6	2
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	23	255	10	3	179	7	0	4	14	6	6	2
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	23	255	10	3	179	7	0	4	14	6	6	2
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	25	272	11	3	191	7	0	4	15	6	6	2
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	25	272	11	3	191	7	0	4	15	6	6	2
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx	xxxxx	6.5	6.2	7.1	6.5	6.2
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	199	xxxx	xxxxx	283	xxxx	xxxxx	xxxx	534	195	538	532	278
Potent Cap.:	1356	xxxx	xxxxx	1262	xxxx	xxxxx	xxxx	452	846	454	453	761
Move Cap.:	1356	xxxx	xxxxx	1262	xxxx	xxxxx	xxxx	443	846	436	444	761
Volume/Cap:	0.02	xxxx	xxxx	0.00	xxxx	xxxx	xxxx	0.01	0.02	0.01	0.01	0.00
Level Of Service Module:												
2Way95thQ:	1.4	xxxx	xxxxx	0.2	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	7.7	xxxx	xxxxx	7.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	704	xxxx	468	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	0.1	xxxxx	0.1	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	10.3	xxxxx	12.9	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	B	*	B	*
ApproachDel:	xxxxxx			xxxxxx			10.3			12.9		
ApproachLOS:	*			*			B			B		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #8 SR-16 and Madison St

Average Delay (sec/veh): 0.5 Worst Case Level Of Service: B[13.7]

Street Name:	SR-16								Madison St							
Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Lanes:	0	1	0	0 0	0	0	0	1 0	0	0	1!	0 0	0	1	0	0 0
Volume Module:																
Base Vol:	10	309	0	0	235	6			6	0	9		1	1	0	
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	10	309	0	0	235	6			6	0	9		1	1	0	
Added Vol:	0	0	0	0	0	0			0	0	0		0	0	0	
PasserByVol:	0	0	0	0	0	0			0	0	0		0	0	0	
Initial Fut:	10	309	0	0	235	6			6	0	9		1	1	0	
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.97	0.97	0.97	0.97	0.97	0.97			0.97	0.97	0.97		0.97	0.97	0.97	
PHF Volume:	10	319	0	0	243	6			6	0	9		1	1	0	
Reduct Vol:	0	0	0	0	0	0			0	0	0		0	0	0	
FinalVolume:	10	319	0	0	243	6			6	0	9		1	1	0	
Critical Gap Module:																
Critical Gp:	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx			7.1	6.5	6.2		7.1	6.5	xxxxx	
FollowUpTim:	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx			3.5	4.0	3.3		3.5	4.0	xxxxx	
Capacity Module:																
Cnflict Vol:	249	xxxx	xxxxx	xxxx	xxxx	xxxxx			586	586	246		590	589	xxxxx	
Potent Cap.:	1299	xxxx	xxxxx	xxxx	xxxx	xxxxx			422	423	793		419	421	xxxxx	
Move Cap.:	1299	xxxx	xxxxx	xxxx	xxxx	xxxxx			418	419	793		412	417	xxxxx	
Volume/Cap:	0.01	xxxx	xxxx	xxxx	xxxx	xxxx			0.01	0.00	0.01		0.00	0.00	xxxx	
Level Of Service Module:																
2Way95thQ:	0.6	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx				
Control Del:	7.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx				
LOS by Move:	A	*	*	*	*	*	*	*	*	*	*	*				
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT				
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	584	xxxxx	414	xxxx	xxxxx				
SharedQueue:	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.1	xxxxx	0.0	xxxx	xxxxx				
Shrd ConDel:	7.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	11.3	xxxxx	13.7	xxxx	xxxxx				
Shared LOS:	A	*	*	*	*	*	*	B	*	B	*	*				
ApproachDel:	xxxxxx			xxxxxx			11.3			13.7						
ApproachLOS:	*			*			B			B						

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #9 SR-16 and Plainfield St

Average Delay (sec/veh): 1.6 Worst Case Level Of Service: B[14.7]

Street Name:	SR-16						Plainfield St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 1 0	1	0	1 0	0	0	1! 0	0	0	0	1! 0	0
Volume Module:												
Base Vol:	40 309	19	6	226	4	4	4	32	9	3		4
Growth Adj:	1.00 1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00
Initial Bse:	40 309	19	6	226	4	4	4	32	9	3		4
Added Vol:	0 0	0	0	0	0	0	0	0	0	0		0
PasserByVol:	0 0	0	0	0	0	0	0	0	0	0		0
Initial Fut:	40 309	19	6	226	4	4	4	32	9	3		4
User Adj:	1.00 1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00
PHF Adj:	0.92 0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92		0.92
PHF Volume:	43 335	21	7	245	4	4	4	35	10	3		4
Reduct Vol:	0 0	0	0	0	0	0	0	0	0	0		0
FinalVolume:	43 335	21	7	245	4	4	4	35	10	3		4
Critical Gap Module:												
Critical Gp:	4.1 xxxx xxxxx		4.1 xxxx xxxxx			7.1	6.5	6.2	7.1	6.5		6.2
FollowUpTim:	2.2 xxxx xxxxx		2.2 xxxx xxxxx			3.5	4.0	3.3	3.5	4.0		3.3
Capacity Module:												
Cnflict Vol:	249 xxxx xxxxx		356 xxxx xxxxx			516	703	247	712	695		178
Potent Cap.:	1299 xxxx xxxxx		1186 xxxx xxxxx			469	362	791	347	366		865
Move Cap.:	1299 xxxx xxxxx		1186 xxxx xxxxx			450	348	791	319	351		865
Volume/Cap:	0.03 xxxx xxxx		0.01 xxxx xxxx			0.01	0.01	0.04	0.03	0.01		0.01
Level Of Service Module:												
2Way95thQ:	2.6 xxxx xxxxx		0.4 xxxx xxxxx			xxxx	xxxx	xxxxx	xxxx	xxxx		xxxxx
Control Del:	7.9 xxxx xxxxx		8.1 xxxx xxxxx			xxxxx	xxxx	xxxxx	xxxxx	xxxx		xxxxx
LOS by Move:	A *	*	A	*	*	*	*	*	*	*		*
Movement:	LT - LTR - RT		LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			
Shared Cap.:	xxxx xxxx xxxxx		xxxx xxxx xxxxx			xxxx	657	xxxxx	xxxx	387		xxxxx
SharedQueue:	0.1 xxxx xxxxx		xxxxx xxxx xxxxx			xxxxx	0.2	xxxxx	xxxxx	0.1		xxxxx
Shrd ConDel:	7.9 xxxx xxxxx		xxxxx xxxx xxxxx			xxxxx	10.9	xxxxx	xxxxx	14.7		xxxxx
Shared LOS:	A *	*	*	*	*	*	B	*	*	B		*
ApproachDel:	xxxxxx		xxxxxx			10.9			14.7			
ApproachLOS:	*		*			B			B			

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #10 SR-16 and County Road 21A

Cycle (sec):	100	Critical Vol./Cap.(X):	0.384
Loss Time (sec):	0	Average Delay (sec/veh):	9.7
Optimal Cycle:	0	Level Of Service:	A

Street Name:	SR-16						County Road 21A					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Ignore		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	0 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	1 0	1
Volume Module:												
Base Vol:	0	0	0	257	0	8	5	107	0	0	69	361
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	257	0	8	5	107	0	0	69	361
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	257	0	8	5	107	0	0	69	361
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
PHF Adj:	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.00
PHF Volume:	0	0	0	281	0	9	5	117	0	0	76	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	281	0	9	5	117	0	0	76	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
FinalVolume:	0	0	0	281	0	9	5	117	0	0	76	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	0.97	0.00	0.03	0.04	0.96	0.00	0.00	1.00	1.00
Final Sat.:	0	0	0	733	0	23	32	677	0	0	636	725
Capacity Analysis Module:												
Vol/Sat:	xxxx	xxxx	xxxx	0.38	xxxx	0.38	0.17	0.17	xxxx	xxxx	0.12	0.00
Crit Moves:				****			****				****	
Delay/Veh:	0.0	0.0	0.0	10.4	0.0	10.4	8.8	8.8	0.0	0.0	8.8	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	10.4	0.0	10.4	8.8	8.8	0.0	0.0	8.8	0.0
LOS by Move:	*	*	*	B	*	B	A	A	*	*	A	*
ApproachDel:	xxxxxx			10.4			8.8			8.8		
Delay Adj:	xxxxx			1.00			1.00			1.00		
ApprAdjDel:	xxxxxx			10.4			8.8			8.8		
LOS by Appr:	*			B			A			A		
AllWayAvgQ:	0.0	0.0	0.0	14.5	14.5	14.5	4.7	4.7	4.7	0.0	3.0	0.0

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #11 County Rd 85B and County Rd 21A

Average Delay (sec/veh): 5.4 Worst Case Level Of Service: A[9.2]

Street Name:	County Rd 85B									County Rd 21A								
Approach:	North Bound						South Bound						East Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Uncontrolled						Uncontrolled						Stop Sign					
Rights:	Include						Include						Include					
Lanes:	0	0	0	1	0		0	1	0	0	0		0	0	0	0	0	
Volume Module:																		
Base Vol:	0	24		4			88	29		0			0	0		0		
Growth Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
Initial Bse:	0	24		4			88	29		0			0	0		0		
Added Vol:	0	0		0			0	0		0			0	0		0		
PasserByVol:	0	0		0			0	0		0			0	0		0		
Initial Fut:	0	24		4			88	29		0			0	0		0		
User Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
PHF Adj:	0.73	0.73		0.73			0.73	0.73		0.73			0.73	0.73		0.73		
PHF Volume:	0	33		6			121	40		0			0	0		0		
Reduct Vol:	0	0		0			0	0		0			0	0		0		
FinalVolume:	0	33		6			121	40		0			0	0		0		
Critical Gap Module:																		
Critical Gp:	xxxxx	xxxx		xxxxx			4.1	xxxx		xxxxx			xxxx	xxxxx		6.4	6.5	
FollowUpTim:	xxxxx	xxxx		xxxxx			2.2	xxxx		xxxxx			xxxx	xxxxx		3.5	4.0	
Capacity Module:																		
Cnflict Vol:	xxxx	xxxx		xxxxx			39	xxxx		xxxxx			xxxx	xxxx		xxxxx	318	318
Potent Cap.:	xxxx	xxxx		xxxxx			1572	xxxx		xxxxx			xxxx	xxxx		xxxxx	675	598
Move Cap.:	xxxx	xxxx		xxxxx			1572	xxxx		xxxxx			xxxx	xxxx		xxxxx	632	549
Volume/Cap:	xxxx	xxxx		xxxx			0.08	xxxx		xxxx			xxxx	xxxx		xxxx	0.02	0.00
Level Of Service Module:																		
2Way95thQ:	xxxx	xxxx		xxxxx			6.3	xxxx		xxxxx			xxxx	xxxx		xxxxx	xxxx	xxxx
Control Del:	xxxxx	xxxx		xxxxx			7.5	xxxx		xxxxx			xxxxx	xxxx		xxxxx	xxxxx	xxxx
LOS by Move:	*	*		*			A	*		*			*	*		*	*	*
Movement:	LT	-	LTR	-	RT		LT	-	LTR	-	RT		LT	-	LTR	-	RT	
Shared Cap.:	xxxx	xxxx		xxxxx			xxxx	xxxx		xxxxx			xxxx	xxxx		xxxxx	xxxx	905
SharedQueue:	xxxxx	xxxx		xxxxx			0.3	xxxx		xxxxx			xxxxx	xxxx		xxxxx	xxxxx	0.2
Shrd ConDel:	xxxxx	xxxx		xxxxx			7.5	xxxx		xxxxx			xxxxx	xxxx		xxxxx	xxxxx	9.2
Shared LOS:	*	*		*			A	*		*			*	*		*	*	A
ApproachDel:	xxxxxx						xxxxxx						xxxxxx				9.2	
ApproachLOS:	*						*						*				A	

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #12 Country Villa Estates and County Rd 21A

Average Delay (sec/veh): 0.5 Worst Case Level Of Service: A[9.8]

Street Name:	Country Villa Estates									County Rd 21A								
Approach:	North Bound			South Bound			East Bound			West Bound								
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled								
Rights:	Include			Include			Include			Include								
Lanes:	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1!	0	0
Volume Module:																				
Base Vol:	0	0	0	5	0	0	3	98	0	1	43	12								
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
Initial Bse:	0	0	0	5	0	0	3	98	0	1	43	12								
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0								
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0								
Initial Fut:	0	0	0	5	0	0	3	98	0	1	43	12								
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
PHF Adj:	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69								
PHF Volume:	0	0	0	7	0	0	4	143	0	1	63	17								
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0								
FinalVolume:	0	0	0	7	0	0	4	143	0	1	63	17								
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	xxxxx	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx								
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	xxxxx	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx								
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx	xxxxx	226	xxxx	xxxxx	80	xxxx	xxxxx	143	xxxx	xxxxx								
Potent Cap.:	xxxx	xxxx	xxxxx	762	xxxx	xxxxx	1518	xxxx	xxxxx	1440	xxxx	xxxxx								
Move Cap.:	xxxx	xxxx	xxxxx	760	xxxx	xxxxx	1518	xxxx	xxxxx	1440	xxxx	xxxxx								
Volume/Cap:	xxxx	xxxx	xxxx	0.01	xxxx	xxxx	0.00	xxxx	xxxx	0.00	xxxx	xxxx								
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	xxxxx	0.7	xxxx	xxxxx	0.2	xxxx	xxxxx	0.1	xxxx	xxxxx								
Control Del:	xxxxx	xxxx	xxxxx	9.8	xxxx	xxxxx	7.4	xxxx	xxxxx	7.5	xxxx	xxxxx								
LOS by Move:	*	*	*	A	*	*	A	*	*	A	*	*								
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx								
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Shared LOS:	*	*	*	*	*	*	A	*	*	*	*	*								
ApproachDel:	xxxxxx			9.8			xxxxxx			xxxxxx										
ApproachLOS:	*			A			*			*										

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #13 Fremont St and County Rd 21A

Average Delay (sec/veh): 1.9 Worst Case Level Of Service: A[9.7]

Street Name:	Fremont St						County Rd 21A					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			0 0 1! 0 0			0 1 0 0 0			0 0 0 1 0		
Volume Module:												
Base Vol:	0	0	0	20	0	10	17	96	0	0	51	21
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	20	0	10	17	96	0	0	51	21
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	20	0	10	17	96	0	0	51	21
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
PHF Volume:	0	0	0	25	0	13	22	122	0	0	65	27
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	25	0	13	22	122	0	0	65	27
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	242	242	78	91	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	746	659	983	1504	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	738	650	983	1504	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.03	0.00	0.01	0.01	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1.1	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	805	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.1	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	9.7	xxxxx	7.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	A	*	A	*	*	*	*	*
ApproachDel:	xxxxxx			9.7			xxxxxx			xxxxxx		
ApproachLOS:	*			A			*			*		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #14 SR-16 and County Rd 89

Cycle (sec):	100	Critical Vol./Cap.(X):	0.775
Loss Time (sec):	0	Average Delay (sec/veh):	19.4
Optimal Cycle:	0	Level Of Service:	C

Street Name:	County Rd 89						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Ignore			Include			Ignore			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 1	0	0 1	0	0 0	0 1	0	1 0	0 1	0	0 1!	0 0
Volume Module:												
Base Vol:	31	0	35	0	0	1	1	323	11	40	387	2
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	31	0	35	0	0	1	1	323	11	40	387	2
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	31	0	35	0	0	1	1	323	11	40	387	2
User Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Adj:	0.81	0.81	0.00	0.81	0.81	0.81	0.81	0.81	0.00	0.81	0.81	0.81
PHF Volume:	39	0	0	0	0	1	1	401	0	50	481	2
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	39	0	0	0	0	1	1	401	0	50	481	2
PCE Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
FinalVolume:	39	0	0	0	0	1	1	401	0	50	481	2
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.00	1.00	0.00	0.00	1.00	0.01	0.99	1.00	0.09	0.90	0.01
Final Sat.:	461	0	544	0	0	518	2	691	800	64	620	3
Capacity Analysis Module:												
Vol/Sat:	0.08	xxxx	0.00	xxxx	xxxx	0.00	0.58	0.58	0.00	0.78	0.78	0.78
Crit Moves:	****					****		****		****		
Delay/Veh:	10.5	0.0	0.0	0.0	0.0	9.2	14.6	14.6	0.0	23.6	23.6	23.6
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	10.5	0.0	0.0	0.0	0.0	9.2	14.6	14.6	0.0	23.6	23.6	23.6
LOS by Move:	B	*	*	*	*	A	B	B	*	C	C	C
ApproachDel:	10.5			9.2			14.6			23.6		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	10.5			9.2			14.6			23.6		
LOS by Appr:	B			A			B			C		
AllWayAvgQ:	1.9	1.9	0.0	0.0	0.0	0.0	32.5	32.5	0.0	73.5	73.5	73.5

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #15 SR-16 and SB I-505

Average Delay (sec/veh): 0.3 Worst Case Level Of Service: B[13.9]

Street Name:	SB I-505								SR-16							
Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	0	0 0	0	1	0	0 1	0	0	0	1 0	0	0	1	0 1
Volume Module:																
Base Vol:	0	0	0		4	2	11		0	236	120		0	425	57	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	0	0	0		4	2	11		0	236	120		0	425	57	
Added Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	0	0	0		4	2	11		0	236	120		0	425	57	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.81	0.81	0.81		0.81	0.81	0.81		0.81	0.81	0.81		0.81	0.81	0.81	
PHF Volume:	0	0	0		5	2	14		0	290	148		0	523	70	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
FinalVolume:	0	0	0		5	2	14		0	290	148		0	523	70	
Critical Gap Module:																
Critical Gp:	xxxxx	xxxx	xxxxx		6.4	6.6	6.3		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
FollowUpTim:	xxxxx	xxxx	xxxxx		3.5	4.0	3.3		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Capacity Module:																
Cnflict Vol:	xxxx	xxxx	xxxxx		887	961	523		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Potent Cap.:	xxxx	xxxx	xxxxx		311	253	548		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Move Cap.:	xxxx	xxxx	xxxxx		311	253	548		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Volume/Cap:	xxxx	xxxx	xxxx		0.02	0.01	0.02		xxxx	xxxx	xxxx		xxxx	xxxx	xxxx	
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	xxxxx		xxxx	xxxx	1.9		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Control Del:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	11.7		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
LOS by Move:	*	*	*		*	*	B		*	*	*		*	*	*	
Movement:	LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT	
Shared Cap.:	xxxx	xxxx	xxxxx		289	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
SharedQueue:	xxxxx	xxxx	xxxxx		0.1	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shrd ConDel:	xxxxx	xxxx	xxxxx		17.8	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shared LOS:	*	*	*		C	*	*		*	*	*		*	*	*	
ApproachDel:	xxxxxx				13.9				xxxxxx				xxxxxx			
ApproachLOS:	*				B				*				*			

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #16 SR-16 and NB I-505

Cycle (sec):	50	Critical Vol./Cap.(X):	0.413
Loss Time (sec):	6	Average Delay (sec/veh):	9.2
Optimal Cycle:	47	Level Of Service:	A

Street Name:	NB I-505						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Ignore			Include		
Min. Green:	5	5	5	0	0	0	0	5	5	0	5	5
Y+R:	4.1	4.1	4.1	4.0	4.0	4.0	4.0	5.5	5.5	4.0	5.5	5.5
Lanes:	0 1	0	0 1	0	0	0 0	0	0	1 0 1	0	0	1 0 1
Volume Module:												
Base Vol:	178	0	82	0	0	0	0	240	3	0	303	4
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	178	0	82	0	0	0	0	240	3	0	303	4
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	178	0	82	0	0	0	0	240	3	0	303	4
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Adj:	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.00	0.84	0.84	0.84
PHF Volume:	212	0	98	0	0	0	0	286	0	0	361	5
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	212	0	98	0	0	0	0	286	0	0	361	5
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
FinalVolume:	212	0	98	0	0	0	0	286	0	0	361	5
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.68	1.00	0.81	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.81
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00
Final Sat.:	1291	0	1537	0	0	0	0	1809	1900	0	1809	1537
Capacity Analysis Module:												
Vol/Sat:	0.16	0.00	0.06	0.00	0.00	0.00	0.00	0.16	0.00	0.00	0.20	0.00
Crit Moves:	****										****	
Green/Cycle:	0.40	0.00	0.40	0.00	0.00	0.00	0.00	0.48	0.00	0.00	0.48	0.48
Volume/Cap:	0.41	0.00	0.16	0.00	0.00	0.00	0.00	0.33	0.00	0.00	0.41	0.01
Uniform Del:	10.9	0.0	9.7	0.0	0.0	0.0	0.0	7.9	0.0	0.0	8.4	6.7
IncremntDel:	0.5	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.3	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00
Delay/Veh:	11.4	0.0	9.8	0.0	0.0	0.0	0.0	8.2	0.0	0.0	8.7	6.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	11.4	0.0	9.8	0.0	0.0	0.0	0.0	8.2	0.0	0.0	8.7	6.7
LOS by Move:	B	A	A	A	A	A	A	A	A	A	A	A
HCM2kAvgQ:	70	0	27	0	0	0	0	73	0	0	88	1

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #17 SR-16 and Wild Wings Dr

Average Delay (sec/veh): 1.4 Worst Case Level Of Service: C[15.4]

Street Name:	Wild Wings Dr						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			1 0 0 0 1			1 0 1 0 0			0 0 1 0 1		
Volume Module:												
Base Vol:	0	0	0	54	0	7	15	321	0	0	303	88
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	54	0	7	15	321	0	0	303	88
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	54	0	7	15	321	0	0	303	88
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
PHF Volume:	0	0	0	60	0	8	17	359	0	0	339	98
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	60	0	8	17	359	0	0	339	98
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	732	xxxx	339	437	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	389	xxxx	703	1107	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	384	xxxx	703	1107	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.16	xxxx	0.01	0.02	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	13.8	xxxx	0.8	1.2	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	16.1	xxxx	10.2	8.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	C	*	B	A	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			15.4			xxxxxx			xxxxxx		
ApproachLOS:	*			C			*			*		

Note: Queue reported is the distance per lane in feet.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #18 SR-16 and County Rd 94B

Average Delay (sec/veh): 0.9 Worst Case Level Of Service: C[18.2]

Street Name:	County Rd 94B						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			0 1 0 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	6	0	14	8	5	5	2	358	0	17	391	1
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	6	0	14	8	5	5	2	358	0	17	391	1
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	6	0	14	8	5	5	2	358	0	17	391	1
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
PHF Volume:	7	0	16	9	6	6	2	421	0	20	459	1
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	7	0	16	9	6	6	2	421	0	20	459	1
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	931	926	421	934	925	460	461	xxxx	xxxxx	421	xxxx	xxxxx
Potent Cap.:	247	269	633	246	269	601	1085	xxxx	xxxxx	1123	xxxx	xxxxx
Move Cap.:	237	263	633	236	263	601	1085	xxxx	xxxxx	1123	xxxx	xxxxx
Volume/Cap:	0.03	0.00	0.03	0.04	0.02	0.01	0.00	xxxx	xxxx	0.02	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.2	xxxx	xxxxx	1.4	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.3	xxxx	xxxxx	8.3	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	421	xxxxx	xxxx	294	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.2	xxxxx	xxxxx	0.2	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	14.0	xxxxx	xxxxx	18.2	xxxxx	8.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	B	*	*	C	*	A	*	*	*	*	*
ApproachDel:	14.0			18.2			xxxxxx			xxxxxx		
ApproachLOS:	B			C			*			*		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #19 SR-16 and County Rd 95

Average Delay (sec/veh): 0.9 Worst Case Level Of Service: C[17.0]

Street Name:	County Rd 95						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0	0	0 0 0	1	0	0 0 1	0	0	0 1 0	0	0
Volume Module:												
Base Vol:	6	3	22	0	6	2	0	381	0	25	397	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	6	3	22	0	6	2	0	381	0	25	397	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	6	3	22	0	6	2	0	381	0	25	397	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	7	3	24	0	7	2	0	422	0	28	440	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	7	3	24	0	7	2	0	422	0	28	440	0
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	xxxxx	6.5	6.2	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	4.0	3.3	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	921	917	422	xxxx	917	440	xxxx	xxxx	xxxxx	422	xxxx	xxxxx
Potent Cap.:	251	272	632	xxxx	272	617	xxxx	xxxx	xxxxx	1121	xxxx	xxxxx
Move Cap.:	241	265	632	xxxx	265	617	xxxx	xxxx	xxxxx	1121	xxxx	xxxxx
Volume/Cap:	0.03	0.01	0.04	xxxx	0.03	0.00	xxxx	xxxx	xxxx	0.02	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1.9	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.3	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	436	xxxxx	xxxx	xxxx	309	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.3	xxxxx	xxxxx	xxxx	0.1	xxxxx	xxxx	xxxxx	0.1	xxxx	xxxxx
Shrd ConDel:	xxxxx	14.0	xxxxx	xxxxx	xxxx	17.0	xxxxx	xxxx	xxxxx	8.3	xxxx	xxxxx
Shared LOS:	*	B	*	*	*	C	*	*	*	A	*	*
ApproachDel:		14.0			17.0			xxxxxx			xxxxxx	
ApproachLOS:		B			C			*			*	

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #20 SR-16 and County Rd 98

Cycle (sec):	80	Critical Vol./Cap.(X):	0.400
Loss Time (sec):	12	Average Delay (sec/veh):	25.3
Optimal Cycle:	80	Level Of Service:	C

Street Name:	County Rd 98						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	5	5	5	5	6	6	5	5	5
Y+R:	4.0	6.0	6.0	4.0	6.0	6.0	4.0	5.3	5.3	4.0	5.3	5.3
Lanes:	1 0	0	1 0	1 0	1	0 1	1 0	1	0	1 0	1	0 1
Volume Module:												
Base Vol:	87	124	78	60	175	64	112	251	121	65	190	51
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	87	124	78	60	175	64	112	251	121	65	190	51
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	87	124	78	60	175	64	112	251	121	65	190	51
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	93	132	83	64	186	68	119	267	129	69	202	54
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	93	132	83	64	186	68	119	267	129	69	202	54
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	93	132	83	64	186	68	119	267	129	69	202	54
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.92	0.92	0.93	0.98	0.83	0.90	0.86	0.86	0.90	0.95	0.81
Lanes:	1.00	0.61	0.39	1.00	1.00	1.00	1.00	1.35	0.65	1.00	1.00	1.00
Final Sat.:	1769	1077	677	1769	1862	1583	1718	2205	1063	1718	1809	1537
Capacity Analysis Module:												
Vol/Sat:	0.05	0.12	0.12	0.04	0.10	0.04	0.07	0.12	0.12	0.04	0.11	0.04
Crit Moves:		****		****			****				****	
Green/Cycle:	0.15	0.31	0.31	0.09	0.24	0.24	0.17	0.30	0.30	0.15	0.28	0.28
Volume/Cap:	0.34	0.40	0.40	0.40	0.41	0.18	0.40	0.41	0.41	0.26	0.40	0.13
Uniform Del:	30.3	21.9	21.9	34.3	25.4	23.9	29.4	22.4	22.4	29.8	23.4	21.5
IncremntDel:	0.8	0.5	0.5	1.6	0.6	0.2	0.9	0.3	0.3	0.5	0.5	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	31.1	22.4	22.4	36.0	26.0	24.1	30.2	22.6	22.6	30.3	23.9	21.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	31.1	22.4	22.4	36.0	26.0	24.1	30.2	22.6	22.6	30.3	23.9	21.7
LOS by Move:	C	C	C	D	C	C	C	C	C	C	C	C
HCM2kAvgQ:	59	111	111	37	94	32	64	99	99	43	108	26

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #21 SR-16 and W. Kentucky Ave

Cycle (sec):	80	Critical Vol./Cap.(X):	0.361
Loss Time (sec):	12	Average Delay (sec/veh):	19.9
Optimal Cycle:	80	Level Of Service:	B

Street Name:	SR-16						W. Kentucky Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	5	5	5	5	5	5	5	5	5
Y+R:	4.0	6.0	6.0	4.0	6.0	6.0	4.0	5.3	5.3	4.0	5.3	5.3
Lanes:	1 0	0	1 0	1 0	0	1 0	1 0	0	1 0	1 0	0	1 0
Volume Module:												
Base Vol:	18	187	90	13	152	33	24	35	7	81	59	20
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	18	187	90	13	152	33	24	35	7	81	59	20
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	18	187	90	13	152	33	24	35	7	81	59	20
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
PHF Volume:	23	241	116	17	196	43	31	45	9	105	76	26
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	23	241	116	17	196	43	31	45	9	105	76	26
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	23	241	116	17	196	43	31	45	9	105	76	26
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.90	0.91	0.91	0.90	0.93	0.93	0.93	0.96	0.96	0.93	0.94	0.94
Lanes:	1.00	0.68	0.32	1.00	0.82	0.18	1.00	0.83	0.17	1.00	0.75	0.25
Final Sat.:	1718	1161	559	1718	1446	314	1769	1513	303	1769	1338	453
Capacity Analysis Module:												
Vol/Sat:	0.01	0.21	0.21	0.01	0.14	0.14	0.02	0.03	0.03	0.06	0.06	0.06
Crit Moves:		****		****				****		****		
Green/Cycle:	0.19	0.55	0.55	0.06	0.42	0.42	0.12	0.08	0.08	0.16	0.12	0.12
Volume/Cap:	0.07	0.38	0.38	0.16	0.32	0.32	0.15	0.38	0.38	0.38	0.48	0.48
Uniform Del:	26.4	10.2	10.2	35.5	15.6	15.6	31.7	35.0	35.0	30.2	33.0	33.0
IncremntDel:	0.1	0.3	0.3	0.7	0.3	0.3	0.3	1.7	1.7	0.9	1.7	1.7
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	26.5	10.4	10.4	36.2	15.8	15.8	32.0	36.6	36.6	31.1	34.7	34.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	26.5	10.4	10.4	36.2	15.8	15.8	32.0	36.6	36.6	31.1	34.7	34.7
LOS by Move:	C	B	B	D	B	B	C	D	D	C	C	C
HCM2kAvgQ:	11	121	121	13	101	101	20	43	43	67	75	75

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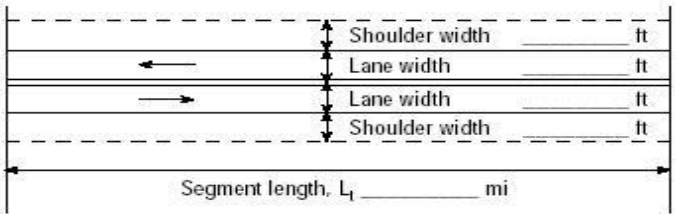
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*CCCR to County Road 85*
Date Performed	*3/23/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Existing (2016)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *287*veh/h

Opposing direction vol., V_o *321*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *6.7*

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☐ Level ☑ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.88*

No-passing zone *75%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*2.1*	*2.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.1*	*1.1*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.944*	*0.944*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*0.85*	*0.88*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*406*	*439*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*3.1 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*51.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*41.9 mi/h*
		Percent free flow speed, PFFS	*81.3 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.7*	*1.7*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.966*	*0.966*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*0.86*	*0.88*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*393*	*429*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*43.3*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*42.6*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*63.7*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.24*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1474*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1533*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*81.3*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*326.1*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.01*
Bicycle level of service (Exhibit 15-4)	*E*
Notes	

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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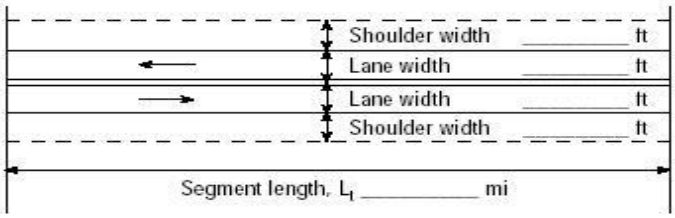
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*CCCR to County Road 85*
Date Performed	*3/23/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Existing (2016)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☐ Level ☑ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.88*

No-passing zone *75%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *3*/mi

Analysis direction vol., V_d *321*veh/h

Opposing direction vol., V_o *287*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *6.7*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*2.1*	*2.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.1*	*1.1*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.944*	*0.944*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*0.88*	*0.85*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*439*	*406*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*3.1 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*51.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*41.9 mi/h*
		Percent free flow speed, PFFS	*81.3 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.7*	*1.7*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.966*	*0.966*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*0.88*	*0.86*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*429*	*393*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*45.1*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*42.6*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*67.3*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.26*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1452*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1485*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*81.3*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*364.8*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.06*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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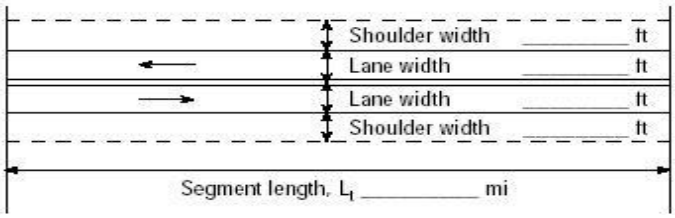
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*County Road 85 to Esparto Town*
Date Performed	*3/23/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Existing (2016)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *276*veh/h

Opposing direction vol., V_o *319*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *1.4*

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.95*

No-passing zone *85%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *5*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.4*	*1.4*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.980*	*0.980*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*296*	*343*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.3 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*3.2 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*42.1 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*33.9 mi/h*
		Percent free flow speed, PFFS	*80.6 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*292*	*337*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*32.5*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*53.1*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*57.2*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*C*
Volume to capacity ratio, *v/c*	*0.17*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1666*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*80.6*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*290.5*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.95*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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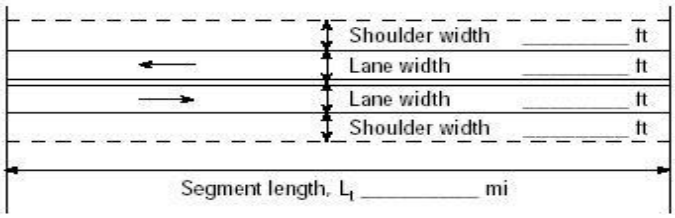
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*County Road 85 to Esparto Town*
Date Performed	*3/23/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Existing (2016)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *319*veh/h

Opposing direction vol., V_o *276*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *1.4*

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.95*

No-passing zone *85%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *5*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.4*	*1.4*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.980*	*0.980*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*343*	*296*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.3 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*3.2 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*42.1 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*33.9 mi/h*
		Percent free flow speed, PFFS	*80.6 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*337*	*292*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*36.5*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*53.1*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*64.9*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*C*
Volume to capacity ratio, *v/c*	*0.20*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*80.6*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*335.8*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.02*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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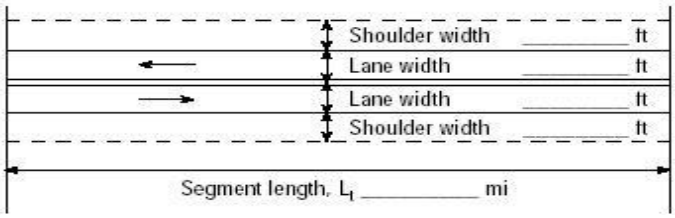
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*through Esparto Town*
Date Performed	*3/23/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Existing (2016)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.93*

No-passing zone *95%*

Analysis direction vol., V_d *366*veh/h

Opposing direction vol., V_o *265*veh/h

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Shoulder width ft *2.0*

Lane Width ft *12.0*

Access points *mi* *14*/mi

Segment Length mi *1.2*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.4*	*1.5*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.980*	*0.976*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*402*	*292*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*3.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*3.2 mi/h*	Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*38.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*30.3 mi/h*
		Percent free flow speed, PFFS	*77.9 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*396*	*286*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*39.5*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*49.4*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*68.2*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*C*
Volume to capacity ratio, *v/c*	*0.23*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*77.9*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*393.5*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.10*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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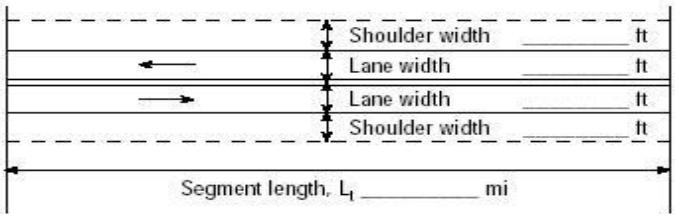
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*through Esparto Town*
Date Performed	*3/23/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Existing (2016)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Analysis direction vol., V_d	*263*veh/h	Grade Length mi	Up/down
Opposing direction vol., V_o	*366*veh/h	Peak-hour factor, PHF	*0.93*
Shoulder width ft	*2.0*	No-passing zone	*95%*
Lane Width ft	*12.0*	% Trucks and Buses , P_T	*5 %*
Segment Length mi	*1.2*	% Recreational vehicles, P_R	*4%*
		Access points *mi*	*14*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.5*	*1.4*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.976*	*0.980*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*290*	*402*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*3.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*3.2 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*38.9 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*30.3 mi/h*
		Percent free flow speed, PFFS	*78.0 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*284*	*396*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*33.4*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*49.5*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*54.1*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*B*
Volume to capacity ratio, *v/c*	*0.17*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1675*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*78.0*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*282.8*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.93*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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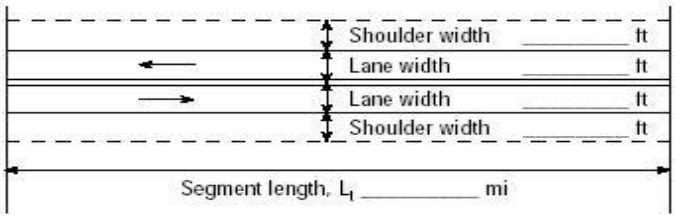
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*Esparto Town to County Rd 89*
Date Performed	*3/23/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Existing (2016)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.86*

No-passing zone *80%*

Analysis direction vol., V_d *430*veh/h

Opposing direction vol., V_o *364*veh/h

% Trucks and Buses , P_T *5* %

% Recreational vehicles, P_R *4%*

Access points *mi* *3*/mi

Shoulder width ft *4.0*

Lane Width ft *12.0*

Segment Length mi *2.7*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.3*	*1.4*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.985*	*0.980*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*508*	*432*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.7 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*42.9 mi/h*
		Percent free flow speed, PFFS	*81.1 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*502*	*425*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*49.6*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*39.4*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*70.9*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.30*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1675*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*81.1*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*500.0*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.92*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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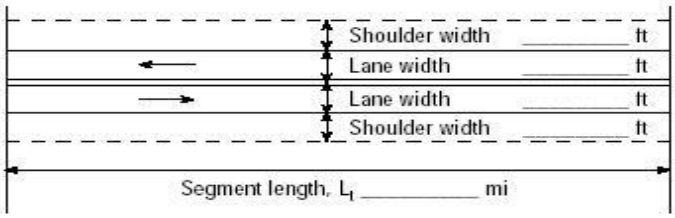
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*Esparto Town to County Rd 89*
Date Performed	*3/23/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Existing (2016)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *364*veh/h

Opposing direction vol., V_o *430*veh/h

Shoulder width ft *4.0*

Lane Width ft *12.0*

Segment Length mi *2.7*

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.86*

No-passing zone *80%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.4*	*1.3*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.980*	*0.985*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*432*	*508*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.7 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*42.9 mi/h*
		Percent free flow speed, PFFS	*81.1 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*425*	*502*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*47.0*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*39.4*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*65.1*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.25*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1683*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*81.1*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*423.3*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.84*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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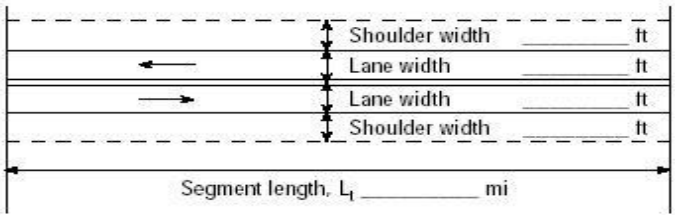
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*County Rd 89 to I-505*
Date Performed	*3/23/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Existing (2016)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *436*veh/h
Opposing direction vol., V_o *358*veh/h
Shoulder width ft *4.0*
Lane Width ft *12.0*
Segment Length mi *0.8*

☑ Class I highway ☐ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.81*
No-passing zone *70%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *4*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.3*	*1.4*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.985*	*0.980*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*546*	*451*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.0 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.6 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.7 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*42.4 mi/h*
		Percent free flow speed, PFFS	*80.4 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*541*	*444*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*52.4*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*37.1*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*72.8*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.32*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1675*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*80.4*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*538.3*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.96*
Bicycle level of service (Exhibit 15-4)	*E*
Notes	
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain. 2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10. 6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.	

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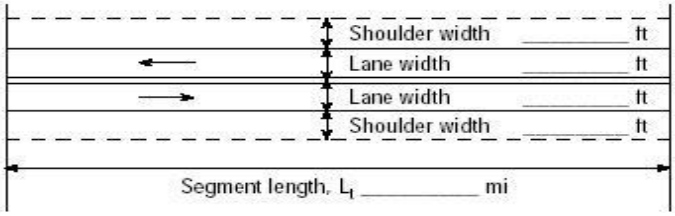
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*County Rd 89 to I-505*
Date Performed	*3/23/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Existing (2016)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *358*veh/h
Opposing direction vol., V_o *436*veh/h
Shoulder width ft *4.0*
Lane Width ft *12.0*
Segment Length mi *0.8*

Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.81*
No-passing zone *70%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *4*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.4*	*1.3*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.980*	*0.985*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*451*	*546*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.0 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.6 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.7 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*42.4 mi/h*
		Percent free flow speed, PFFS	*80.4 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*444*	*541*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*48.6*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*37.1*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*65.3*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.27*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1683*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*80.4*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*442.0*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.86*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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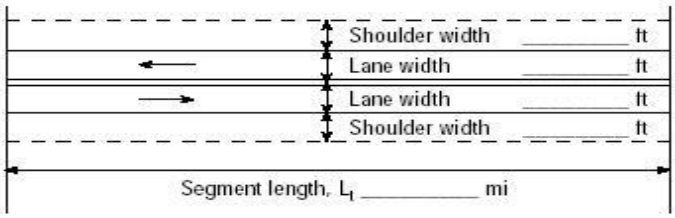
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*I-505 to County Rd 98*
Date Performed	*3/23/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Existing (2016)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *341*veh/h
Opposing direction vol., V_o *484*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *8.3*

☑ Class I highway ☐ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.89*
No-passing zone *50%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *35*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.4*	*1.3*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.980*	*0.985*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*391*	*552*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*8.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.5 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*43.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*33.8 mi/h*
		Percent free flow speed, PFFS	*77.5 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*385*	*547*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*44.0*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*34.0*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*58.0*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.23*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1683*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*77.5*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*383.1*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.09*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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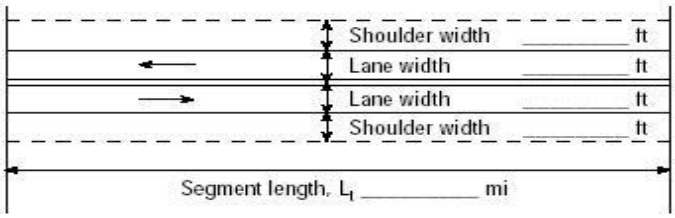
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*I-505 to County Rd 98*
Date Performed	*3/23/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Existing (2016)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *484*veh/h
Opposing direction vol., V_o *341*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *8.3*

☑ Class I highway ☐ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.89*
No-passing zone *50%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *35*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.3*	*1.4*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.985*	*0.980*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*552*	*391*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*8.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.6 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*43.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*33.7 mi/h*
		Percent free flow speed, PFFS	*77.3 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*547*	*385*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*51.6*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*34.0*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*71.6*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.32*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1675*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*77.3*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*543.8*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.27*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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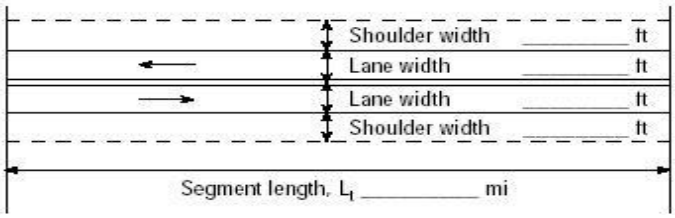
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 21A (EB)*
Agency or Company	*Yolo County*	From/To	*County Rd 85 to SR-16*
Date Performed	*3/23/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Existing (2016)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *112*veh/h
Opposing direction vol., V_o *77*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *1.2*

☐ Class I highway ☑ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.82*
No-passing zone *25%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* 7/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.9*	*1.9*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.957*	*0.957*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*143*	*98*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*0.2 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*40.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*38.5 mi/h*
		Percent free flow speed, PFFS	*94.9 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*137*	*94*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*15.5*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*34.0*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*35.7*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*A*
Volume to capacity ratio, *v/c*	*0.08*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*94.9*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*136.6*
Effective width, Wv (Eq. 15-29) ft	*20.16*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.51*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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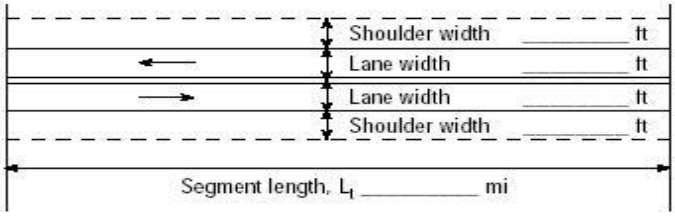
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 21A (WB)*
Agency or Company	*Yolo County*	From/To	*County Rd 85 to SR-16*
Date Performed	*3/23/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Existing (2016)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Analysis direction vol., V_d	*77*veh/h	Grade Length	mi Up/down
Opposing direction vol., V_o	*112*veh/h	Peak-hour factor, PHF	*0.82*
Shoulder width ft	*2.0*	No-passing zone	*25%*
Lane Width ft	*12.0*	% Trucks and Buses , P_T	*5 %*
Segment Length mi	*1.2*	% Recreational vehicles, P_R	*4%*
		Access points *mi*	7/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.9*	*1.9*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.957*	*0.957*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*98*	*143*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*0.2 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*40.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*38.5 mi/h*
		Percent free flow speed, PFFS	*94.9 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*94*	*137*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*11.0*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*34.0*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*24.8*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*A*
Volume to capacity ratio, *v/c*	*0.06*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1635*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*94.9*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*93.9*
Effective width, Wv (Eq. 15-29) ft	*22.61*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*2.80*
Bicycle level of service (Exhibit 15-4)	*C*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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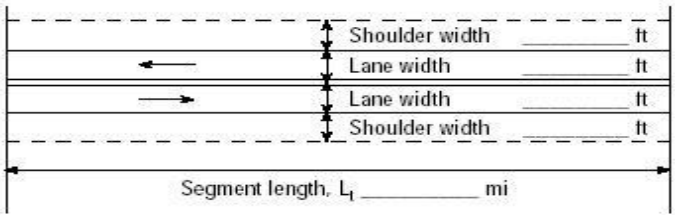
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 85B (NB)*
Agency or Company	*Yolo County*	From/To	*SR-16 to County Rd 21A*
Date Performed	*3/23/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Existing (2016)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.83*

No-passing zone *80%*

Analysis direction vol., V_d *61*veh/h

Opposing direction vol., V_o *121*veh/h

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *6*/mi

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *0.9*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.9*	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.957*	*0.962*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*77*	*152*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*1.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.5 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*40.9 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*36.6 mi/h*
		Percent free flow speed, PFFS	*89.5 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*74*	*147*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*8.8*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*49.9*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*25.5*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*A*
Volume to capacity ratio, *v/c*	*0.04*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1642*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*89.5*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*73.5*
Effective width, Wv (Eq. 15-29) ft	*23.73*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*2.41*
Bicycle level of service (Exhibit 15-4)	*B*
Notes	

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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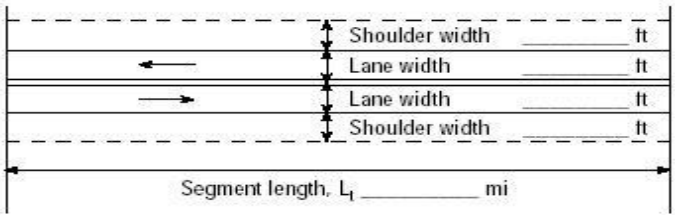
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 85B (SB)*
Agency or Company	*Yolo County*	From/To	*SR-16 to County Rd 21A*
Date Performed	*3/23/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Existing (2016)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *121*veh/h
Opposing direction vol., V_o *61*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *0.9*

☐ Class I highway ☑ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.83*
No-passing zone *80%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *6*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.8*	*1.9*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.962*	*0.957*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*152*	*77*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.2 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*40.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*36.9 mi/h*
		Percent free flow speed, PFFS	*90.3 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*147*	*74*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*16.5*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*49.9*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*49.7*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*B*
Volume to capacity ratio, *v/c*	*0.09*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*90.3*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*145.8*
Effective width, Wv (Eq. 15-29) ft	*19.53*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.67*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 SR-16 and North Casino Entrance

Cycle (sec):	65	Critical Vol./Cap.(X):	0.215
Loss Time (sec):	6	Average Delay (sec/veh):	5.3
Optimal Cycle:	62	Level Of Service:	A

Street Name:	SR-16						North Casino Entrance					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ovl			Include			Include			Include		
Min. Green:	0	8	8	5	8	0	0	0	0	5	5	5
Y+R:	4.0	5.5	5.5	4.0	5.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	1	0 1	1 0	1	0 0	0 0	0	0 0	1 0	0	0 1
Volume Module:												
Base Vol:	0	33	305	19	38	0	0	0	0	269	0	9
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	33	305	19	38	0	0	0	0	269	0	9
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	33	305	19	38	0	0	0	0	269	0	9
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
PHF Volume:	0	35	328	20	41	0	0	0	0	289	0	10
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	35	328	20	41	0	0	0	0	289	0	10
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	35	328	20	41	0	0	0	0	289	0	10
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	0.81	0.90	0.95	1.00	1.00	1.00	1.00	0.93	1.00	0.83
Lanes:	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Final Sat.:	0	1809	1537	1718	1809	0	0	0	0	1769	0	1583
Capacity Analysis Module:												
Vol/Sat:	0.00	0.02	0.21	0.01	0.02	0.00	0.00	0.00	0.00	0.16	0.00	0.01
Crit Moves:		****		****						****		
Green/Cycle:	0.00	0.13	0.83	0.08	0.21	0.00	0.00	0.00	0.00	0.70	0.00	0.70
Volume/Cap:	0.00	0.15	0.26	0.15	0.11	0.00	0.00	0.00	0.00	0.23	0.00	0.01
Uniform Del:	0.0	25.1	1.2	27.8	20.8	0.0	0.0	0.0	0.0	3.5	0.0	2.9
IncremntDel:	0.0	0.3	0.1	0.5	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Delay/Veh:	0.0	25.4	1.3	28.3	20.9	0.0	0.0	0.0	0.0	3.6	0.0	2.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	25.4	1.3	28.3	20.9	0.0	0.0	0.0	0.0	3.6	0.0	2.9
LOS by Move:	A	C	A	C	C	A	A	A	A	A	A	A
HCM2kAvgQ:	0	19	41	13	18	0	0	0	0	54	0	2

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Level Of Service Computation Report
Unknown Method (Future Volume Alternative)

Intersection #2 SR-16 and Central Casino Entrance

Street Name:	SR-16						Central Casino Entrance					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0 0 1 0			0 0 1 0 0			0 0 0 0 0			0 0 0 0 0		
Volume Module:												
Base Vol:	0	329	89	0	304	0	0	0	0	0	0	0
Growth Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Bse:	0	0	0	0	0	0	0	0	0	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	0	0	0	0	0	0	0	0	0
User Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Volume:	0	0	0	0	0	0	0	0	0	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PCE Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MLF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FinalVolume:	0	0	0	0	0	0	0	0	0	0	0	0
Critical Gap Module: >> Population:0 << >> Run Speed(N/S): 30 MPH <<												
Critical Gp:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capacity Module:												
Cnflict Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Potent Cap.:	0	0	0	0	0	0	0	0	0	0	0	0
Level Of Service Module:												
LOS by Move:												
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	0	0	0	0	0	0	0	0	0	0	0	0

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #3 SR-16 and South Casino Entrance

Average Delay (sec/veh): 1.7 Worst Case Level Of Service: C[18.5]

Street Name:	SR-16						South Casino Entrance					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 1 0			0 0 1 0 0			0 0 0 0 0			1 0 0 0 1		
Volume Module:												
Base Vol:	0	424	109	0	292	0	0	0	0	81	0	1
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	424	109	0	292	0	0	0	0	81	0	1
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	424	109	0	292	0	0	0	0	81	0	1
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	445	114	0	307	0	0	0	0	85	0	1
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	445	114	0	307	0	0	0	0	85	0	1
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	809	xxxx	503
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	350	xxxx	569
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	350	xxxx	569
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.24	xxxx	0.00
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	23.5	xxxx	0.1
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	18.6	xxxx	11.3
LOS by Move:	*	*	*	*	*	*	*	*	*	C	*	B
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			18.5		
ApproachLOS:	*			*			*			C		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #4 SR-16 and County Rd 85

Average Delay (sec/veh): 0.3 Worst Case Level Of Service: B[14.9]

Street Name:	County Rd 85						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			0 0 1! 0 0			0 1 0 0 0			0 0 0 1 0		
Volume Module:												
Base Vol:	0	0	0	5	0	9	9	335	0	0	553	3
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	5	0	9	9	335	0	0	553	3
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	5	0	9	9	335	0	0	553	3
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
PHF Volume:	0	0	0	6	0	10	10	369	0	0	610	3
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	6	0	10	10	369	0	0	610	3
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	1001	1001	611	613	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	269	243	494	952	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	267	240	494	952	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.02	0.00	0.02	0.01	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.8	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	379	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.1	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	14.9	xxxxx	8.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	B	*	A	*	*	*	*	*
ApproachDel:	xxxxxx			14.9			xxxxxx			xxxxxx		
ApproachLOS:	*			B			*			*		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #5 SR-16 and County Rd 85B

Average Delay (sec/veh): 1.5 Worst Case Level Of Service: B[12.8]

Street Name:	County Rd 85B						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 0 0 0			0 0 1 0 1			1 0 1 0 0		
Volume Module:												
Base Vol:	101	0	2	0	0	0	0	219	116	3	442	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	101	0	2	0	0	0	0	219	116	3	442	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	101	0	2	0	0	0	0	219	116	3	442	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	110	0	2	0	0	0	0	238	126	3	480	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	110	0	2	0	0	0	0	238	126	3	480	0
Critical Gap Module:												
Critical Gp:	6.4	6.5	6.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	725	725	238	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	364	xxxx	xxxxx
Potent Cap.:	392	352	801	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1178	xxxx	xxxxx
Move Cap.:	391	351	801	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1178	xxxx	xxxxx
Volume/Cap:	0.28	0.00	0.00	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.00	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.2	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.1	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	576	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.7	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	12.8	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	B	*	*	*	*	*	*	*	*	*	*
ApproachDel:	12.8			xxxxxx			xxxxxx			xxxxxx		
ApproachLOS:	B			*			*			*		

Note: Queue reported is the distance per lane in feet.

6: Yolo Ave & Woodland Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR	All
Denied Del/Veh (s)	0.4	0.5	0.3	0.1	0.1	0.1	0.4	0.4	3.2	0.1	0.1	0.3
Total Del/Veh (s)	11.7	13.1	5.5	8.0	12.5	1.8	1.5	3.1	0.5	9.5	4.9	3.5

Total Network Performance

Denied Del/Veh (s)	0.3
Total Del/Veh (s)	4.9

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #7 SR-16 and Capay St

Average Delay (sec/veh): 0.9 Worst Case Level Of Service: C[16.4]

Street Name:	SR-16						Capay St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	30	467	11	3	239	7	5	2	23	3	1	3
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	30	467	11	3	239	7	5	2	23	3	1	3
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	30	467	11	3	239	7	5	2	23	3	1	3
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
PHF Volume:	34	532	13	3	272	8	6	2	26	3	1	3
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	34	532	13	3	272	8	6	2	26	3	1	3
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx	7.1	6.5	6.2	7.1	6.5	6.2
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	3.5	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	280	xxxx	xxxxx	544	xxxx	xxxxx	892	896	276	904	894	538
Potent Cap.:	1265	xxxx	xxxxx	1010	xxxx	xxxxx	263	280	763	258	281	543
Move Cap.:	1265	xxxx	xxxxx	1010	xxxx	xxxxx	254	271	763	242	272	543
Volume/Cap:	0.03	xxxx	xxxx	0.00	xxxx	xxxx	0.02	0.01	0.03	0.01	0.00	0.01
Level Of Service Module:												
2Way95thQ:	2.1	xxxx	xxxxx	0.3	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	7.9	xxxx	xxxxx	8.6	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	524	xxxxx	xxxx	324	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.2	xxxxx	xxxxx	0.1	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	12.3	xxxxx	xxxxx	16.4	xxxxx
Shared LOS:	*	*	*	*	*	*	*	B	*	*	C	*
ApproachDel:	xxxxxx			xxxxxx			12.3			16.4		
ApproachLOS:	*			*			B			C		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #8 SR-16 and Madison St

Average Delay (sec/veh): 0.4 Worst Case Level Of Service: B[11.6]

Street Name:	SR-16								Madison St							
Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Lanes:	0	1	0	0 0	0	0	0	1 0	0	0	1!	0 0	0	0	1!	0 0
Volume Module:																
Base Vol:	14	500	0	0	256	6			5	0	14		0	0	0	
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	14	500	0	0	256	6			5	0	14		0	0	0	
Added Vol:	0	0	0	0	0	0			0	0	0		0	0	0	
PasserByVol:	0	0	0	0	0	0			0	0	0		0	0	0	
Initial Fut:	14	500	0	0	256	6			5	0	14		0	0	0	
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.93	0.93	0.93	0.93	0.93	0.93			0.93	0.93	0.93		0.93	0.93	0.93	
PHF Volume:	15	536	0	0	274	6			5	0	15		0	0	0	
Reduct Vol:	0	0	0	0	0	0			0	0	0		0	0	0	
FinalVolume:	15	536	0	0	274	6			5	0	15		0	0	0	
Critical Gap Module:																
Critical Gp:	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx			6.4	6.5	6.2		7.1	6.5	6.2	
FollowUpTim:	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx			3.5	4.0	3.3		3.5	4.0	3.3	
Capacity Module:																
Cnflict Vol:	281	xxxx	xxxxx	xxxx	xxxx	xxxxx			844	844	278		851	847	536	
Potent Cap.:	1265	xxxx	xxxxx	xxxx	xxxx	xxxxx			334	300	761		280	299	545	
Move Cap.:	1265	xxxx	xxxxx	xxxx	xxxx	xxxxx			331	297	761		272	295	545	
Volume/Cap:	0.01	xxxx	xxxx	xxxx	xxxx	xxxx			0.02	0.00	0.02		0.00	0.00	0.00	
Level Of Service Module:																
2Way95thQ:	0.9	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx				
Control Del:	7.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx				
LOS by Move:	A	*	*	*	*	*	*	*	*	*	*	*				
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT				
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	567	xxxxx	xxxx	0	xxxxx				
SharedQueue:	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.1	xxxxx	xxxxx	xxxx	xxxxx				
Shrd ConDel:	7.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	11.6	xxxxx	xxxxx	xxxx	xxxxx				
Shared LOS:	A	*	*	*	*	*	*	B	*	*	*	*				
ApproachDel:	xxxxxx			xxxxxx			11.6			xxxxxx						
ApproachLOS:	*			*			B			*						

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #9 SR-16 and Plainfield St

Average Delay (sec/veh): 1.2 Worst Case Level Of Service: C[18.6]

Street Name:	SR-16						Plainfield St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 1 0 1 0			1 0 0 1 0			0 0 1! 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	27	522	12	8	254	5	5	8	17	9	8	3
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	27	522	12	8	254	5	5	8	17	9	8	3
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	27	522	12	8	254	5	5	8	17	9	8	3
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
PHF Volume:	28	540	12	8	263	5	5	8	18	9	8	3
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	28	540	12	8	263	5	5	8	18	9	8	3
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx	7.1	6.5	6.2	7.1	6.5	6.2
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	3.5	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	268	xxxx	xxxxx	552	xxxx	xxxxx	612	890	265	897	886	276
Potent Cap.:	1279	xxxx	xxxxx	1003	xxxx	xxxxx	405	282	773	261	283	763
Move Cap.:	1279	xxxx	xxxxx	1003	xxxx	xxxxx	385	273	773	243	275	763
Volume/Cap:	0.02	xxxx	xxxx	0.01	xxxx	xxxx	0.01	0.03	0.02	0.04	0.03	0.00
Level Of Service Module:												
2Way95thQ:	1.7	xxxx	xxxxx	0.6	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	7.9	xxxx	xxxxx	8.6	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	467	xxxxx	xxxx	286	xxxxx
SharedQueue:	0.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.2	xxxxx	xxxxx	0.2	xxxxx
Shrd ConDel:	7.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	13.3	xxxxx	xxxxx	18.6	xxxxx
Shared LOS:	A	*	*	*	*	*	*	B	*	*	C	*
ApproachDel:	xxxxxx			xxxxxx			13.3			18.6		
ApproachLOS:	*			*			B			C		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #10 SR-16 and County Road 21A

Cycle (sec):	100	Critical Vol./Cap.(X):	0.442
Loss Time (sec):	0	Average Delay (sec/veh):	10.5
Optimal Cycle:	0	Level Of Service:	B

Street Name:	SR-16						County Road 21A					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Ignore		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	0 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	1 0	1
Volume Module:												
Base Vol:	0	0	0	276	0	7	4	120	0	0	105	558
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	276	0	7	4	120	0	0	105	558
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	276	0	7	4	120	0	0	105	558
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
PHF Adj:	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.00
PHF Volume:	0	0	0	314	0	8	5	136	0	0	119	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	314	0	8	5	136	0	0	119	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
FinalVolume:	0	0	0	314	0	8	5	136	0	0	119	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	0.98	0.00	0.02	0.03	0.97	0.00	0.00	1.00	1.00
Final Sat.:	0	0	0	709	0	18	22	661	0	0	620	705
Capacity Analysis Module:												
Vol/Sat:	xxxx	xxxx	xxxx	0.44	xxxx	0.44	0.21	0.21	xxxx	xxxx	0.19	0.00
Crit Moves:				****				****			****	
Delay/Veh:	0.0	0.0	0.0	11.4	0.0	11.4	9.2	9.2	0.0	0.0	9.5	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	11.4	0.0	11.4	9.2	9.2	0.0	0.0	9.5	0.0
LOS by Move:	*	*	*	B	*	B	A	A	*	*	A	*
ApproachDel:	xxxxxx			11.4			9.2			9.5		
Delay Adj:	xxxxx			1.00			1.00			1.00		
ApprAdjDel:	xxxxxx			11.4			9.2			9.5		
LOS by Appr:	*			B			A			A		
AllWayAvgQ:	0.0	0.0	0.0	18.1	18.1	18.1	5.8	5.8	5.8	0.0	5.3	0.0

Note: Queue reported is the distance per lane in feet.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #11 County Rd 85B and County Rd 21A

Average Delay (sec/veh): 6.0 Worst Case Level Of Service: A[8.9]

Street Name:	County Rd 85B									County Rd 21A								
Approach:	North Bound						South Bound			East Bound						West Bound		
Movement:	L	-	T	-	R		L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled						Uncontrolled			Stop Sign						Stop Sign		
Rights:	Include						Include			Include						Include		
Lanes:	0	0	1	0	0		0	1	0	0	0	0	0	0	0	0	0	0	1!	0	0
Volume Module:																					
Base Vol:	0	32		0			87	24		0		0	0		0		1	0		71	
Growth Adj:	1.00	1.00		1.00			1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
Initial Bse:	0	32		0			87	24		0		0	0		0		1	0		71	
Added Vol:	0	0		0			0	0		0		0	0		0		0	0		0	
PasserByVol:	0	0		0			0	0		0		0	0		0		0	0		0	
Initial Fut:	0	32		0			87	24		0		0	0		0		1	0		71	
User Adj:	1.00	1.00		1.00			1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
PHF Adj:	0.79	0.79		0.79			0.79	0.79		0.79		0.79	0.79		0.79		0.79	0.79		0.79	
PHF Volume:	0	41		0			111	31		0		0	0		0		1	0		90	
Reduct Vol:	0	0		0			0	0		0		0	0		0		0	0		0	
FinalVolume:	0	41		0			111	31		0		0	0		0		1	0		90	
Critical Gap Module:																					
Critical Gp:	xxxxx	xxxx	xxxxx		4.1		xxxx	xxxxx	xxxxx	xxxx	xxxxx		6.4	6.5		6.2					
FollowUpTim:	xxxxx	xxxx	xxxxx		2.2		xxxx	xxxxx	xxxxx	xxxx	xxxxx		3.5	4.0		3.3					
Capacity Module:																					
Cnflict Vol:	xxxx	xxxx	xxxxx		41		xxxx	xxxxx	xxxx	xxxx	xxxxx		293	293		41					
Potent Cap.:	xxxx	xxxx	xxxxx		1569		xxxx	xxxxx	xxxx	xxxx	xxxxx		698	618		1030					
Move Cap.:	xxxx	xxxx	xxxxx		1569		xxxx	xxxxx	xxxx	xxxx	xxxxx		658	572		1030					
Volume/Cap:	xxxx	xxxx	xxxx		0.07		xxxx	xxxx	xxxx	xxxx	xxxx		0.00	0.00		0.09					
Level Of Service Module:																					
2Way95thQ:	xxxx	xxxx	xxxxx		5.7		xxxx	xxxxx	xxxx	xxxx	xxxxx		xxxx	xxxx		xxxxx					
Control Del:	xxxxx	xxxx	xxxxx		7.5		xxxx	xxxxx	xxxxx	xxxx	xxxxx		xxxxx	xxxx		xxxxx					
LOS by Move:	*	*	*		A		*	*	*	*	*		*	*		*					
Movement:	LT	-	LTR	-	RT		LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx	xxxxx		xxxx		xxxx	xxxxx	xxxx	xxxx	xxxxx		xxxx	1022		xxxxx					
SharedQueue:	xxxxx	xxxx	xxxxx		0.2		xxxx	xxxxx	xxxxx	xxxx	xxxxx		xxxxx	0.3		xxxxx					
Shrd ConDel:	xxxxx	xxxx	xxxxx		7.5		xxxx	xxxxx	xxxxx	xxxx	xxxxx		xxxxx	8.9		xxxxx					
Shared LOS:	*	*	*		A		*	*	*	*	*		*	A		*					
ApproachDel:	xxxxxx				xxxxxx				xxxxxx					8.9							
ApproachLOS:	*				*				*					A							

Note: Queue reported is the distance per lane in feet.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #12 Country Villa Estates and County Rd 21A

Average Delay (sec/veh): 0.1 Worst Case Level Of Service: A[9.9]

Street Name:	Country Villa Estates									County Rd 21A								
Approach:	North Bound			South Bound			East Bound			West Bound								
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled								
Rights:	Include			Include			Include			Include								
Lanes:	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	1	0
Volume Module:																				
Base Vol:	0	0	0	3	0	0	0	105	0	0	82	9								
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
Initial Bse:	0	0	0	3	0	0	0	105	0	0	82	9								
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0								
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0								
Initial Fut:	0	0	0	3	0	0	0	105	0	0	82	9								
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
PHF Adj:	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79								
PHF Volume:	0	0	0	4	0	0	0	133	0	0	104	11								
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0								
FinalVolume:	0	0	0	4	0	0	0	133	0	0	104	11								
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx	xxxxx	243	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx								
Potent Cap.:	xxxx	xxxx	xxxxx	746	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx								
Move Cap.:	xxxx	xxxx	xxxxx	746	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx								
Volume/Cap:	xxxx	xxxx	xxxx	0.01	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx								
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	xxxxx	0.4	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx								
Control Del:	xxxxx	xxxx	xxxxx	9.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
LOS by Move:	*	*	*	A	*	*	*	*	*	*	*	*								
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx		
SharedQueue:	xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx		
Shrd ConDel:	xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx		
Shared LOS:	*	*	*			*	*	*			*	*	*			*	*	*		
ApproachDel:	xxxxxx					9.9					xxxxxx					xxxxxx				
ApproachLOS:	*					A					*					*				

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #13 Fremont St and County Rd 21A

Average Delay (sec/veh): 1.2 Worst Case Level Of Service: A[9.9]

Street Name:	Fremont St						County Rd 21A					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			0 0 1! 0 0			0 1 0 0 0			0 0 0 1 0		
Volume Module:												
Base Vol:	0	0	0	14	0	8	10	106	0	0	84	25
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	14	0	8	10	106	0	0	84	25
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	14	0	8	10	106	0	0	84	25
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
PHF Volume:	0	0	0	19	0	11	13	141	0	0	112	33
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	19	0	11	13	141	0	0	112	33
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	295	295	128	145	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	696	616	922	1438	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	691	610	922	1438	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.03	0.00	0.01	0.01	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.7	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	760	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.1	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	9.9	xxxxx	7.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	A	*	A	*	*	*	*	*
ApproachDel:	xxxxxx			9.9			xxxxxx			xxxxxx		
ApproachLOS:	*			A			*			*		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #14 SR-16 and County Rd 89

Cycle (sec):	100	Critical Vol./Cap.(X):	0.935
Loss Time (sec):	0	Average Delay (sec/veh):	31.2
Optimal Cycle:	0	Level Of Service:	D

Street Name:	County Rd 89						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Ignore			Include			Ignore			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 1	0 0	1	0 0	1! 0	0	0 1	0 0	1	0 1	0 0	0
Volume Module:												
Base Vol:	36	1	38	1	0	1	0	353	20	37	586	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	36	1	38	1	0	1	0	353	20	37	586	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	36	1	38	1	0	1	0	353	20	37	586	0
User Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Adj:	0.96	0.96	0.00	0.96	0.96	0.96	0.96	0.96	0.00	0.96	0.96	0.96
PHF Volume:	37	1	0	1	0	1	0	367	0	39	610	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	37	1	0	1	0	1	0	367	0	39	610	0
PCE Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
FinalVolume:	37	1	0	1	0	1	0	367	0	39	610	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.97	0.03	1.00	0.50	0.00	0.50	0.00	1.00	1.00	0.06	0.94	0.00
Final Sat.:	454	13	551	248	0	248	0	679	782	41	652	0
Capacity Analysis Module:												
Vol/Sat:	0.08	0.08	0.00	0.00	xxxx	0.00	xxxx	0.54	0.00	0.94	0.94	xxxx
Crit Moves:		****		****				****		****		
Delay/Veh:	10.7	10.7	0.0	9.8	0.0	9.8	0.0	13.8	0.0	42.4	42.4	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	10.7	10.7	0.0	9.8	0.0	9.8	0.0	13.8	0.0	42.4	42.4	0.0
LOS by Move:	B	B	*	A	*	A	*	B	*	E	E	*
ApproachDel:	10.7			9.8			13.8			42.4		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	10.7			9.8			13.8			42.4		
LOS by Appr:	B			A			B			E		
AllWayAvgQ:	2.0	2.0	0.0	0.1	0.1	0.1	27.7	27.7	0.0	164	164	164.5

Note: Queue reported is the distance per lane in feet.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #15 SR-16 and SB I-505

Average Delay (sec/veh): 0.2 Worst Case Level Of Service: C[16.8]

Street Name:	SB I-505								SR-16							
Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	0	0 0	0	1	0	0 1	0	0	0	1 0	0	0	1	0 1
Volume Module:																
Base Vol:	0	0	0		6	1	7		0	169	181		0	644	34	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	0	0	0		6	1	7		0	169	181		0	644	34	
Added Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	0	0	0		6	1	7		0	169	181		0	644	34	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.89	0.89	0.89		0.89	0.89	0.89		0.89	0.89	0.89		0.89	0.89	0.89	
PHF Volume:	0	0	0		7	1	8		0	191	204		0	727	38	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
FinalVolume:	0	0	0		7	1	8		0	191	204		0	727	38	
Critical Gap Module:																
Critical Gp:	xxxxx	xxxx	xxxxx		6.4	6.6	6.3		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
FollowUpTim:	xxxxx	xxxx	xxxxx		3.5	4.0	3.3		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Capacity Module:																
Cnflict Vol:	xxxx	xxxx	xxxxx		1020	1122	727		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Potent Cap.:	xxxx	xxxx	xxxxx		259	203	419		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Move Cap.:	xxxx	xxxx	xxxxx		259	203	419		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Volume/Cap:	xxxx	xxxx	xxxx		0.03	0.01	0.02		xxxx	xxxx	xxxx		xxxx	xxxx	xxxx	
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	xxxxx		xxxx	xxxx	1.4		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Control Del:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	13.8		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
LOS by Move:	*	*	*		*	*	B		*	*	*		*	*	*	
Movement:	LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT	
Shared Cap.:	xxxx	xxxx	xxxxx		249	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
SharedQueue:	xxxxx	xxxx	xxxxx		0.1	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shrd ConDel:	xxxxx	xxxx	xxxxx		19.9	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shared LOS:	*	*	*		C	*	*		*	*	*		*	*	*	
ApproachDel:	xxxxxx				16.8				xxxxxx				xxxxxx			
ApproachLOS:	*				C				*				*			

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #16 SR-16 and NB I-505

Cycle (sec):	50	Critical Vol./Cap.(X):	0.596
Loss Time (sec):	6	Average Delay (sec/veh):	11.8
Optimal Cycle:	47	Level Of Service:	B

Street Name:	NB I-505						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Ignore			Include		
Min. Green:	5	5	5	0	0	0	0	5	5	0	5	5
Y+R:	4.1	4.1	4.1	4.0	4.0	4.0	4.0	5.5	5.5	4.0	5.5	5.5
Lanes:	0 1	0	0 1	0	0	0 0	0	0	1 0 1	0	0	1 0 1
Volume Module:												
Base Vol:	353	0	46	0	0	0	0	171	5	0	334	6
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	353	0	46	0	0	0	0	171	5	0	334	6
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	353	0	46	0	0	0	0	171	5	0	334	6
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Adj:	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.00	0.87	0.87	0.87
PHF Volume:	404	0	53	0	0	0	0	196	0	0	383	7
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	404	0	53	0	0	0	0	196	0	0	383	7
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
FinalVolume:	404	0	53	0	0	0	0	196	0	0	383	7
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.68	1.00	0.81	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.81
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00
Final Sat.:	1291	0	1537	0	0	0	0	1809	1900	0	1809	1537
Capacity Analysis Module:												
Vol/Sat:	0.31	0.00	0.03	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.21	0.00
Crit Moves:	****										****	
Green/Cycle:	0.53	0.00	0.53	0.00	0.00	0.00	0.00	0.35	0.00	0.00	0.35	0.35
Volume/Cap:	0.60	0.00	0.07	0.00	0.00	0.00	0.00	0.31	0.00	0.00	0.60	0.01
Uniform Del:	8.2	0.0	5.8	0.0	0.0	0.0	0.0	11.7	0.0	0.0	13.2	10.5
IncremntDel:	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	1.5	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00
Delay/Veh:	9.7	0.0	5.9	0.0	0.0	0.0	0.0	11.9	0.0	0.0	14.7	10.5
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	9.7	0.0	5.9	0.0	0.0	0.0	0.0	11.9	0.0	0.0	14.7	10.5
LOS by Move:	A	A	A	A	A	A	A	B	A	A	B	B
HCM2kAvgQ:	132	0	11	0	0	0	0	60	0	0	121	2

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #17 SR-16 and Wild Wings Dr

Average Delay (sec/veh): 1.7 Worst Case Level Of Service: B[14.2]

Street Name:	Wild Wings Dr						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			1 0 0 0 1			1 0 1 0 0			0 0 1 0 1		
Volume Module:												
Base Vol:	0	0	0	65	0	14	9	216	0	0	314	69
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	65	0	14	9	216	0	0	314	69
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	65	0	14	9	216	0	0	314	69
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
PHF Volume:	0	0	0	76	0	16	11	252	0	0	367	81
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	76	0	16	11	252	0	0	367	81
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	640	xxxx	367	447	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	440	xxxx	678	1097	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	436	xxxx	678	1097	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.17	xxxx	0.02	0.01	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	15.6	xxxx	1.9	0.7	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	15.0	xxxx	10.4	8.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	B	*	B	A	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			14.2			xxxxxx			xxxxxx		
ApproachLOS:	*			B			*			*		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #18 SR-16 and County Rd 94B

Average Delay (sec/veh): 0.7 Worst Case Level Of Service: B[13.7]

Street Name:	County Rd 94B						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0	0	0 0 0	1	0	0 1 0	0	0	0 0 1!	0	0
Volume Module:												
Base Vol:	6	0	5	0	4	11	4	273	0	9	357	1
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	6	0	5	0	4	11	4	273	0	9	357	1
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	6	0	5	0	4	11	4	273	0	9	357	1
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
PHF Volume:	7	0	6	0	5	12	5	308	0	10	403	1
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	7	0	6	0	5	12	5	308	0	10	403	1
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	xxxxx	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	749	742	308	xxxx	741	403	404	xxxx	xxxxx	308	xxxx	xxxxx
Potent Cap.:	328	344	732	xxxx	344	647	1139	xxxx	xxxxx	1236	xxxx	xxxxx
Move Cap.:	315	340	732	xxxx	340	647	1139	xxxx	xxxxx	1236	xxxx	xxxxx
Volume/Cap:	0.02	0.00	0.01	xxxx	0.01	0.02	0.00	xxxx	xxxx	0.01	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.3	xxxx	xxxxx	0.6	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.2	xxxx	xxxxx	7.9	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	425	xxxxx	xxxx	xxxx	521	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.1	xxxxx	xxxxx	xxxx	0.1	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	13.7	xxxxx	xxxxx	xxxx	12.1	8.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	B	*	*	*	B	A	*	*	*	*	*
ApproachDel:	13.7			12.1			xxxxxx			xxxxxx		
ApproachLOS:	B			B			*			*		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #19 SR-16 and County Rd 95

Average Delay (sec/veh): 0.9 Worst Case Level Of Service: C[15.6]

Street Name:	County Rd 95						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0	0	0 0 1	0	0	0 0 1	0	0	0 1	0	0 0
Volume Module:												
Base Vol:	10	3	22	0	4	0	0	276	0	19	358	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	10	3	22	0	4	0	0	276	0	19	358	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	10	3	22	0	4	0	0	276	0	19	358	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	11	3	24	0	4	0	0	300	0	21	389	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	11	3	24	0	4	0	0	300	0	21	389	0
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	xxxxx	6.5	xxxxx	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	4.0	xxxxx	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	733	730	300	xxxx	730	xxxxx	xxxx	xxxx	xxxxx	300	xxxx	xxxxx
Potent Cap.:	336	349	740	xxxx	349	xxxxx	xxxx	xxxx	xxxxx	1244	xxxx	xxxxx
Move Cap.:	329	343	740	xxxx	343	xxxxx	xxxx	xxxx	xxxxx	1244	xxxx	xxxxx
Volume/Cap:	0.03	0.01	0.03	xxxx	0.01	xxxx	xxxx	xxxx	xxxx	0.02	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	1.0	xxxxx	xxxx	xxxx	xxxxx	1.3	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	15.6	xxxxx	xxxxx	xxxx	xxxxx	7.9	xxxx	xxxxx
LOS by Move:	*	*	*	*	C	*	*	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	508	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	0.1	xxxx	xxxxx
Shrd ConDel:	xxxxx	12.7	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.9	xxxx	xxxxx
Shared LOS:	*	B	*	*	*	*	*	*	*	A	*	*
ApproachDel:	12.7			15.6			xxxxxx			xxxxxx		
ApproachLOS:	B			C			*			*		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #20 SR-16 and County Rd 98

Cycle (sec):	80	Critical Vol./Cap.(X):	0.351
Loss Time (sec):	12	Average Delay (sec/veh):	24.4
Optimal Cycle:	80	Level Of Service:	C

Street Name:	County Rd 98						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	5	5	5	5	6	6	5	5	5
Y+R:	4.0	6.0	6.0	4.0	6.0	6.0	4.0	5.3	5.3	4.0	5.3	5.3
Lanes:	1 0	0	1 0	1 0	1	0 1	1 0	1	0	1 0	1	0 1
Volume Module:												
Base Vol:	97	114	81	47	107	57	56	199	80	43	214	45
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	97	114	81	47	107	57	56	199	80	43	214	45
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	97	114	81	47	107	57	56	199	80	43	214	45
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
PHF Volume:	100	118	84	49	110	59	58	205	83	44	221	46
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	100	118	84	49	110	59	58	205	83	44	221	46
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	100	118	84	49	110	59	58	205	83	44	221	46
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.92	0.92	0.93	0.98	0.83	0.90	0.87	0.87	0.90	0.95	0.81
Lanes:	1.00	0.58	0.42	1.00	1.00	1.00	1.00	1.43	0.57	1.00	1.00	1.00
Final Sat.:	1769	1021	725	1769	1862	1583	1718	2346	943	1718	1809	1537
Capacity Analysis Module:												
Vol/Sat:	0.06	0.12	0.12	0.03	0.06	0.04	0.03	0.09	0.09	0.03	0.12	0.03
Crit Moves:		****		****			****				****	
Green/Cycle:	0.20	0.33	0.33	0.08	0.20	0.20	0.10	0.26	0.26	0.18	0.35	0.35
Volume/Cap:	0.28	0.35	0.35	0.35	0.29	0.18	0.35	0.34	0.34	0.14	0.35	0.09
Uniform Del:	26.9	20.4	20.4	35.0	27.0	26.4	33.8	24.1	24.1	27.3	19.4	17.5
IncremntDel:	0.4	0.4	0.4	1.5	0.4	0.3	1.3	0.2	0.2	0.2	0.3	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	27.3	20.8	20.8	36.5	27.4	26.7	35.1	24.3	24.3	27.5	19.7	17.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	27.3	20.8	20.8	36.5	27.4	26.7	35.1	24.3	24.3	27.5	19.7	17.6
LOS by Move:	C	C	C	D	C	C	D	C	C	C	B	B
HCM2kAvgQ:	57	98	98	28	56	29	33	73	73	25	105	20

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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #21 SR-16 and W. Kentucky Ave

Cycle (sec):	80	Critical Vol./Cap.(X):	0.216
Loss Time (sec):	12	Average Delay (sec/veh):	19.4
Optimal Cycle:	80	Level Of Service:	B

Street Name:	SR-16						W. Kentucky Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	5	5	5	5	5	5	5	5	5
Y+R:	4.0	6.0	6.0	4.0	6.0	6.0	4.0	5.3	5.3	4.0	5.3	5.3
Lanes:	1 0	0	1 0	1 0	0	1 0	1 0	0	1 0	1 0	0	1 0
Volume Module:												
Base Vol:	5	134	64	12	133	25	15	34	12	42	46	8
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	5	134	64	12	133	25	15	34	12	42	46	8
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	5	134	64	12	133	25	15	34	12	42	46	8
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
PHF Volume:	5	144	69	13	143	27	16	36	13	45	49	9
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	5	144	69	13	143	27	16	36	13	45	49	9
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	5	144	69	13	143	27	16	36	13	45	49	9
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.90	0.91	0.91	0.90	0.93	0.93	0.93	0.94	0.94	0.93	0.96	0.96
Lanes:	1.00	0.68	0.32	1.00	0.84	0.16	1.00	0.74	0.26	1.00	0.85	0.15
Final Sat.:	1718	1165	557	1718	1486	279	1769	1323	467	1769	1551	270
Capacity Analysis Module:												
Vol/Sat:	0.00	0.12	0.12	0.01	0.10	0.10	0.01	0.03	0.03	0.03	0.03	0.03
Crit Moves:		****		****				****		****		
Green/Cycle:	0.24	0.55	0.55	0.06	0.37	0.37	0.12	0.12	0.12	0.11	0.12	0.12
Volume/Cap:	0.01	0.22	0.22	0.12	0.26	0.26	0.08	0.22	0.22	0.22	0.27	0.27
Uniform Del:	23.1	9.2	9.2	35.4	17.5	17.5	31.4	31.6	31.6	32.2	32.1	32.1
IncremntDel:	0.0	0.1	0.1	0.5	0.2	0.2	0.2	0.5	0.5	0.6	0.7	0.7
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	23.1	9.3	9.3	35.9	17.7	17.7	31.5	32.1	32.1	32.8	32.8	32.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	23.1	9.3	9.3	35.9	17.7	17.7	31.5	32.1	32.1	32.8	32.8	32.8
LOS by Move:	C	A	A	D	B	B	C	C	C	C	C	C
HCM2kAvgQ:	2	65	65	10	74	74	10	32	32	30	38	38

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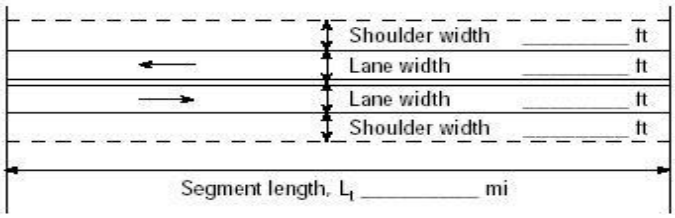
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*CCCR to County Road 85*
Date Performed	*3/23/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Existing (2016)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *562*veh/h
Opposing direction vol., V_o *373*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *6.7*

☑ Class I highway ☐ Class II highway ☐ Class III highway
Terrain ☐ Level ☑ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.93*
No-passing zone *75%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.8*	*2.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.1*	*1.1*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.958*	*0.944*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*0.97*	*0.90*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*650*	*472*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.6 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*51.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*40.3 mi/h*
		Percent free flow speed, PFFS	*78.1 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.4*	*1.7*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.980*	*0.966*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*0.97*	*0.90*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*635*	*461*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*58.1*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*32.9*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*77.2*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.38*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1507*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1567*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*78.1*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*604.3*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.32*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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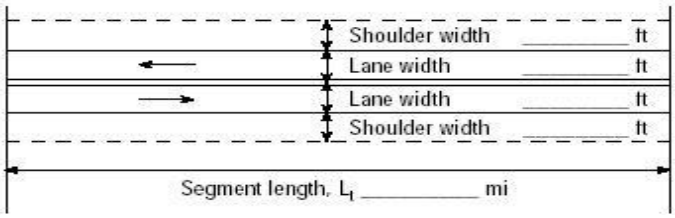
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*CCCR to County Road 85*
Date Performed	*3/23/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Existing (2016)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *373*veh/h
Opposing direction vol., V_o *562*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *6.7*

☑ Class I highway ☐ Class II highway ☐ Class III highway
Terrain ☐ Level ☑ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.93*
No-passing zone *75%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*2.1*	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.1*	*1.1*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.944*	*0.958*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*0.90*	*0.97*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*472*	*650*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.8 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*51.6 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*41.1 mi/h*
		Percent free flow speed, PFFS	*79.6 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.7*	*1.4*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.966*	*0.980*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*0.90*	*0.97*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*461*	*635*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*50.4*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*32.9*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*64.2*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.28*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1586*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1666*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*79.6*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*401.1*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.11*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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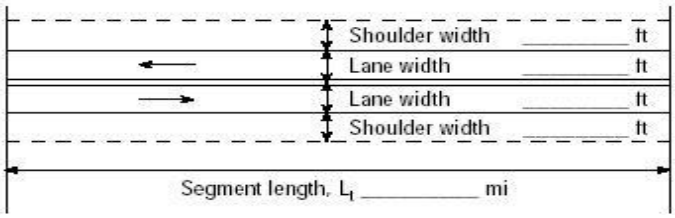
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*County Road 85 to Esparto Town*
Date Performed	*3/23/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Existing (2016)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *556*veh/h

Opposing direction vol., V_o *340*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *1.4*

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.92*

No-passing zone *85%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *5*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.2*	*1.4*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.990*	*0.980*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*610*	*377*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*0.3 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.6 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*42.1 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*31.8 mi/h*
		Percent free flow speed, PFFS	*75.6 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*604*	*371*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*55.5*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*35.2*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*77.3*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.36*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*75.6*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*604.3*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.32*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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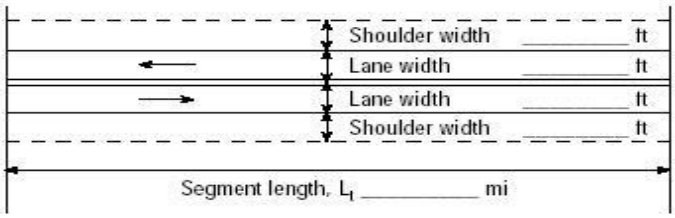
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*County Road 85 to Esparto Town*
Date Performed	*3/23/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Existing (2016)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *340*veh/h
Opposing direction vol., V_o *556*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *1.4*

☐ Class I highway ☑ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.92*
No-passing zone *85%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *5*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.4*	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.980*	*0.990*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*377*	*610*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.3 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.1 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*42.1 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*32.3 mi/h*
		Percent free flow speed, PFFS	*76.8 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*371*	*604*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*43.1*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*35.2*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*56.5*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*C*
Volume to capacity ratio, *v/c*	*0.22*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*76.8*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*369.6*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.07*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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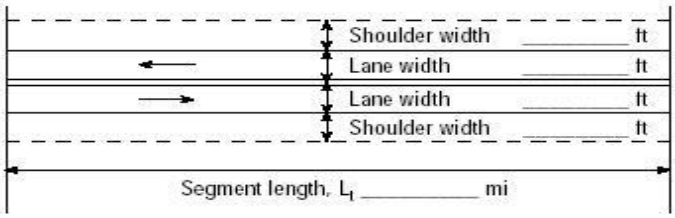
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*through Esparto Town*
Date Performed	*3/23/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Existing (2016)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Analysis direction vol., V_d	*562*veh/h	Grade Length mi	Up/down
Opposing direction vol., V_o	*283*veh/h	Peak-hour factor, PHF	*0.92*
Shoulder width ft	*2.0*	No-passing zone	*95%*
Lane Width ft	*12.0*	% Trucks and Buses , P_T	*5 %*
Segment Length mi	*1.2*	% Recreational vehicles, P_R	*4%*
		Access points *mi*	*14*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.2*	*1.4*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.990*	*0.980*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*617*	*314*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*3.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*3.3 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*38.9 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*28.4 mi/h*
		Percent free flow speed, PFFS	*72.9 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*611*	*309*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*54.1*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*34.6*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*77.1*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.36*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*72.9*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*610.9*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.32*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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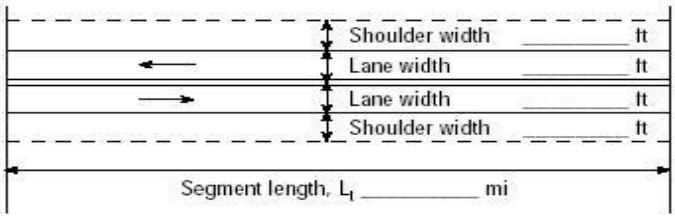
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*through Esparto Town*
Date Performed	*3/23/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Existing (2016)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Analysis direction vol., V_d	*283*veh/h	Grade Length	mi Up/down
Opposing direction vol., V_o	*562*veh/h	Peak-hour factor, PHF	*0.92*
Shoulder width ft	*2.0*	No-passing zone	*95%*
Lane Width ft	*12.0*	% Trucks and Buses , P_T	*5 %*
Segment Length mi	*1.2*	% Recreational vehicles, P_R	*4%*
		Access points *mi*	*14*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.4*	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.980*	*0.990*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*314*	*617*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*3.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.0 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*38.9 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*29.7 mi/h*
		Percent free flow speed, PFFS	*76.3 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*309*	*611*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*38.9*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*34.6*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*50.5*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*B*
Volume to capacity ratio, *v/c*	*0.18*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*76.3*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*307.6*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.98*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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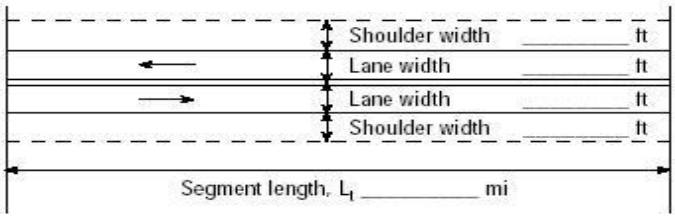
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*Esparto Town to County Rd 89*
Date Performed	*3/23/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Existing (2016)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *663*veh/h

Opposing direction vol., V_o *396*veh/h

Shoulder width ft *4.0*

Lane Width ft *12.0*

Segment Length mi *2.7*

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.92*

No-passing zone *80%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.3*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.985*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*724*	*437*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.7 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*41.2 mi/h*
		Percent free flow speed, PFFS	*77.9 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*721*	*433*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*62.6*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*30.6*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*81.7*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.43*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1675*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*77.9*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*720.7*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.11*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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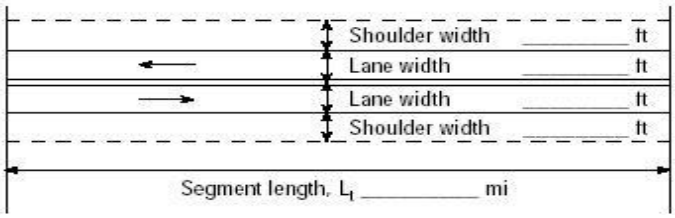
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*Esparto Town to County Rd 89*
Date Performed	*3/23/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Existing (2016)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *396*veh/h
Opposing direction vol., V_o *663*veh/h
Shoulder width ft *4.0*
Lane Width ft *12.0*
Segment Length mi *2.7*

☑ Class I highway ☐ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.92*
No-passing zone *80%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.3*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.985*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*437*	*724*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.6 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.9 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*42.3 mi/h*
		Percent free flow speed, PFFS	*79.9 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*433*	*721*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*49.8*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*30.6*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*61.3*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.26*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*79.9*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*430.4*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.85*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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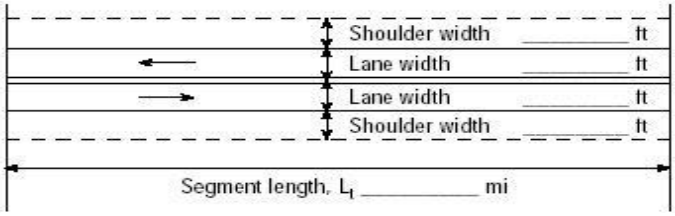
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*County Rd 89 to I-505*
Date Performed	*3/23/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Existing (2016)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.93*

No-passing zone *70%*

Analysis direction vol., V_d *651*veh/h

Opposing direction vol., V_o *392*veh/h

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Shoulder width ft *4.0*

Lane Width ft *12.0*

Access points *mi* *4*/mi

Segment Length mi *0.8*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.3*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.985*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*704*	*428*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.0 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.6 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.7 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*41.3 mi/h*
		Percent free flow speed, PFFS	*78.4 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*700*	*424*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*60.7*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*30.8*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*79.9*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.41*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1675*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*78.4*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*700.0*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.09*
Bicycle level of service (Exhibit 15-4)	*E*
Notes	

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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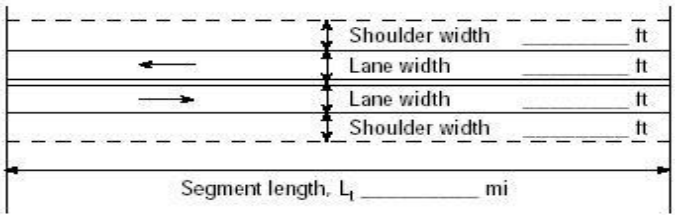
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*County Rd 89 to I-505*
Date Performed	*3/23/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Existing (2016)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *392*veh/h
Opposing direction vol., V_o *651*veh/h
Shoulder width ft *4.0*
Lane Width ft *12.0*
Segment Length mi *0.8*

Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.93*
No-passing zone *70%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *4*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.3*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.985*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*428*	*704*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*1.0 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.7 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.7 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*42.2 mi/h*
		Percent free flow speed, PFFS	*80.1 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*424*	*700*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*49.1*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*30.8*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*60.7*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.25*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*80.1*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*421.5*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.84*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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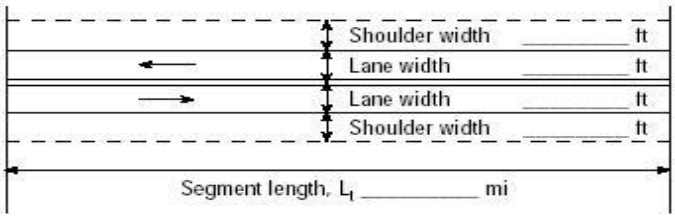
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*I-505 to County Rd 98*
Date Performed	*3/23/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Existing (2016)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *368*veh/h
Opposing direction vol., V_o *335*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *8.3*

☑ Class I highway ☐ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.92*
No-passing zone *50%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *35*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.3*	*1.4*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.985*	*0.980*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*406*	*372*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*8.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.6 mi/h*	Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*43.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*35.0 mi/h*
		Percent free flow speed, PFFS	*80.2 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*402*	*366*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*42.8*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*42.2*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*64.9*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.24*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1675*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*80.2*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*400.0*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.11*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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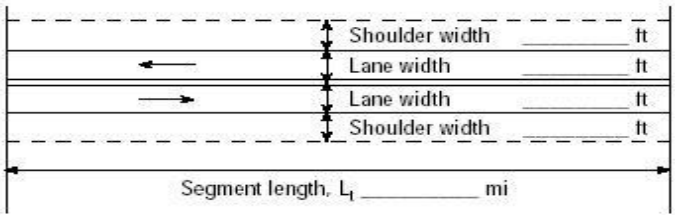
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*I-505 to County Rd 98*
Date Performed	*3/23/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Existing (2016)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *335*veh/h
Opposing direction vol., V_o *368*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *8.3*

Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.92*
No-passing zone *50%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *35*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.4*	*1.3*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.980*	*0.985*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*372*	*406*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*8.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.6 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*43.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*35.0 mi/h*
		Percent free flow speed, PFFS	*80.2 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*366*	*402*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*39.8*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*42.2*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*59.9*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.22*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1675*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*80.2*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*364.1*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.06*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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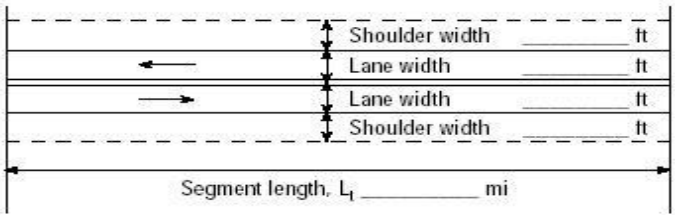
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 21A (EB)*
Agency or Company	*Yolo County*	From/To	*County Rd 85 to SR-16*
Date Performed	*3/23/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Existing (2016)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *124*veh/h
Opposing direction vol., V_o *112*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *1.2*

☐ Class I highway ☑ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.84*
No-passing zone *25%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* 7/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.9*	*1.9*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.957*	*0.957*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*154*	*139*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*0.2 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*40.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*38.1 mi/h*
		Percent free flow speed, PFFS	*93.9 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*148*	*134*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*16.6*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*36.9*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*36.0*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*A*
Volume to capacity ratio, *v/c*	*0.09*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*93.9*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*147.6*
Effective width, Wv (Eq. 15-29) ft	*19.32*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.72*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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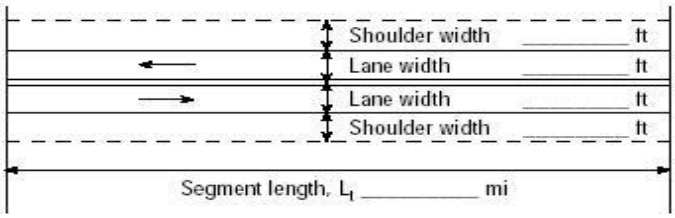
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 21A (WB)*
Agency or Company	*Yolo County*	From/To	*County Rd 85 to SR-16*
Date Performed	*3/23/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Existing (2016)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *112*veh/h
Opposing direction vol., V_o *124*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *1.2*

☐ Class I highway ☑ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.84*
No-passing zone *25%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* 7/mi

Show North Arrow

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.9*	*1.9*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.957*	*0.957*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*139*	*154*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*0.2 mi/h*	Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*40.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*38.1 mi/h*
		Percent free flow speed, PFFS	*93.9 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*134*	*148*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*15.2*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*36.9*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*32.7*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*A*
Volume to capacity ratio, *v/c*	*0.08*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1642*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*93.9*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*133.3*
Effective width, Wv (Eq. 15-29) ft	*20.16*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.50*
Bicycle level of service (Exhibit 15-4)	*C*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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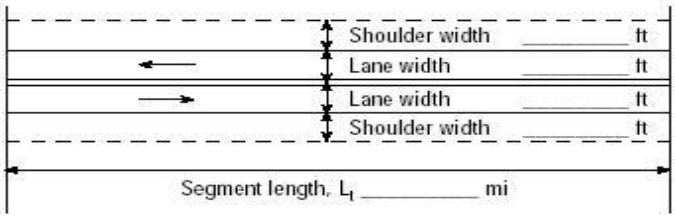
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 85B (NB)*
Agency or Company	*Yolo County*	From/To	*SR-16 to County Rd 21A*
Date Performed	*3/23/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Existing (2016)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *103*veh/h

Opposing direction vol., V_o *119*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *0.9*

Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.86*

No-passing zone *80%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *6*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.9*	*1.9*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.957*	*0.957*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*125*	*145*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.2 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*40.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*36.6 mi/h*
		Percent free flow speed, PFFS	*89.5 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*120*	*139*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*13.7*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*54.2*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*38.8*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*A*
Volume to capacity ratio, *v/c*	*0.07*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1642*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*89.5*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*119.8*
Effective width, Wv (Eq. 15-29) ft	*20.79*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.32*
Bicycle level of service (Exhibit 15-4)	*C*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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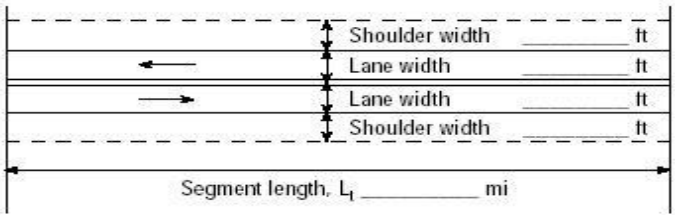
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 85B (SB)*
Agency or Company	*Yolo County*	From/To	*SR-16 to County Rd 21A*
Date Performed	*3/23/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Existing (2016)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.86*

No-passing zone *80%*

Analysis direction vol., V_d *119*veh/h

Opposing direction vol., V_o *103*veh/h

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *6*/mi

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *0.9*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.9*	*1.9*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.957*	*0.957*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*145*	*125*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.2 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*40.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*36.6 mi/h*
		Percent free flow speed, PFFS	*89.5 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*139*	*120*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*15.7*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*54.2*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*44.8*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*B*
Volume to capacity ratio, *v/c*	*0.08*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*89.5*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*138.4*
Effective width, Wv (Eq. 15-29) ft	*19.67*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.62*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
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3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
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PROJECT TRIP GENERATION

Kimley»Horn

Memorandum

To: Ryan Lee Sawyer, AICP
Analytical Environmental Services

From: Matt Weir, P.E., T.E., PTOE

Re: Cache Creek Hotel Expansion Project
Trip Generation

Date: March 1, 2016

The purpose of this memorandum is to present the trip generation estimates related to the traffic impact analysis our office is preparing for the Cache Creek Casino Resort (CCCR) Hotel Expansion Project (the "Proposed Project" or "Project").

Overview

Trip generation for tribal gaming facilities generally peaks on Saturday evenings. However, background traffic on adjacent streets is typically lower on Saturdays than during peak weekday periods. As a result, the overall number of vehicles on the road during the tribal gaming facilities' peak periods is commonly no worse than the traditional weekday, peak-hour conditions. In addition, because these casino facilities are commonly open 24-hours a day, 7-days a week, they do not experience pronounced peak periods like other uses. Instead, casino traffic follows a smoother daily traffic profile that builds steadily from early morning until approximately 7:00 PM, after which traffic levels slowly decline. Based on existing traffic volume information and expected trip generation from the Proposed Project, it was determined that the Friday and Saturday PM peak-periods represent the worst case periods during which to evaluate the project. It is during these periods that the combination of background traffic and casino traffic are anticipated to be at the highest levels.

The Proposed Project

The Proposed Project includes a hotel expansion that would add 377-rooms to the site, as well as ancillary uses including a hotel lobby bar/lounge. The expansion also includes 160 net new restaurant seats and a new ballroom facility with seating capacity of 1,325-seats.

Restaurant

Casino trip generation rates commonly include patrons to the slot machines and table games, hotel guests, event center attendees, as well as ancillary uses such as restaurants, bars, meeting spaces, back-of-house, employees arriving and departing on a shift change, and all of the general activities occurring at the facility during the peak-hours. As such, separate calculations for the non-casino functions are typically not necessary. Nevertheless, in an effort to appropriately quantify trips associated with one of the proposed ancillary uses, the new restaurants, use-specific trip generation was developed. The proposed project is understood to include a total of 256 new restaurant seats (excluding bar seats), of which 96-seats (also excluding bar seats) would be lost as part of the project. As a result, 160 net new seats (256-96) are assumed to be included with the project. Accordingly, trip generation for the project's new restaurants was calculated based on data from the Institute of Transportation Engineers' (ITE) *Trip Generation Manual, 9th Edition*, but was also adjusted with the reasonable assumption that most restaurant patrons would also be casino patrons. Because casinos with on-site restaurant facilities primarily cater to casino patrons, these restaurants are not considered to generate a significant number of new vehicle trips. Therefore, the ITE "quality restaurant" trip generation rate was conservatively reduced by 3/4 to account for internal capture to and from the casino. The reduced rate is primarily based on professional judgment.

Ballroom

Ticket counts for Club 88 (the existing event center) events which occurred between January and December 2015 were provided by CCCR, as well as total facility daily in and out person counts during the same period. The person counts were collected by automatic counters at the multiple entrances to the facility. Only count stations at entrances to the facility were considered, while data collected at internal cordon entrances (e.g. Club 88, hotel, etc.) were omitted to avoid double counting.

The top sixteen (16) drawing events which occurred on Fridays or Saturdays were selected to represent the sample of event days. For each day included in the sample, daily patron counts from the automatic counters were used to calculate an average total daily patron count on event days. Of the sixteen samples, the average number of attendees (total number of tickets sold) at Club 88 events was 732 (equating to a sell-out with more tickets sold than the number of seats). This count was compared to the average facility patron count from a sampling of the most recent Saturdays when there was not an event at Club 88. It was assumed that if people attending Club 88 events did not participate in gaming activities during their same visit, the increase in the daily patron count on event days would be equal to the average attendance (732) at the Club 88 events considered. However, the actual difference in person counts on event-days versus non-event days was 216-people. This difference (732-216 = 516 people, or 70 percent of the Club 88 capacity) indicates that the majority of the Club 88 patrons were already onsite at the facility and would have visited the casino in the absence of an event. The remaining 30-percent of the Club 88 patrons represents new trips that would not be expected to occur without the event venue.

As stated in an Abrams Associates[1] report, vehicle occupancy of 2.6 passengers per vehicle was assumed based on surveys of event patrons of CCCR. Based on feedback received from CCCR staff, it was agreed that this vehicle occupancy ratio is appropriate and reliable for the casino. It was conservatively assumed that of the "new" trips generated by the proposed ballroom, 85-percent of the patrons would arrive in the PM peak-hour before the event would start, leaving 15-percent of the patrons to arrive after the PM peak hour just prior the start of the event.

Applying this logic to the trip generation of the proposed ballroom, the additional 1,325-seats would be anticipated to equate to 130 new peak-hour trips entering the site (1,325 seats x 0.3 (percentage of attendees that would be "new" patrons) = 398 new patrons / 2.6 people per vehicle = 153 vehicles with 85% entering during the peak hour). Conservatively, one quarter (25-percent) of these trips were also added as exiting trips during the peak-hour to reflect potential drop-off/pick-up activities and short duration site visits.

Hotel

Similar to the restaurant use, the effects of the interaction between the casino gaming floor, event center/ballroom, and hotel are commonly captured in the casino trip generation rates. Nevertheless, we have elected to treat the proposed project's hotel component separately. This approach, which is more conservative and defensible, layers the new hotel trips on the site's trip generation characteristics. Accordingly, trip generation for the proposed hotel component (the new 377-rooms) was calculated based on data from the Institute of Transportation Engineers' (ITE) *Trip Generation Manual, 9th Edition*, but was also adjusted with the reasonable assumption that most guests at the hotel would also be guests of the casino. Typically, casinos with on-site hotel facilities implement a pricing structure for the rooms that favors casino guests. Therefore, because casino hotels primarily accommodate casino patrons, they are not considered to generate a significant number of new vehicle trips; further, considering the occupancy rate of the existing Cache Creek Hotel (consistently at capacity on Fridays and

[1] *Cache Creek Destination Resort Project Traffic Impact Study*, Abrams Associates, April 2008.

Saturdays according to data provided by CCCR), it could be argued that the proposed hotel may actually reduce casino related trips by allowing patrons to stay on-site versus having to make multiple trips to the site to visit the casino on consecutive days. Therefore, the ITE hotel trip generation rate was conservatively reduced by 3/4 to account for internal capture to and from the casino. Reducing the rate is based on professional judgment and is generally consistent with the hotel trip generation adjustments demonstrated in the traffic studies for other Northern California gaming facilities, such as the Red Hawk Casino[2] (previously referred to as Shingle Springs Casino) and Graton Rancheria Casino[3], as well as the adjustments documented for on-site hotel uses at tribal gaming facilities in the San Diego Region[4].

Trip generation estimates for Proposed Project are summarized in Exhibit A. As reflected, the proposed project is conservatively estimated to result in 229 new Weekday (Friday) peak-hour and 244 new Saturday peak-hour trips.

Attachment

- Exhibit A: Project Trip Generation

[2] *Shingle Springs Interchange Project – Final Environmental Impact Report/Environmental Assessment,* David Evans and Associates, Inc., September 2002.
[3] *Graton Rancheria Casino and Hotel – Final Traffic Impact Study Update,* Kimley-Horn and Associates, Inc., January 2013.
[4] *Traffic Needs Assessment of Tribal Development Projects in the San Diego Region,* County of San Diego, March 2003.

Kimley»Horn

EXHIBIT A: Project Trip Generation

Land Use	ITE Code	Quantity	Unit	Weekday PM Peak Hour			Saturday Peak Hour		
				In	Out	Total	In	Out	Total
Quality Restaurant	931	160	# Seats	7	3	10	8	5	13
Ballroom		1,325	Seats	130	33	163	130	33	163
Proposed Hotel	310	377	Rooms	29	28	57	38	30	68
Net New Vehicle Trips:				166	63	**229**	176	68	**244**

Notes:

- Source of Land Use Information: Email from AES, December 28, 2015.

- Land use accounts for the net number of new restaurant seats associated with the Proposed Project. Trip rates for Quality Restaurant based on ITE *Trip Generation Manual*, *9th Edition.* Trip generation rate reduced by 75% to account for internal capture to/from casino.

- Trip rates for Hotel based on ITE *Trip Generation Manual*, *9th Edition.* Trip generation rate reduced by 75% to account for internal capture to/from casino.

APPROVED & PENDING DEVELOPMENT INFORMATION

Trip Generation Planner (ITE 9th Edition)

Weekday Trip Generation
Trips Based on Average Rates/Equations

Project Name **Esparto Family Apts Mercy Housing**
Project Number

ITE Code	Land Use Description	Independent Variable	No. of Units	Avg Rate or Eq	Trip Rates: Daily Rate	Trip Rates: FRI Rate	Trip Rates: SAT Rate	Total Trips: Daily Trips	Total Trips: FRI Trips	Total Trips: SAT Trips	Total Trips: FRI Trips In	Total Trips: FRI Trips Out	Total Trips: SAT Trips In	Total Trips: SAT Trips Out	Net Trips after Pass-By Reduction: Daily Trips	Net Trips after Pass-By Reduction: FRI Trips	Net Trips after Pass-By Reduction: SAT Trips	Net Trips after Pass-By Reduction: FRI Trips In	Net Trips after Pass-By Reduction: FRI Trips Out	Net Trips after Pass-By Reduction: SAT Trips In	Net Trips after Pass-By Reduction: SAT Trips Out
210	Single-Family Detached Housing	Dwelling Unit(s)	40	Avg	9.52	1.00	0.93	382	40	37	25	15	20	17	382	40	37	25	15	20	17
							Totals	**382**	**40**	**37**	**25**	**15**	**20**	**17**	**382**	**40**	**37**	**25**	**15**	**20**	**17**

Notes:
(1) AM and/or PM rates correspond to peak hour of generator

A Trip generation data from ITE *Trip Generation, 9th Edition*
B AM/PM rates correspond to peak of adjacent street traffic (if data available)
C Includes weekday rates only
D Total trips include pass-by trips w/ no internal capture
E Pass-by rates from ITE *Trip Generation Handbook, 2nd Edition*
F Internal capture rates from ITE *Trip Generation Handbook, 2nd Edition*
G Worksheet is intended as a planning tool. Verify results w/ ITE *Trip Generation, 9th Edition*
H Enter data only in green shaded cells

Trip Generation Planner (ITE 9th Edition)

Weekday Trip Generation
Trips Based on Average Rates/Equations

Project Name **Yocha Dehe Tribal Residential**
Project Number

ITE Code	Land Use Description	Independent Variable	No. of Units	Avg Rate or Eq	Trip Rates: Daily Rate	Trip Rates: FRI Rate	Trip Rates: SAT Rate	Total Trips: Daily Trips	Total Trips: FRI Trips	Total Trips: SAT Trips	Total Trips: FRI Trips In	Total Trips: FRI Trips Out	Total Trips: SAT Trips In	Total Trips: SAT Trips Out	Net Trips after Pass-By Reduction: Daily Trips	Net Trips after Pass-By Reduction: FRI Trips	Net Trips after Pass-By Reduction: SAT Trips	Net Trips after Pass-By Reduction: FRI Trips In	Net Trips after Pass-By Reduction: FRI Trips Out	Net Trips after Pass-By Reduction: SAT Trips In	Net Trips after Pass-By Reduction: SAT Trips Out
210	Single-Family Detached Housing	Dwelling Unit(s)	25	Avg	9.52	1.00	0.93	238	25	23	16	9	12	11	238	25	23	16	9	12	11
							Totals	**238**	**25**	**23**	**16**	**9**	**12**	**11**	**238**	**25**	**23**	**16**	**9**	**12**	**11**

Notes:
(1) AM and/or PM rates correspond to peak hour of generator

A Trip generation data from ITE *Trip Generation, 9th Edition*
B AM/PM rates correspond to peak of adjacent street traffic (if data available)
C Includes weekday rates only
D Total trips include pass-by trips w/ no internal capture
E Pass-by rates from ITE *Trip Generation Handbook, 2nd Edition*
F Internal capture rates from ITE *Trip Generation Handbook, 2nd Edition*
G Worksheet is intended as a planning tool. Verify results w/ ITE *Trip Generation, 9th Edition*
H Enter data only in green shaded cells

Trip Generation Planner (ITE 9th Edition)

Weekday Trip Generation
Trips Based on Average Rates/Equations

Project Name **Yocha Dehe Tribal Office**
Project Number

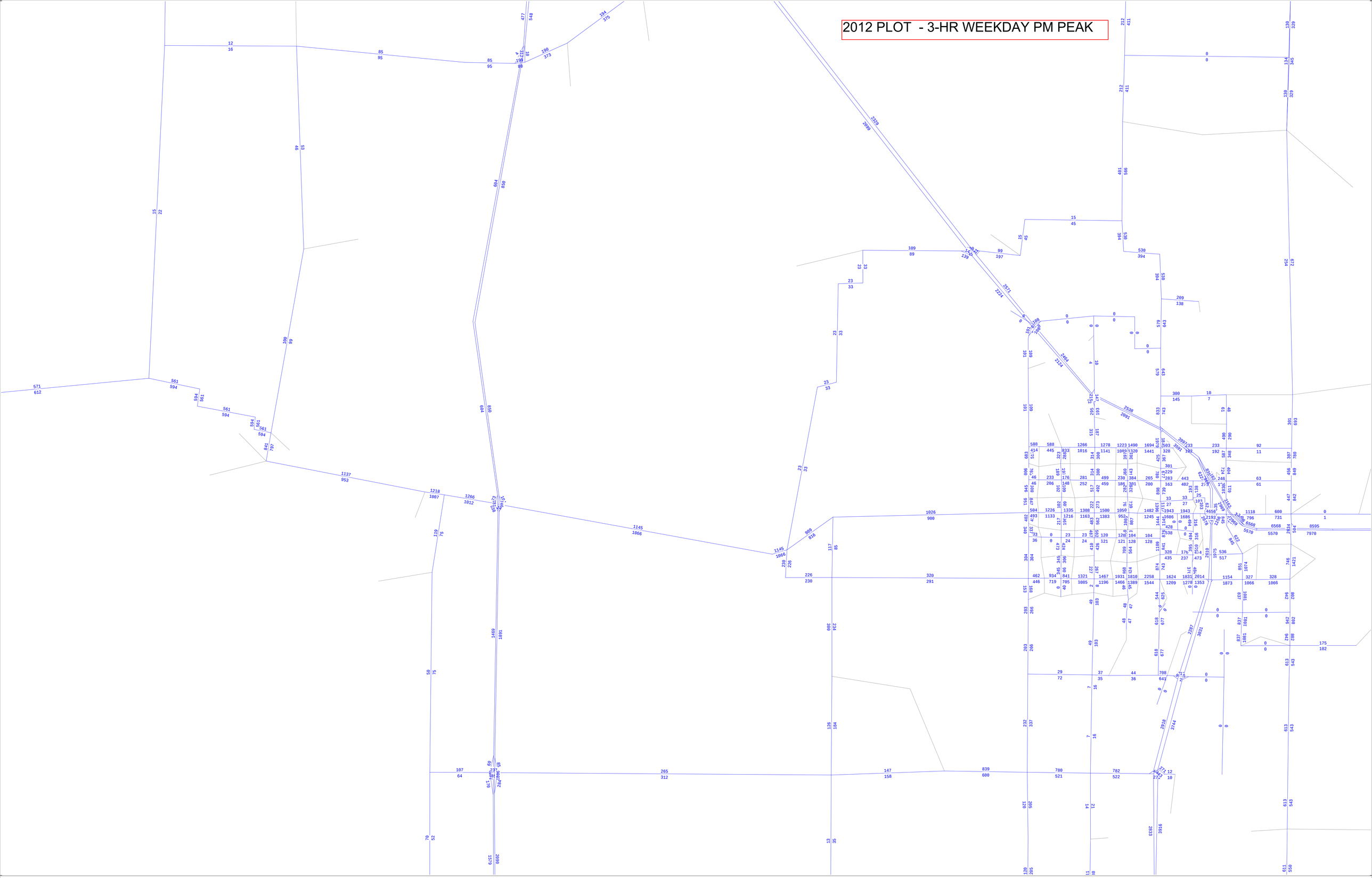
ITE Code	Land Use Description	Independent Variable	No. of Units	Avg Rate or Eq	Trip Rates: Daily Rate	Trip Rates: FRI Rate	Trip Rates: SAT Rate	Total Trips: Daily Trips	Total Trips: FRI Trips	Total Trips: SAT Trips	Total Trips: FRI Trips In	Total Trips: FRI Trips Out	Total Trips: SAT Trips In	Total Trips: SAT Trips Out	Net Trips after Pass-By Reduction: Daily Trips	Net Trips after Pass-By Reduction: FRI Trips	Net Trips after Pass-By Reduction: SAT Trips	Net Trips after Pass-By Reduction: FRI Trips In	Net Trips after Pass-By Reduction: FRI Trips Out	Net Trips after Pass-By Reduction: SAT Trips In	Net Trips after Pass-By Reduction: SAT Trips Out
710	General Office Building *(1)*	1,000 Sq Ft	84.6	Avg	11.03	1.49	0.43	934	126	36	21	105	19	17	934	126	36	21	105	19	17
							Totals	**934**	**126**	**36**	**21**	**105**	**19**	**17**	**934**	**126**	**36**	**21**	**105**	**19**	**17**

Notes:
(1) AM and/or PM rates correspond to peak hour of generator

A Trip generation data from ITE *Trip Generation, 9th Edition*
B AM/PM rates correspond to peak of adjacent street traffic (if data available)
C Includes weekday rates only
D Total trips include pass-by trips w/ no internal capture
E Pass-by rates from ITE *Trip Generation Handbook, 2nd Edition*
F Internal capture rates from ITE *Trip Generation Handbook, 2nd Edition*
G Worksheet is intended as a planning tool. Verify results w/ ITE *Trip Generation, 9th Edition*
H Enter data only in green shaded cells

SACOG MODEL PLOTS

2012 PLOT - 3-HR WEEKDAY PM PEAK



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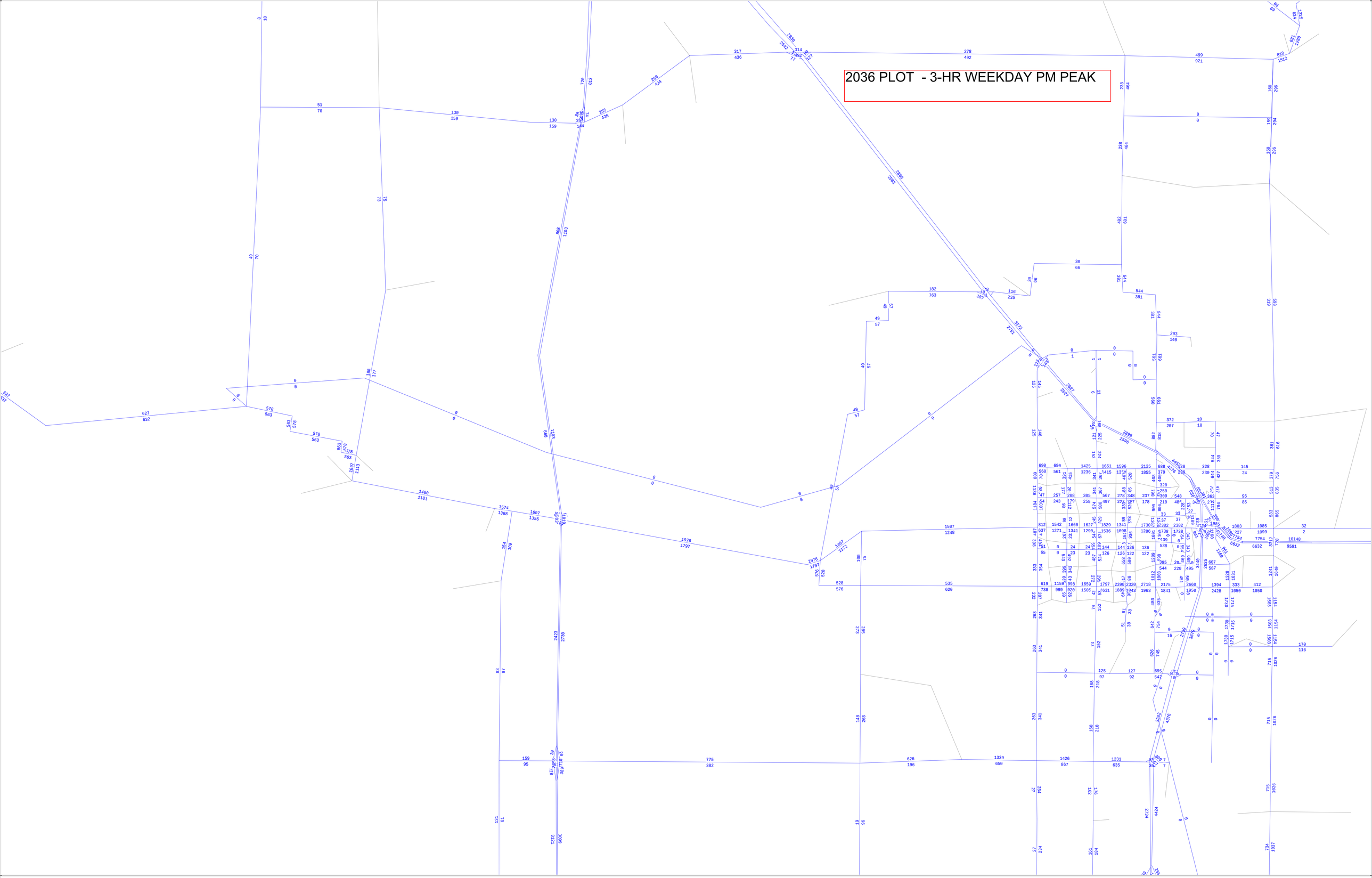
2036 PLOT - 3-HR WEEKDAY PM PEAK



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NEAR-TERM TRAFFIC CONDITIONS

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 SR-16 and North Casino Entrance

Cycle (sec):	65	Critical Vol./Cap.(X):	0.233
Loss Time (sec):	6	Average Delay (sec/veh):	11.3
Optimal Cycle:	62	Level Of Service:	B

Street Name:	SR-16						North Casino Entrance					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ovl			Include			Include			Include		
Min. Green:	0	8	8	5	8	0	0	0	0	5	5	5
Y+R:	4.0	5.5	5.5	4.0	5.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	1 0	1	1 0	1 0	0	0 0	0 0	0 0	1 0	0 0	1
Volume Module:												
Base Vol:	0	38	166	21	38	0	0	0	0	198	0	20
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	38	166	21	38	0	0	0	0	198	0	20
Added Vol:	0	36	0	0	110	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	74	166	21	148	0	0	0	0	198	0	20
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
PHF Volume:	0	95	213	27	190	0	0	0	0	254	0	26
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	95	213	27	190	0	0	0	0	254	0	26
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	95	213	27	190	0	0	0	0	254	0	26
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	0.81	0.90	0.95	1.00	1.00	1.00	1.00	0.93	1.00	0.83
Lanes:	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Final Sat.:	0	1809	1537	1718	1809	0	0	0	0	1769	0	1583
Capacity Analysis Module:												
Vol/Sat:	0.00	0.05	0.14	0.02	0.10	0.00	0.00	0.00	0.00	0.14	0.00	0.02
Crit Moves:		****		****						****		
Green/Cycle:	0.00	0.13	0.83	0.08	0.21	0.00	0.00	0.00	0.00	0.70	0.00	0.70
Volume/Cap:	0.00	0.40	0.17	0.20	0.50	0.00	0.00	0.00	0.00	0.20	0.00	0.02
Uniform Del:	0.0	26.0	1.1	27.9	22.7	0.0	0.0	0.0	0.0	3.4	0.0	3.0
IncremntDel:	0.0	1.1	0.1	0.7	1.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Delay/Veh:	0.0	27.1	1.2	28.6	23.7	0.0	0.0	0.0	0.0	3.5	0.0	3.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	27.1	1.2	28.6	23.7	0.0	0.0	0.0	0.0	3.5	0.0	3.0
LOS by Move:	A	C	A	C	C	A	A	A	A	A	A	A
HCM2kAvgQ:	0	56	24	17	99	0	0	0	0	46	0	4

Level Of Service Computation Report
Unknown Method (Future Volume Alternative)

Intersection #2 SR-16 and Central Casino Entrance

Street Name:	SR-16						Central Casino Entrance					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0 0 1 0			0 0 1 0 0			0 0 0 0 0			0 0 0 0 0		
Volume Module:												
Base Vol:	0	203	43	0	238	0	0	0	0	0	0	0
Growth Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Bse:	0	0	0	0	0	0	0	0	0	0	0	0
Added Vol:	0	36	0	0	110	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	0	0	0	0	0	0	0	0	0
User Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Volume:	0	0	0	0	0	0	0	0	0	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PCE Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MLF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FinalVolume:	0	0	0	0	0	0	0	0	0	0	0	0
Critical Gap Module: >> Population:0 << >> Run Speed(N/S): 30 MPH <<												
Critical Gp:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capacity Module:												
Cnflict Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Potent Cap.:	0	0	0	0	0	0	0	0	0	0	0	0
Level Of Service Module:												
LOS by Move:												
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	0	0	0	0	0	0	0	0	0	0	0	0

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #3 SR-16 and South Casino Entrance

Average Delay (sec/veh): 1.0 Worst Case Level Of Service: C[16.8]

Street Name:	SR-16						South Casino Entrance					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 1 0			0 0 1 0 0			0 0 0 0 0			1 0 0 0 1		
Volume Module:												
Base Vol:	0	244	42	0	241	0	0	0	0	39	0	2
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	244	42	0	241	0	0	0	0	39	0	2
Added Vol:	0	36	0	0	110	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	280	42	0	351	0	0	0	0	39	0	2
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Volume:	0	351	53	0	440	0	0	0	0	49	0	3
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	351	53	0	440	0	0	0	0	49	0	3
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	817	xxxx	377
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	346	xxxx	669
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	346	xxxx	669
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.14	xxxx	0.00
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	12.2	xxxx	0.3
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	17.1	xxxx	10.4
LOS by Move:	*	*	*	*	*	*	*	*	*	C	*	B
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			16.8		
ApproachLOS:	*			*			*			C		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #4 SR-16 and County Rd 85

Average Delay (sec/veh): 0.5 Worst Case Level Of Service: B[11.5]

Street Name:	County Rd 85								SR-16							
Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	0	0 0	0	0	1!	0 0	0	1	0	0 0	0	0	1	0 0
Volume Module:																
Base Vol:	0	0	0	5	0	17		14	307	0		0	270	0		
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		
Initial Bse:	0	0	0	5	0	17		14	307	0		0	270	0		
Added Vol:	0	0	0	1	0	1		2	108	0		0	35	0		
PasserByVol:	0	0	0	0	0	0		0	0	0		0	0	0		
Initial Fut:	0	0	0	6	0	18		16	415	0		0	305	0		
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		
PHF Adj:	0.96	0.96	0.96	0.96	0.96	0.96		0.96	0.96	0.96		0.96	0.96	0.96		
PHF Volume:	0	0	0	6	0	19		17	432	0		0	317	0		
Reduct Vol:	0	0	0	0	0	0		0	0	0		0	0	0		
FinalVolume:	0	0	0	6	0	19		17	432	0		0	317	0		
Critical Gap Module:																
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2		4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx			
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3		2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx			
Capacity Module:																
Cnflict Vol:	xxxx	xxxx	xxxxx	783	783	317		317	xxxx	xxxxx	xxxx	xxxx	xxxxx			
Potent Cap.:	xxxx	xxxx	xxxxx	363	326	723		1226	xxxx	xxxxx	xxxx	xxxx	xxxxx			
Move Cap.:	xxxx	xxxx	xxxxx	359	321	723		1226	xxxx	xxxxx	xxxx	xxxx	xxxxx			
Volume/Cap:	xxxx	xxxx	xxxx	0.02	0.00	0.03		0.01	xxxx	xxxx	xxxx	xxxx	xxxx			
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		1.0	xxxx	xxxxx	xxxx	xxxx	xxxxx			
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		8.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx			
LOS by Move:	*	*	*	*	*	*		A	*	*	*	*	*			
Movement:	LT - LTR - RT			LT - LTR - RT				LT - LTR - RT			LT - LTR - RT					
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	577	xxxxx		xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx			
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.1	xxxxx		0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx			
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	11.5	xxxxx		8.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx			
Shared LOS:	*	*	*	*	B	*		A	*	*	*	*	*			
ApproachDel:	xxxxxx			11.5				xxxxxx			xxxxxx					
ApproachLOS:	*			B				*			*					

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #5 SR-16 and County Rd 85B

Average Delay (sec/veh): 0.8 Worst Case Level Of Service: A[9.3]

Street Name:	County Rd 85B									SR-16								
Approach:	North Bound						South Bound						East Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Uncontrolled					
Rights:	Include						Include						Include					
Lanes:	0	0	1!	0	0		0	0	0	0	0		0	0	1	0	1	
Volume Module:																		
Base Vol:	59	0	2	0	0		0	0	0	0	0		0	0	201	118	0	
Growth Adj:	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Initial Bse:	59	0	2	0	0		0	0	0	0	0		0	0	201	118	0	
Added Vol:	2	0	0	0	0		0	0	0	0	0		0	0	104	5	0	
PasserByVol:	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	
Initial Fut:	61	0	2	0	0		0	0	0	0	0		0	0	305	123	0	
User Adj:	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
PHF Adj:	0.93	0.93	0.93	0.93	0.93		0.93	0.93	0.93	0.93	0.93		0.93	0.93	0.93	0.93	0.93	
PHF Volume:	66	0	2	0	0		0	0	0	0	0		0	0	329	133	0	
Reduct Vol:	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	
FinalVolume:	66	0	2	0	0		0	0	0	0	0		0	0	329	133	0	
Critical Gap Module:																		
Critical Gp:	6.4	6.5	6.2	xxxxx	xxxx		xxxxx	xxxxx	xxxx	xxxxx			4.1	xxxx	xxxxx			
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxx		xxxxx	xxxxx	xxxx	xxxxx			2.2	xxxx	xxxxx			
Capacity Module:																		
Cnflict Vol:	607	607	329	xxxx	xxxx		xxxxx	xxxx	xxxx	xxxxx			462	xxxx	xxxxx			
Potent Cap.:	460	411	712	xxxx	xxxx		xxxxx	xxxx	xxxx	xxxxx			1083	xxxx	xxxxx			
Move Cap.:	459	410	712	xxxx	xxxx		xxxxx	xxxx	xxxx	xxxxx			1083	xxxx	xxxxx			
Volume/Cap:	0.14	0.00	0.00	xxxx	xxxx		xxxx	xxxx	xxxx	xxxx			0.00	xxxx	xxxx			
Level Of Service Module:																		
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx		xxxxx	xxxx	xxxx	xxxxx			0.2	xxxx	xxxxx			
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx		xxxxx	xxxxx	xxxx	xxxxx			8.3	xxxx	xxxxx			
LOS by Move:	*	*	*	*	*		*	*	*	*			A	*	*			
Movement:	LT	-	LTR	-	RT		LT	-	LTR	-	RT		LT	-	LTR	-	RT	
Shared Cap.:	xxxx		897	xxxxx			xxxx	xxxx	xxxxx				xxxx	xxxx	xxxxx			
SharedQueue:	xxxxx		0.2	xxxxx	xxxxx		xxxx	xxxxx	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx			
Shrd ConDel:	xxxxx		9.3	xxxxx	xxxxx		xxxx	xxxxx	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx			
Shared LOS:	*		A	*	*		*	*	*	*	*		*	*	*			
ApproachDel:			9.3		xxxxxx				xxxxxx						xxxxxx			
ApproachLOS:			A		*				*						*			

Note: Queue reported is the distance per lane in feet.

6: Yolo Ave & Woodland Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR	All
Denied Del/Veh (s)	0.3	0.5	0.2	0.1	0.1	0.1	0.4	0.5	3.7	0.1	0.2	0.4
Total Del/Veh (s)	11.1	10.4	6.1	7.7	12.4	1.3	1.0	2.9	0.5	8.8	3.5	4.4

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #7 SR-16 and Capay St

Average Delay (sec/veh): 0.9 Worst Case Level Of Service: C[15.1]

Street Name:	SR-16						Capay St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			0 0 0 1 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	23	255	10	3	179	7	0	4	14	6	6	2
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	23	255	10	3	179	7	0	4	14	6	6	2
Added Vol:	0	49	0	0	108	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	23	304	10	3	287	7	0	4	14	6	6	2
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	25	325	11	3	307	7	0	4	15	6	6	2
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	25	325	11	3	307	7	0	4	15	6	6	2
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx	xxxxx	6.5	6.2	7.1	6.5	6.2
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	314	xxxx	xxxxx	335	xxxx	xxxxx	xxxx	701	310	706	700	330
Potent Cap.:	1229	xxxx	xxxxx	1207	xxxx	xxxxx	xxxx	363	730	351	363	711
Move Cap.:	1229	xxxx	xxxxx	1207	xxxx	xxxxx	xxxx	354	730	335	355	711
Volume/Cap:	0.02	xxxx	xxxx	0.00	xxxx	xxxx	xxxx	0.01	0.02	0.02	0.02	0.00
Level Of Service Module:												
2Way95thQ:	1.5	xxxx	xxxxx	0.2	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	8.0	xxxx	xxxxx	8.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	591	xxxx	372	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	0.1	xxxxx	0.1	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	11.3	xxxxx	15.1	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	B	*	C	*
ApproachDel:	xxxxxx			xxxxxx			11.3			15.1		
ApproachLOS:	*			*			B			C		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #8 SR-16 and Madison St

Average Delay (sec/veh): 0.4 Worst Case Level Of Service: C[16.0]

Street Name:	SR-16								Madison St							
Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Lanes:	0	1	0	0 0	0	0	0	1 0	0	0	1!	0 0	0	1	0	0 0
Volume Module:																
Base Vol:	10	309	0	0	235	6			6	0	9		1	1	0	
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	10	309	0	0	235	6			6	0	9		1	1	0	
Added Vol:	0	49	0	0	107	0			0	0	0		0	0	0	
PasserByVol:	0	0	0	0	0	0			0	0	0		0	0	0	
Initial Fut:	10	358	0	0	342	6			6	0	9		1	1	0	
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.97	0.97	0.97	0.97	0.97	0.97			0.97	0.97	0.97		0.97	0.97	0.97	
PHF Volume:	10	370	0	0	353	6			6	0	9		1	1	0	
Reduct Vol:	0	0	0	0	0	0			0	0	0		0	0	0	
FinalVolume:	10	370	0	0	353	6			6	0	9		1	1	0	
Critical Gap Module:																
Critical Gp:	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx			7.1	6.5	6.2		7.1	6.5	xxxxx	
FollowUpTim:	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx			3.5	4.0	3.3		3.5	4.0	xxxxx	
Capacity Module:																
Cnflict Vol:	360	xxxx	xxxxx	xxxx	xxxx	xxxxx			747	747	356		752	750	xxxxx	
Potent Cap.:	1183	xxxx	xxxxx	xxxx	xxxx	xxxxx			329	341	688		327	340	xxxxx	
Move Cap.:	1183	xxxx	xxxxx	xxxx	xxxx	xxxxx			326	338	688		320	337	xxxxx	
Volume/Cap:	0.01	xxxx	xxxx	xxxx	xxxx	xxxx			0.02	0.00	0.01		0.00	0.00	xxxx	
Level Of Service Module:																
2Way95thQ:	0.7	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx				
Control Del:	8.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx				
LOS by Move:	A	*	*	*	*	*	*	*	*	*	*	*				
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT				
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	476	xxxxx	328	xxxx	xxxxx				
SharedQueue:	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.1	xxxxx	0.0	xxxx	xxxxx				
Shrd ConDel:	8.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	12.8	xxxxx	16.0	xxxx	xxxxx				
Shared LOS:	A	*	*	*	*	*	*	B	*	C	*	*				
ApproachDel:	xxxxxx			xxxxxx			12.8			16.0						
ApproachLOS:	*			*			B			C						

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #9 SR-16 and Plainfield St

Average Delay (sec/veh): 1.4 Worst Case Level Of Service: C[17.1]

Street Name:	SR-16						Plainfield St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 1 0	1	0	1 0	0	0	1! 0	0	0	0	1! 0	0
Volume Module:												
Base Vol:	40 309	19	6	226	4	4	4	32	9	3		4
Growth Adj:	1.00 1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00
Initial Bse:	40 309	19	6	226	4	4	4	32	9	3		4
Added Vol:	0 48	0	1	105	1	0	0	0	0	0		1
PasserByVol:	0 0	0	0	0	0	0	0	0	0	0		0
Initial Fut:	40 357	19	7	331	5	4	4	32	9	3		5
User Adj:	1.00 1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00
PHF Adj:	0.92 0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92		0.92
PHF Volume:	43 387	21	8	359	5	4	4	35	10	3		5
Reduct Vol:	0 0	0	0	0	0	0	0	0	0	0		0
FinalVolume:	43 387	21	8	359	5	4	4	35	10	3		5
Critical Gap Module:												
Critical Gp:	4.1 xxxx xxxxx		4.1 xxxx xxxxx			7.1	6.5	6.2	7.1	6.5		6.2
FollowUpTim:	2.2 xxxx xxxxx		2.2 xxxx xxxxx			3.5	4.0	3.3	3.5	4.0		3.3
Capacity Module:												
Cnflict Vol:	364 xxxx xxxxx		408 xxxx xxxxx			659	871	362	881	864		204
Potent Cap.:	1178 xxxx xxxxx		1135 xxxx xxxxx			377	289	683	267	292		837
Move Cap.:	1178 xxxx xxxxx		1135 xxxx xxxxx			359	276	683	242	279		837
Volume/Cap:	0.04 xxxx xxxx		0.01 xxxx xxxx			0.01	0.02	0.05	0.04	0.01		0.01
Level Of Service Module:												
2Way95thQ:	2.9 xxxx xxxxx		0.5 xxxx xxxxx			xxxx	xxxx	xxxxx	xxxx	xxxx		xxxxx
Control Del:	8.2 xxxx xxxxx		8.2 xxxx xxxxx			xxxxx	xxxx	xxxxx	xxxxx	xxxx		xxxxx
LOS by Move:	A *	*	A	*	*	*	*	*	*	*		*
Movement:	LT - LTR - RT		LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			
Shared Cap.:	xxxx xxxx xxxxx		xxxx xxxx xxxxx			xxxx	552	xxxxx	xxxx	315		xxxxx
SharedQueue:	0.1 xxxx xxxxx		xxxxx xxxx xxxxx			xxxxx	0.3	xxxxx	xxxxx	0.2		xxxxx
Shrd ConDel:	8.2 xxxx xxxxx		xxxxx xxxx xxxxx			xxxxx	12.1	xxxxx	xxxxx	17.1		xxxxx
Shared LOS:	A *	*	*	*	*	*	B	*	*	C		*
ApproachDel:	xxxxxx		xxxxxx			12.1			17.1			
ApproachLOS:	*		*			B			C			

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #10 SR-16 and County Road 21A

Cycle (sec):	100	Critical Vol./Cap.(X):	0.537
Loss Time (sec):	0	Average Delay (sec/veh):	11.6
Optimal Cycle:	0	Level Of Service:	B

Street Name:	SR-16						County Road 21A					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Ignore		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	0 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	1 0	1
Volume Module:												
Base Vol:	0	0	0	257	0	8	5	107	0	0	69	361
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	257	0	8	5	107	0	0	69	361
Added Vol:	0	0	0	104	0	1	2	0	0	0	0	46
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	361	0	9	7	107	0	0	69	407
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
PHF Adj:	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.00
PHF Volume:	0	0	0	395	0	10	8	117	0	0	76	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	395	0	10	8	117	0	0	76	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
FinalVolume:	0	0	0	395	0	10	8	117	0	0	76	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	0.97	0.01	0.02	0.06	0.94	0.00	0.00	1.00	1.00
Final Sat.:	0	0	0	736	0	18	40	619	0	0	593	670
Capacity Analysis Module:												
Vol/Sat:	xxxx	xxxx	xxxx	0.54	0.00	0.54	0.19	0.19	xxxx	xxxx	0.13	0.00
Crit Moves:				****				****			****	
Delay/Veh:	0.0	0.0	0.0	12.8	12.8	12.8	9.2	9.2	0.0	0.0	9.2	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	12.8	12.8	12.8	9.2	9.2	0.0	0.0	9.2	0.0
LOS by Move:	*	*	*	B	B	B	A	A	*	*	A	*
ApproachDel:	xxxxxx			12.8			9.2			9.2		
Delay Adj:	xxxxx			1.00			1.00			1.00		
ApprAdjDel:	xxxxxx			12.8			9.2			9.2		
LOS by Appr:	*			B			A			A		
AllWayAvgQ:	0.0	0.0	0.0	26.7	26.7	26.7	5.1	5.1	5.1	0.0	3.2	0.0

Note: Queue reported is the distance per lane in feet.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #11 County Rd 85B and County Rd 21A

Average Delay (sec/veh): 5.2 Worst Case Level Of Service: A[9.3]

Street Name:	County Rd 85B									County Rd 21A								
Approach:	North Bound						South Bound						East Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Uncontrolled						Uncontrolled						Stop Sign					
Rights:	Include						Include						Include					
Lanes:	0	0	0	1	0		0	1	0	0	0		0	0	0	0	0	
Volume Module:																		
Base Vol:	0	24		4			88	29		0			0	0		0		
Growth Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
Initial Bse:	0	24		4			88	29		0			0	0		0		
Added Vol:	0	2		2			0	5		0			0	0		0		
PasserByVol:	0	0		0			0	0		0			0	0		0		
Initial Fut:	0	26		6			88	34		0			0	0		0		
User Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00	1.00		1.00		
PHF Adj:	0.73	0.73		0.73			0.73	0.73		0.73			0.73	0.73		0.73		
PHF Volume:	0	36		8			121	47		0			0	0		0		
Reduct Vol:	0	0		0			0	0		0			0	0		0		
FinalVolume:	0	36		8			121	47		0			0	0		0		
Critical Gap Module:																		
Critical Gp:	xxxxx	xxxx		xxxxx			4.1	xxxx		xxxxx			xxxx	xxxxx		6.4	6.5	
FollowUpTim:	xxxxx	xxxx		xxxxx			2.2	xxxx		xxxxx			xxxx	xxxxx		3.5	4.0	
Capacity Module:																		
Cnflict Vol:	xxxx	xxxx		xxxxx			44	xxxx		xxxxx			xxxx	xxxx		xxxxx	329	329
Potent Cap.:	xxxx	xxxx		xxxxx			1564	xxxx		xxxxx			xxxx	xxxx		xxxxx	665	590
Move Cap.:	xxxx	xxxx		xxxxx			1564	xxxx		xxxxx			xxxx	xxxx		xxxxx	623	541
Volume/Cap:	xxxx	xxxx		xxxx			0.08	xxxx		xxxx			xxxx	xxxx		xxxx	0.02	0.00
Level Of Service Module:																		
2Way95thQ:	xxxx	xxxx		xxxxx			6.3	xxxx		xxxxx			xxxx	xxxx		xxxxx	xxxx	xxxx
Control Del:	xxxxx	xxxx		xxxxx			7.5	xxxx		xxxxx			xxxxx	xxxx		xxxxx	xxxxx	xxxx
LOS by Move:	*	*		*			A	*		*			*	*		*	*	*
Movement:	LT	-	LTR	-	RT		LT	-	LTR	-	RT		LT	-	LTR	-	RT	
Shared Cap.:	xxxx	xxxx		xxxxx			xxxx	xxxx		xxxxx			xxxx	xxxx		xxxxx	xxxx	886
SharedQueue:	xxxxx	xxxx		xxxxx			0.3	xxxx		xxxxx			xxxxx	xxxx		xxxxx	xxxxx	0.2
Shrd ConDel:	xxxxx	xxxx		xxxxx			7.5	xxxx		xxxxx			xxxxx	xxxx		xxxxx	xxxxx	9.3
Shared LOS:	*	*		*			A	*		*			*	*		*	*	A
ApproachDel:	xxxxxx						xxxxxx						xxxxxx				9.3	
ApproachLOS:	*						*						*				A	

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #12 Country Villa Estates and County Rd 21A

Average Delay (sec/veh): 0.5 Worst Case Level Of Service: A[9.8]

Street Name:	Country Villa Estates									County Rd 21A								
Approach:	North Bound			South Bound			East Bound			West Bound								
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled								
Rights:	Include			Include			Include			Include								
Lanes:	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1!	0	0
Volume Module:																				
Base Vol:	0	0	0	5	0	0	3	98	0	1	43	12								
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
Initial Bse:	0	0	0	5	0	0	3	98	0	1	43	12								
Added Vol:	0	0	0	0	0	0	0	2	0	0	1	0								
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0								
Initial Fut:	0	0	0	5	0	0	3	100	0	1	44	12								
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
PHF Adj:	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69								
PHF Volume:	0	0	0	7	0	0	4	146	0	1	64	17								
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0								
FinalVolume:	0	0	0	7	0	0	4	146	0	1	64	17								
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	xxxxx	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx								
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	xxxxx	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx								
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx	xxxxx	230	xxxx	xxxxx	82	xxxx	xxxxx	146	xxxx	xxxxx								
Potent Cap.:	xxxx	xxxx	xxxxx	758	xxxx	xxxxx	1516	xxxx	xxxxx	1436	xxxx	xxxxx								
Move Cap.:	xxxx	xxxx	xxxxx	756	xxxx	xxxxx	1516	xxxx	xxxxx	1436	xxxx	xxxxx								
Volume/Cap:	xxxx	xxxx	xxxx	0.01	xxxx	xxxx	0.00	xxxx	xxxx	0.00	xxxx	xxxx								
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	xxxxx	0.7	xxxx	xxxxx	0.2	xxxx	xxxxx	0.1	xxxx	xxxxx								
Control Del:	xxxxx	xxxx	xxxxx	9.8	xxxx	xxxxx	7.4	xxxx	xxxxx	7.5	xxxx	xxxxx								
LOS by Move:	*	*	*	A	*	*	A	*	*	A	*	*								
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx								
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Shared LOS:	*	*	*	*	*	*	A	*	*	*	*	*								
ApproachDel:	xxxxxx			9.8			xxxxxx			xxxxxx										
ApproachLOS:	*			A			*			*										

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #13 Fremont St and County Rd 21A

Average Delay (sec/veh): 1.9 Worst Case Level Of Service: A[9.7]

Street Name:	Fremont St						County Rd 21A					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			0 0 1! 0 0			0 1 0 0 0			0 0 0 1 0		
Volume Module:												
Base Vol:	0	0	0	20	0	10	17	96	0	0	51	21
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	20	0	10	17	96	0	0	51	21
Added Vol:	0	0	0	0	0	0	0	2	0	0	1	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	20	0	10	17	98	0	0	52	21
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
PHF Volume:	0	0	0	25	0	13	22	124	0	0	66	27
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	25	0	13	22	124	0	0	66	27
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	246	246	79	92	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	742	656	981	1502	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	734	647	981	1502	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.03	0.00	0.01	0.01	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1.1	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	801	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.1	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	9.7	xxxxx	7.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	A	*	A	*	*	*	*	*
ApproachDel:	xxxxxx			9.7			xxxxxx			xxxxxx		
ApproachLOS:	*			A			*			*		

Note: Queue reported is the distance per lane in feet.

DELAY (CONTROL)

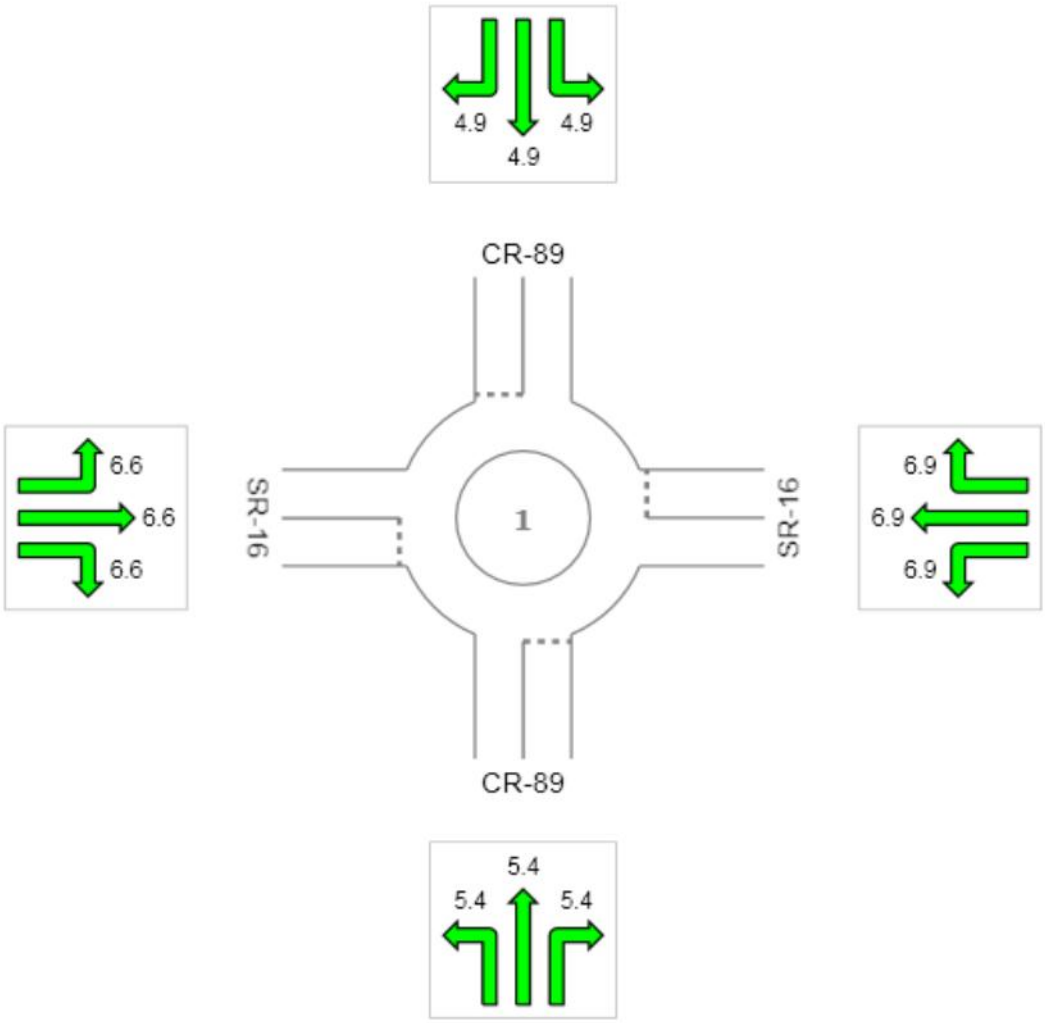
Average control delay per vehicle, or average pedestrian delay (seconds)

Site: SR-16/CR-89

Near-Term Fri PM
Roundabout

All Movement Classes

	South	East	North	West	Intersection
Delay (Control)	5.4	6.9	4.9	6.6	6.7
LOS	A	A	A	A	A



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F | Continuous

Level of Service Method: Delay & v/c (HCM 2010)
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Roundabout Level of Service Method: Same as Sign Control
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #15 SR-16 and SB I-505

Average Delay (sec/veh): 0.3 Worst Case Level Of Service: B[15.0]

Street Name:	SB I-505								SR-16							
Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	0	0 0	0	1	0	0 1	0	0	0	1 0	0	0	1	0 1
Volume Module:																
Base Vol:	0	0	0		4	2	11		0	236	120		0	425	57	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	0	0	0		4	2	11		0	236	120		0	425	57	
Added Vol:	0	0	0		0	0	3		0	82	19		0	42	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	0	0	0		4	2	14		0	318	139		0	467	57	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.81	0.81	0.81		0.81	0.81	0.81		0.81	0.81	0.81		0.81	0.81	0.81	
PHF Volume:	0	0	0		5	2	17		0	391	171		0	574	70	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
FinalVolume:	0	0	0		5	2	17		0	391	171		0	574	70	
Critical Gap Module:																
Critical Gp:	xxxxx	xxxx	xxxxx		6.4	6.6	6.3		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
FollowUpTim:	xxxxx	xxxx	xxxxx		3.5	4.0	3.3		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Capacity Module:																
Cnflict Vol:	xxxx	xxxx	xxxxx		1051	1137	574		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Potent Cap.:	xxxx	xxxx	xxxxx		248	199	512		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Move Cap.:	xxxx	xxxx	xxxxx		248	199	512		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Volume/Cap:	xxxx	xxxx	xxxx		0.02	0.01	0.03		xxxx	xxxx	xxxx		xxxx	xxxx	xxxx	
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	xxxxx		xxxx	xxxx	2.6		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Control Del:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	12.3		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
LOS by Move:	*	*	*		*	*	B		*	*	*		*	*	*	
Movement:	LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT	
Shared Cap.:	xxxx	xxxx	xxxxx		229	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
SharedQueue:	xxxxx	xxxx	xxxxx		0.1	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shrd ConDel:	xxxxx	xxxx	xxxxx		21.2	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shared LOS:	*	*	*		C	*	*		*	*	*		*	*	*	
ApproachDel:	xxxxxx				15.0				xxxxxx				xxxxxx			
ApproachLOS:	*				B				*				*			

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #16 SR-16 and NB I-505

Cycle (sec):	50	Critical Vol./Cap.(X):	0.447
Loss Time (sec):	6	Average Delay (sec/veh):	9.3
Optimal Cycle:	47	Level Of Service:	A

Street Name:	NB I-505						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Ignore			Include		
Min. Green:	5	5	5	0	0	0	0	5	5	0	5	5
Y+R:	4.1	4.1	4.1	4.0	4.0	4.0	4.0	5.5	5.5	4.0	5.5	5.5
Lanes:	0 1	0	0 1	0	0	0 0	0	0	1 0 1	0	0	1 0 1
Volume Module:												
Base Vol:	178	0	82	0	0	0	0	240	3	0	303	4
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	178	0	82	0	0	0	0	240	3	0	303	4
Added Vol:	9	0	0	0	0	0	0	71	11	0	33	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	187	0	82	0	0	0	0	311	14	0	336	4
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Adj:	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.00	0.84	0.84	0.84
PHF Volume:	223	0	98	0	0	0	0	370	0	0	400	5
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	223	0	98	0	0	0	0	370	0	0	400	5
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
FinalVolume:	223	0	98	0	0	0	0	370	0	0	400	5
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.68	1.00	0.81	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.81
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00
Final Sat.:	1291	0	1537	0	0	0	0	1809	1900	0	1809	1537
Capacity Analysis Module:												
Vol/Sat:	0.17	0.00	0.06	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.22	0.00
Crit Moves:	****										****	
Green/Cycle:	0.39	0.00	0.39	0.00	0.00	0.00	0.00	0.49	0.00	0.00	0.49	0.49
Volume/Cap:	0.45	0.00	0.16	0.00	0.00	0.00	0.00	0.41	0.00	0.00	0.45	0.01
Uniform Del:	11.4	0.0	10.1	0.0	0.0	0.0	0.0	8.0	0.0	0.0	8.2	6.4
IncremntDel:	0.6	0.0	0.1	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.4	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00
Delay/Veh:	12.0	0.0	10.2	0.0	0.0	0.0	0.0	8.3	0.0	0.0	8.6	6.4
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	12.0	0.0	10.2	0.0	0.0	0.0	0.0	8.3	0.0	0.0	8.6	6.4
LOS by Move:	B	A	B	A	A	A	A	A	A	A	A	A
HCM2kAvgQ:	77	0	27	0	0	0	0	99	0	0	98	1

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #17 SR-16 and Wild Wings Dr

Average Delay (sec/veh): 1.3 Worst Case Level Of Service: C[17.5]

Street Name:	Wild Wings Dr						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			1 0 0 0 1			1 0 1 0 0			0 0 1 0 1		
Volume Module:												
Base Vol:	0	0	0	54	0	7	15	321	0	0	303	88
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	54	0	7	15	321	0	0	303	88
Added Vol:	0	0	0	0	0	0	0	71	0	0	33	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	54	0	7	15	392	0	0	336	88
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
PHF Volume:	0	0	0	60	0	8	17	438	0	0	376	98
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	60	0	8	17	438	0	0	376	98
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	848	xxxx	376	474	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	332	xxxx	671	1072	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	328	xxxx	671	1072	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.18	xxxx	0.01	0.02	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	16.6	xxxx	0.9	1.2	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	18.4	xxxx	10.4	8.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	C	*	B	A	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			17.5			xxxxxx			xxxxxx		
ApproachLOS:	*			C			*			*		

Note: Queue reported is the distance per lane in feet.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #18 SR-16 and County Rd 94B

Average Delay (sec/veh): 1.0 Worst Case Level Of Service: C[20.9]

Street Name:	County Rd 94B						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0	0	0 0 1!	0	0	0 1	0	0 0	0 0 1!	0	0
Volume Module:												
Base Vol:	6	0	14	8	5	5	2	358	0	17	391	1
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	6	0	14	8	5	5	2	358	0	17	391	1
Added Vol:	0	0	0	0	0	0	2	69	0	0	33	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	6	0	14	8	5	5	4	427	0	17	424	1
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
PHF Volume:	7	0	16	9	6	6	5	502	0	20	498	1
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	7	0	16	9	6	6	5	502	0	20	498	1
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1056	1051	502	1058	1050	499	499	xxxx	xxxxx	502	xxxx	xxxxx
Potent Cap.:	203	227	569	203	227	572	1049	xxxx	xxxxx	1047	xxxx	xxxxx
Move Cap.:	194	222	569	193	222	572	1049	xxxx	xxxxx	1047	xxxx	xxxxx
Volume/Cap:	0.04	0.00	0.03	0.05	0.03	0.01	0.00	xxxx	xxxx	0.02	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.3	xxxx	xxxxx	1.5	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.4	xxxx	xxxxx	8.5	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	360	xxxxx	xxxx	248	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.2	xxxxx	xxxxx	0.3	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	15.7	xxxxx	xxxxx	20.9	xxxxx	8.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	C	*	*	C	*	A	*	*	*	*	*
ApproachDel:	15.7			20.9			xxxxxx			xxxxxx		
ApproachLOS:	C			C			*			*		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #19 SR-16 and County Rd 95

Average Delay (sec/veh): 0.9 Worst Case Level Of Service: C[18.8]

Street Name:	County Rd 95						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0	0	0 0 0	1	0	0 0 0	1	0	0 1 0	0	0
Volume Module:												
Base Vol:	6	3	22	0	6	2	0	381	0	25	397	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	6	3	22	0	6	2	0	381	0	25	397	0
Added Vol:	0	0	0	0	0	0	0	67	2	0	32	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	6	3	22	0	6	2	0	448	2	25	429	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	7	3	24	0	7	2	0	496	2	28	475	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	7	3	24	0	7	2	0	496	2	28	475	0
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	xxxxx	6.5	6.2	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	4.0	3.3	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1032	1028	497	xxxx	1029	475	xxxx	xxxx	xxxxx	498	xxxx	xxxxx
Potent Cap.:	211	234	573	xxxx	234	590	xxxx	xxxx	xxxxx	1050	xxxx	xxxxx
Move Cap.:	201	228	573	xxxx	228	590	xxxx	xxxx	xxxxx	1050	xxxx	xxxxx
Volume/Cap:	0.03	0.01	0.04	xxxx	0.03	0.00	xxxx	xxxx	xxxx	0.03	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	2.0	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.5	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	381	xxxxx	xxxx	xxxx	269	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.3	xxxxx	xxxxx	xxxx	0.1	xxxxx	xxxx	xxxxx	0.1	xxxx	xxxxx
Shrd ConDel:	xxxxx	15.4	xxxxx	xxxxx	xxxx	18.8	xxxxx	xxxx	xxxxx	8.5	xxxx	xxxxx
Shared LOS:	*	C	*	*	*	C	*	*	*	A	*	*
ApproachDel:		15.4			18.8			xxxxxx			xxxxxx	
ApproachLOS:		C			C			*			*	

Note: Queue reported is the distance per lane in feet.

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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #20 SR-16 and County Rd 98

Cycle (sec):	80	Critical Vol./Cap.(X):	0.435
Loss Time (sec):	12	Average Delay (sec/veh):	25.5
Optimal Cycle:	80	Level Of Service:	C

Street Name:	County Rd 98						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	5	5	5	5	6	6	5	5	5
Y+R:	4.0	6.0	6.0	4.0	6.0	6.0	4.0	5.3	5.3	4.0	5.3	5.3
Lanes:	1 0	0	1 0	1 0	1	0 1	1 0	1	0 1	1 0	1	0 1
Volume Module:												
Base Vol:	87	124	78	60	175	64	112	251	121	65	190	51
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	87	124	78	60	175	64	112	251	121	65	190	51
Added Vol:	5	0	0	0	0	19	41	14	12	0	8	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	92	124	78	60	175	83	153	265	133	65	198	51
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	98	132	83	64	186	88	163	282	142	69	211	54
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	98	132	83	64	186	88	163	282	142	69	211	54
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	98	132	83	64	186	88	163	282	142	69	211	54
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.92	0.92	0.93	0.98	0.83	0.90	0.86	0.86	0.90	0.95	0.81
Lanes:	1.00	0.61	0.39	1.00	1.00	1.00	1.00	1.33	0.67	1.00	1.00	1.00
Final Sat.:	1769	1077	677	1769	1862	1583	1718	2174	1091	1718	1809	1537
Capacity Analysis Module:												
Vol/Sat:	0.06	0.12	0.12	0.04	0.10	0.06	0.09	0.13	0.13	0.04	0.12	0.04
Crit Moves:		****		****			****				****	
Green/Cycle:	0.14	0.28	0.28	0.08	0.22	0.22	0.22	0.33	0.33	0.16	0.27	0.27
Volume/Cap:	0.40	0.44	0.44	0.44	0.45	0.25	0.44	0.40	0.40	0.26	0.44	0.13
Uniform Del:	31.3	23.5	23.5	34.9	26.7	25.5	27.0	20.8	20.8	29.6	24.3	22.2
IncremntDel:	1.0	0.6	0.6	2.1	0.8	0.4	0.8	0.2	0.2	0.5	0.6	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	32.3	24.1	24.1	37.0	27.5	25.9	27.9	21.0	21.0	30.1	24.9	22.4
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	32.3	24.1	24.1	37.0	27.5	25.9	27.9	21.0	21.0	30.1	24.9	22.4
LOS by Move:	C	C	C	D	C	C	C	C	C	C	C	C
HCM2kAvgQ:	65	117	117	37	96	43	84	103	103	42	116	27

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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #21 SR-16 and W. Kentucky Ave

Cycle (sec):	80	Critical Vol./Cap.(X):	0.402
Loss Time (sec):	12	Average Delay (sec/veh):	19.4
Optimal Cycle:	80	Level Of Service:	B

Street Name:	SR-16						W. Kentucky Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	5	5	5	5	5	5	5	5	5
Y+R:	4.0	6.0	6.0	4.0	6.0	6.0	4.0	5.3	5.3	4.0	5.3	5.3
Lanes:	1 0	0	1 0	1 0	0	1 0	1 0	0	1 0	1 0	0	1 0
Volume Module:												
Base Vol:	18	187	90	13	152	33	24	35	7	81	59	20
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	18	187	90	13	152	33	24	35	7	81	59	20
Added Vol:	0	28	13	0	13	0	0	0	0	6	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	18	215	103	13	165	33	24	35	7	87	59	20
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
PHF Volume:	23	277	133	17	213	43	31	45	9	112	76	26
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	23	277	133	17	213	43	31	45	9	112	76	26
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	23	277	133	17	213	43	31	45	9	112	76	26
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.90	0.91	0.91	0.90	0.93	0.93	0.93	0.96	0.96	0.93	0.94	0.94
Lanes:	1.00	0.68	0.32	1.00	0.83	0.17	1.00	0.83	0.17	1.00	0.75	0.25
Final Sat.:	1718	1163	557	1718	1470	294	1769	1513	303	1769	1338	453
Capacity Analysis Module:												
Vol/Sat:	0.01	0.24	0.24	0.01	0.14	0.14	0.02	0.03	0.03	0.06	0.06	0.06
Crit Moves:		****		****				****		****		
Green/Cycle:	0.19	0.57	0.57	0.06	0.44	0.44	0.11	0.07	0.07	0.15	0.11	0.11
Volume/Cap:	0.07	0.42	0.42	0.16	0.33	0.33	0.16	0.42	0.42	0.42	0.51	0.51
Uniform Del:	26.6	9.9	9.9	35.5	14.7	14.7	32.2	35.6	35.6	30.8	33.5	33.5
IncremntDel:	0.1	0.3	0.3	0.7	0.3	0.3	0.4	2.2	2.2	1.1	2.3	2.3
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	26.7	10.2	10.2	36.2	15.0	15.0	32.6	37.8	37.8	31.9	35.8	35.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	26.7	10.2	10.2	36.2	15.0	15.0	32.6	37.8	37.8	31.9	35.8	35.8
LOS by Move:	C	B	B	D	B	B	C	D	D	C	D	D
HCM2kAvgQ:	11	140	140	13	105	105	20	46	46	74	78	78

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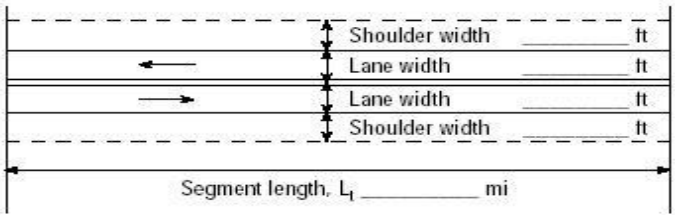
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*CCCR to County Road 85*
Date Performed	*5/10/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☐ Level ☑ Rolling

Analysis direction vol., V_d	*323*veh/h	Grade Length	mi Up/down
Opposing direction vol., V_o	*431*veh/h	Peak-hour factor, PHF	*0.88*
Shoulder width ft	*2.0*	No-passing zone	*75%*
Lane Width ft	*12.0*	% Trucks and Buses , P_T	*5 %*
Segment Length mi	*6.7*	% Recreational vehicles, P_R	*4%*
		Access points *mi*	*3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*2.1*	*2.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.1*	*1.1*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.944*	*0.949*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*0.88*	*0.94*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*442*	*549*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.6 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*51.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*41.3 mi/h*
		Percent free flow speed, PFFS	*80.1 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.7*	*1.6*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.966*	*0.971*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*0.88*	*0.95*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*432*	*531*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*47.0*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*37.0*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*63.6*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.26*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1563*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1616*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*80.1*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*367.0*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.07*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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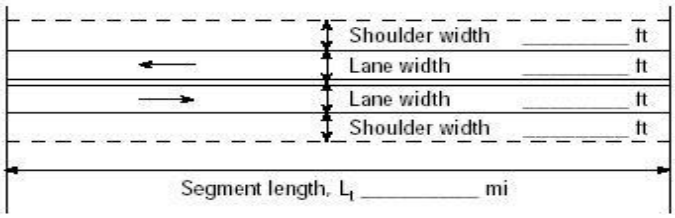
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*CCCR to County Road 85*
Date Performed	*5/10/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☐ Level ☑ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.88*

No-passing zone *75%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *3*/mi

Analysis direction vol., V_d *431*veh/h

Opposing direction vol., V_o *323*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *6.7*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*2.0*	*2.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.1*	*1.1*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.949*	*0.944*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*0.94*	*0.88*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*549*	*442*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*3.2 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*51.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*40.7 mi/h*
		Percent free flow speed, PFFS	*78.9 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.6*	*1.7*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.971*	*0.966*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*0.95*	*0.88*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*531*	*432*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*52.7*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*37.0*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*73.1*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.32*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1490*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1533*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*78.9*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*489.8*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.21*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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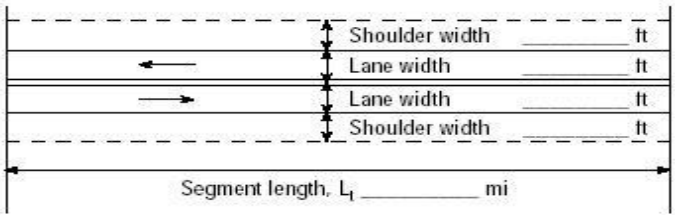
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*County Road 85 to Esparto Town*
Date Performed	*5/10/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *312*veh/h

Opposing direction vol., V_o *428*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *1.4*

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.95*

No-passing zone *85%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *5*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.4*	*1.3*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.980*	*0.985*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*335*	*457*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*0.3 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.6 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*42.1 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*33.4 mi/h*
		Percent free flow speed, PFFS	*79.2 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*330*	*453*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*38.5*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*42.4*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*56.4*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*C*
Volume to capacity ratio, *v/c*	*0.19*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1683*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*79.2*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*328.4*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.01*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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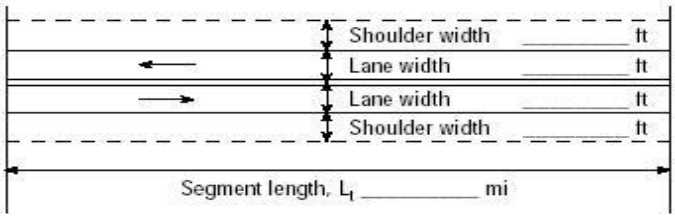
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*County Road 85 to Esparto Town*
Date Performed	*5/10/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *428*veh/h

Opposing direction vol., V_o *312*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *1.4*

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.95*

No-passing zone *85%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *5*/mi

Show North Arrow

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.4*	*1.3*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.980*	*0.985*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*460*	*333*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.3 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*3.2 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*42.1 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*32.7 mi/h*
		Percent free flow speed, PFFS	*77.8 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*453*	*330*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*44.9*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*42.4*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*69.4*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*C*
Volume to capacity ratio, *v/c*	*0.27*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*77.8*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*450.5*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.17*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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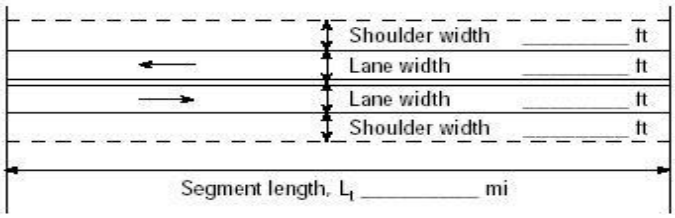
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*through Esparto Town*
Date Performed	*5/10/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *414*veh/h
Opposing direction vol., V_o *370*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *1.2*

☐ Class I highway ☑ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.93*
No-passing zone *95%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *14*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.3*	*1.3*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.985*	*0.985*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*452*	*404*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*3.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*4.0 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*38.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*28.3 mi/h*
		Percent free flow speed, PFFS	*72.6 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*447*	*400*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*45.9*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*43.4*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*68.8*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*C*
Volume to capacity ratio, *v/c*	*0.26*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*72.6*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*445.2*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.16*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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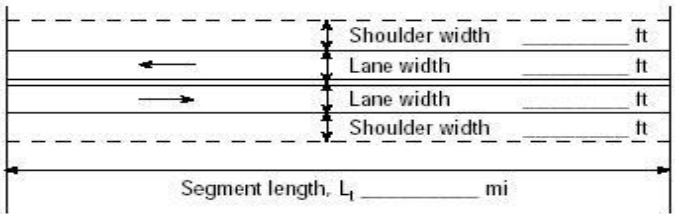
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*through Esparto Town*
Date Performed	*5/10/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.93*

No-passing zone *95%*

Analysis direction vol., V_d *370*veh/h

Opposing direction vol., V_o *414*veh/h

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Shoulder width ft *2.0*

Lane Width ft *12.0*

Access points *mi* *14*/mi

Segment Length mi *1.2*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.3*	*1.3*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.985*	*0.985*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*404*	*452*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*3.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.6 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*38.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*29.7 mi/h*
		Percent free flow speed, PFFS	*76.2 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*400*	*447*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*44.4*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*43.4*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*64.9*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*C*
Volume to capacity ratio, *v/c*	*0.24*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1675*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*76.2*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*397.8*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.11*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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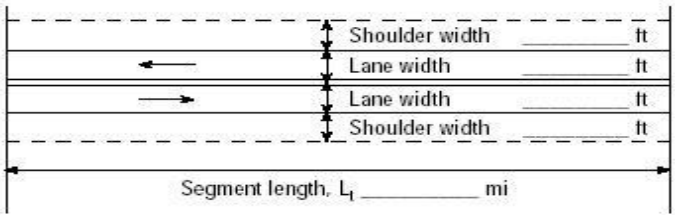
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*Esparto Town to County Rd 89*
Date Performed	*5/10/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *476*veh/h
Opposing direction vol., V_o *468*veh/h
Shoulder width ft *4.0*
Lane Width ft *12.0*
Segment Length mi *2.7*

Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.86*
No-passing zone *80%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.2*	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.990*	*0.990*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*559*	*550*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, v		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.2 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*42.1 mi/h*
		Percent free flow speed, PFFS	*79.6 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*553*	*544*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*55.2*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*36.1*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*73.4*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.33*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1683*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*79.6*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*553.5*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.97*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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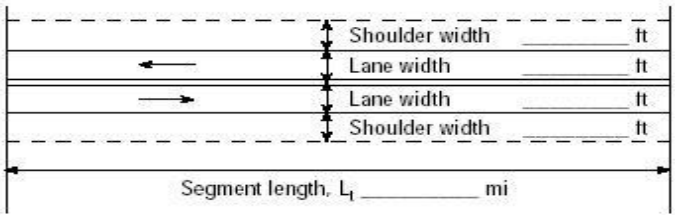
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*Esparto Town to County Rd 89*
Date Performed	*5/10/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *468*veh/h
Opposing direction vol., V_o *476*veh/h
Shoulder width ft *4.0*
Lane Width ft *12.0*
Segment Length mi *2.7*

☑ Class I highway ☐ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.86*
No-passing zone *80%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.2*	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.990*	*0.990*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*550*	*559*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.2 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*42.1 mi/h*
		Percent free flow speed, PFFS	*79.6 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*544*	*553*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*54.0*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*36.1*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*71.9*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.32*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*79.6*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*544.2*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.97*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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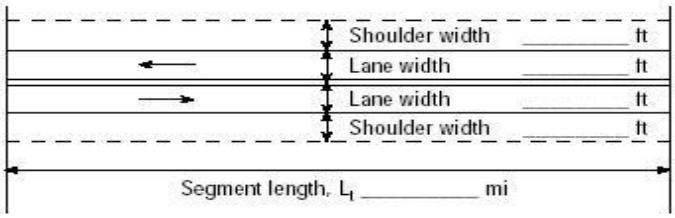
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*County Rd 89 to I-505*
Date Performed	*5/10/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *481*veh/h
Opposing direction vol., V_o *460*veh/h
Shoulder width ft *4.0*
Lane Width ft *12.0*
Segment Length mi *0.8*

☑ Class I highway ☐ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.81*
No-passing zone *100*%
% Trucks and Buses , P_T *5* %
% Recreational vehicles, P_R *4*%
Access points *mi* *4*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.2*	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.990*	*0.990*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*600*	*574*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.0 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.4 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.7 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*41.2 mi/h*
		Percent free flow speed, PFFS	*78.2* %

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*594*	*568*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*57.0*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*35.4*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*75.1*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.35*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*78.2*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*593.8*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.01*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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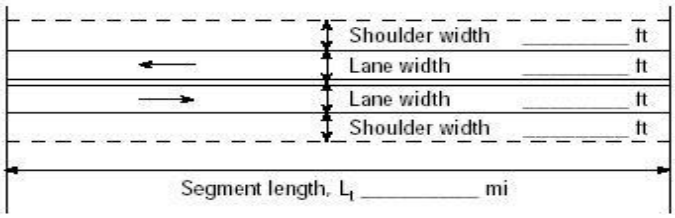
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*County Rd 89 to I-505*
Date Performed	*5/10/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *460*veh/h
Opposing direction vol., V_o *481*veh/h
Shoulder width ft *4.0*
Lane Width ft *12.0*
Segment Length mi *0.8*

☑ Class I highway ☐ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.81*
No-passing zone *100%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *4*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.2*	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.990*	*0.990*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*574*	*600*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.0 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.4 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.7 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*41.2 mi/h*
		Percent free flow speed, PFFS	*78.2 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*568*	*594*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*56.5*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*35.4*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*73.8*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.34*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*78.2*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*567.9*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.99*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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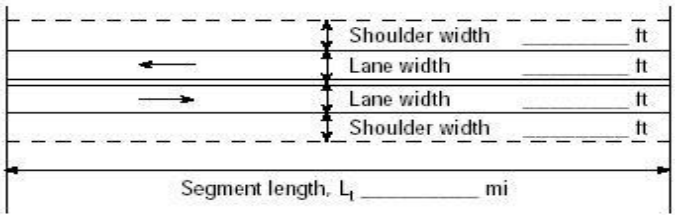
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*I-505 to County Rd 98*
Date Performed	*5/10/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *373*veh/h

Opposing direction vol., V_o *551*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *8.3*

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.89*

No-passing zone *100%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *35*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.3*	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.985*	*0.990*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*425*	*625*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*8.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.1 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*43.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*33.4 mi/h*
		Percent free flow speed, PFFS	*76.5 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*421*	*619*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*47.1*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*35.8*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*61.6*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.25*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*76.5*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*419.1*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.13*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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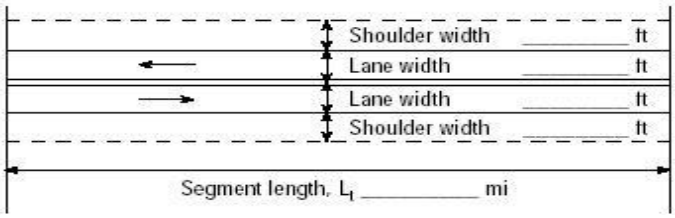
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*I-505 to County Rd 98*
Date Performed	*5/10/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *551* veh/h
Opposing direction vol., V_o *373* veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *8.3*

☑ Class I highway ☐ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.89*
No-passing zone *100*%
% Trucks and Buses , P_T *5* %
% Recreational vehicles, P_R *4*%
Access points *mi* *35*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.2*	*1.3*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.990*	*0.985*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*625*	*425*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0* *mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS} (Exhibit 15-7)	*2.6* *mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*8.8* *mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*43.6* *mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*33.1* *mi/h*
		Percent free flow speed, PFFS	*75.8* %

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-18 or 15-19)	*1.0*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*619*	*421*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*56.6*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*35.8*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*77.9*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.37*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1675*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*75.8*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*619.1*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.33*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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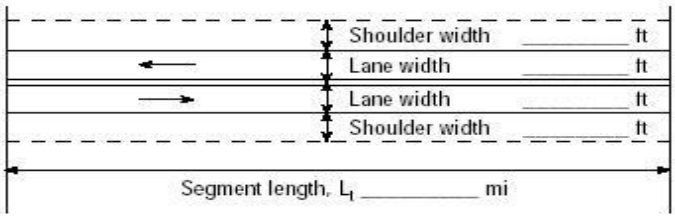
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 21A (EB)*
Agency or Company	*Yolo County*	From/To	*County Rd 85 to SR-16*
Date Performed	*5/10/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *114*veh/h
Opposing direction vol., V_o *78*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *1.2*

☐ Class I highway ☑ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.82*
No-passing zone *25%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* 7/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.9*	*1.9*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.957*	*0.957*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*145*	*99*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*0.1 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*40.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*38.6 mi/h*
		Percent free flow speed, PFFS	*95.1 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*140*	*96*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*15.8*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*34.2*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*36.1*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*A*
Volume to capacity ratio, *v/c*	*0.08*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*95.1*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*139.0*
Effective width, Wv (Eq. 15-29) ft	*20.02*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.55*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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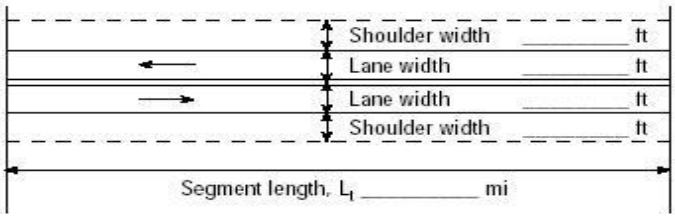
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 21A (WB)*
Agency or Company	*Yolo County*	From/To	*County Rd 85 to SR-16*
Date Performed	*5/10/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *78*veh/h

Opposing direction vol., V_o *114*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *1.2*

Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.82*

No-passing zone *25%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* 7/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.9*	*1.9*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.957*	*0.957*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*99*	*145*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*0.3 mi/h*	Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*40.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*38.4 mi/h*
		Percent free flow speed, PFFS	*94.6 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*96*	*140*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*11.2*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*34.2*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*25.1*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*A*
Volume to capacity ratio, *v/c*	*0.06*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1642*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*94.6*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*95.1*
Effective width, Wv (Eq. 15-29) ft	*22.54*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*2.82*
Bicycle level of service (Exhibit 15-4)	*C*
Notes	
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain. 2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10. 6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.	

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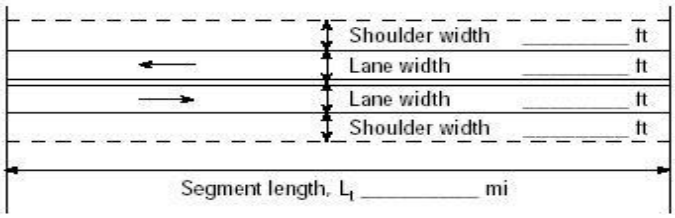
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 85B (NB)*
Agency or Company	*Yolo County*	From/To	*SR-16 to County Rd 21A*
Date Performed	*5/10/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.83*

No-passing zone *80%*

Analysis direction vol., V_d *63*veh/h

Opposing direction vol., V_o *126*veh/h

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Shoulder width ft *2.0*

Lane Width ft *12.0*

Access points *mi* *6*/mi

Segment Length mi *0.9*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.9*	*1.9*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.957*	*0.957*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*79*	*159*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.4 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*40.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*36.7 mi/h*
		Percent free flow speed, PFFS	*89.6 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*76*	*153*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*9.0*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*49.8*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*25.5*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*A*
Volume to capacity ratio, *v/c*	*0.04*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1642*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*89.6*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*75.9*
Effective width, Wv (Eq. 15-29) ft	*23.59*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*2.47*
Bicycle level of service (Exhibit 15-4)	*B*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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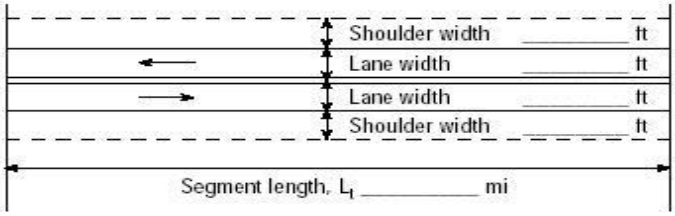
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 85B (SB)*
Agency or Company	*Yolo County*	From/To	*SR-16 to County Rd 21A*
Date Performed	*5/10/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *126*veh/h

Opposing direction vol., V_o *63*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *0.9*

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.83*

No-passing zone *80%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *6*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)		*1.9*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.962*	*0.957*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*158*	*79*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.2 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*40.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*36.9 mi/h*
		Percent free flow speed, PFFS	*90.1 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*153*	*76*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*17.1*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*49.8*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*50.4*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*B*
Volume to capacity ratio, *v/c*	*0.09*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*90.1*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*151.8*
Effective width, Wv (Eq. 15-29) ft	*19.18*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.76*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 SR-16 and North Casino Entrance

Cycle (sec):	65	Critical Vol./Cap.(X):	0.235
Loss Time (sec):	6	Average Delay (sec/veh):	6.9
Optimal Cycle:	62	Level Of Service:	A

Street Name:	SR-16						North Casino Entrance					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ovl			Include			Include			Include		
Min. Green:	0	8	8	5	8	0	0	0	0	5	5	5
Y+R:	4.0	5.5	5.5	4.0	5.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	1 0	1	1 0	1 0	0	0 0	0 0	0 0	1 0	0 0	1
Volume Module:												
Base Vol:	0	33	305	19	38	0	0	0	0	269	0	9
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	33	305	19	38	0	0	0	0	269	0	9
Added Vol:	0	31	0	0	28	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	64	305	19	66	0	0	0	0	269	0	9
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
PHF Volume:	0	69	328	20	71	0	0	0	0	289	0	10
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	69	328	20	71	0	0	0	0	289	0	10
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	69	328	20	71	0	0	0	0	289	0	10
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	0.81	0.90	0.95	1.00	1.00	1.00	1.00	0.93	1.00	0.83
Lanes:	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Final Sat.:	0	1809	1537	1718	1809	0	0	0	0	1769	0	1583
Capacity Analysis Module:												
Vol/Sat:	0.00	0.04	0.21	0.01	0.04	0.00	0.00	0.00	0.00	0.16	0.00	0.01
Crit Moves:		****		****						****		
Green/Cycle:	0.00	0.13	0.83	0.08	0.21	0.00	0.00	0.00	0.00	0.70	0.00	0.70
Volume/Cap:	0.00	0.29	0.26	0.15	0.19	0.00	0.00	0.00	0.00	0.23	0.00	0.01
Uniform Del:	0.0	25.6	1.2	27.8	21.1	0.0	0.0	0.0	0.0	3.5	0.0	2.9
IncremntDel:	0.0	0.7	0.1	0.5	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Delay/Veh:	0.0	26.3	1.3	28.3	21.4	0.0	0.0	0.0	0.0	3.6	0.0	2.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	26.3	1.3	28.3	21.4	0.0	0.0	0.0	0.0	3.6	0.0	2.9
LOS by Move:	A	C	A	C	C	A	A	A	A	A	A	A
HCM2kAvgQ:	0	38	41	13	32	0	0	0	0	54	0	2

Level Of Service Computation Report
Unknown Method (Future Volume Alternative)

Intersection #2 SR-16 and Central Casino Entrance

Street Name:	SR-16						Central Casino Entrance					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0 0 1 0			0 0 1 0 0			0 0 0 0 0			0 0 0 0 0		
Volume Module:												
Base Vol:	0	329	89	0	304	0	0	0	0	0	0	0
Growth Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Bse:	0	0	0	0	0	0	0	0	0	0	0	0
Added Vol:	0	31	0	0	28	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	0	0	0	0	0	0	0	0	0
User Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Volume:	0	0	0	0	0	0	0	0	0	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PCE Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MLF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FinalVolume:	0	0	0	0	0	0	0	0	0	0	0	0
Critical Gap Module: >> Population:0 << >> Run Speed(N/S): 30 MPH <<												
Critical Gp:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capacity Module:												
Cnflict Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Potent Cap.:	0	0	0	0	0	0	0	0	0	0	0	0
Level Of Service Module:												
LOS by Move:												
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	0	0	0	0	0	0	0	0	0	0	0	0

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #3 SR-16 and South Casino Entrance

Average Delay (sec/veh): 1.7 Worst Case Level Of Service: C[20.1]

Street Name:	SR-16						South Casino Entrance					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 1 0			0 0 1 0 0			0 0 0 0 0			1 0 0 0 1		
Volume Module:												
Base Vol:	0	424	109	0	292	0	0	0	0	81	0	1
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	424	109	0	292	0	0	0	0	81	0	1
Added Vol:	0	31	0	0	28	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	455	109	0	320	0	0	0	0	81	0	1
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	478	114	0	336	0	0	0	0	85	0	1
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	478	114	0	336	0	0	0	0	85	0	1
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	871	xxxx	535
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	321	xxxx	545
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	321	xxxx	545
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.26	xxxx	0.00
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	26.1	xxxx	0.1
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	20.2	xxxx	11.6
LOS by Move:	*	*	*	*	*	*	*	*	*	C	*	B
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			20.1		
ApproachLOS:	*			*			*			C		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #4 SR-16 and County Rd 85

Average Delay (sec/veh): 0.3 Worst Case Level Of Service: C[15.5]

Street Name:	County Rd 85						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			0 0 1! 0 0			0 1 0 0 0			0 0 0 1 0		
Volume Module:												
Base Vol:	0	0	0	5	0	9	9	335	0	0	553	3
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	5	0	9	9	335	0	0	553	3
Added Vol:	0	0	0	0	0	1	1	27	0	0	30	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	5	0	10	10	362	0	0	583	3
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
PHF Volume:	0	0	0	6	0	11	11	399	0	0	643	3
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	6	0	11	11	399	0	0	643	3
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	1066	1066	644	646	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	246	222	473	925	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	244	220	473	925	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.02	0.00	0.02	0.01	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.9	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	360	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.1	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	15.5	xxxxx	8.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	C	*	A	*	*	*	*	*
ApproachDel:	xxxxxx			15.5			xxxxxx			xxxxxx		
ApproachLOS:	*			C			*			*		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #5 SR-16 and County Rd 85B

Average Delay (sec/veh): 1.5 Worst Case Level Of Service: B[13.6]

Street Name:	County Rd 85B									SR-16								
Approach:	North Bound			South Bound			East Bound			West Bound								
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled								
Rights:	Include			Include			Include			Include								
Lanes:	0	0	1! 0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	1	0	0
Volume Module:																				
Base Vol:	101	0	2	0	0	0	0	219	116	3	442	0								
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
Initial Bse:	101	0	2	0	0	0	0	219	116	3	442	0								
Added Vol:	1	0	0	0	0	0	0	27	1	0	29	0								
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0								
Initial Fut:	102	0	2	0	0	0	0	246	117	3	471	0								
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92								
PHF Volume:	111	0	2	0	0	0	0	267	127	3	512	0								
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0								
FinalVolume:	111	0	2	0	0	0	0	267	127	3	512	0								
Critical Gap Module:																				
Critical Gp:	6.4	6.5	6.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx								
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx								
Capacity Module:																				
Cnflict Vol:	786	786	267	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	395	xxxx	xxxxx								
Potent Cap.:	361	324	771	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1148	xxxx	xxxxx								
Move Cap.:	360	323	771	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1148	xxxx	xxxxx								
Volume/Cap:	0.31	0.00	0.00	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.00	xxxx	xxxx								
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.2	xxxx	xxxxx								
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.1	xxxx	xxxxx								
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*								
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx		530	xxxxx		xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx		
SharedQueue:	xxxxx		0.8	xxxxx		xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx		
Shrd ConDel:	xxxxx		13.6	xxxxx		xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx		
Shared LOS:	*		B	*		*	*	*			*	*	*			*	*	*		
ApproachDel:		13.6			xxxxxx				xxxxxx					xxxxxx						
ApproachLOS:		B			*				*					*						

Note: Queue reported is the distance per lane in feet.

6: Yolo Ave & Woodland Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR	All
Denied Del/Veh (s)	0.3	0.5	0.3	0.1	0.1	0.1	0.4	0.4	2.8	0.1	0.2	0.4
Total Del/Veh (s)	11.7	12.9	6.0	8.0	12.9	5.8	1.6	3.0	0.7	9.5	5.5	3.9

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #7 SR-16 and Capay St

Average Delay (sec/veh): 0.9 Worst Case Level Of Service: C[17.9]

Street Name:	SR-16						Capay St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	30	467	11	3	239	7	5	2	23	3	1	3
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	30	467	11	3	239	7	5	2	23	3	1	3
Added Vol:	0	41	0	0	36	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	30	508	11	3	275	7	5	2	23	3	1	3
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
PHF Volume:	34	579	13	3	313	8	6	2	26	3	1	3
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	34	579	13	3	313	8	6	2	26	3	1	3
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx	7.1	6.5	6.2	7.1	6.5	6.2
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	3.5	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	321	xxxx	xxxxx	591	xxxx	xxxxx	979	983	317	991	981	585
Potent Cap.:	1222	xxxx	xxxxx	970	xxxx	xxxxx	229	249	723	225	249	511
Move Cap.:	1222	xxxx	xxxxx	970	xxxx	xxxxx	221	241	723	210	241	511
Volume/Cap:	0.03	xxxx	xxxx	0.00	xxxx	xxxx	0.03	0.01	0.04	0.02	0.00	0.01
Level Of Service Module:												
2Way95thQ:	2.2	xxxx	xxxxx	0.3	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	8.0	xxxx	xxxxx	8.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	478	xxxxx	xxxx	288	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.2	xxxxx	xxxxx	0.1	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	13.1	xxxxx	xxxxx	17.9	xxxxx
Shared LOS:	*	*	*	*	*	*	*	B	*	*	C	*
ApproachDel:	xxxxxx			xxxxxx			13.1			17.9		
ApproachLOS:	*			*			B			C		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #8 SR-16 and Madison St

Average Delay (sec/veh): 0.4 Worst Case Level Of Service: B[12.1]

Street Name:	SR-16						Madison St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 1 0	0	0	0 0 0	1	0	0 0 1!	0	0	0 0 1!	0	0
Volume Module:												
Base Vol:	14 500	0	0	256	6		5	0	14	0	0	0
Growth Adj:	1.00 1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	14 500	0	0	256	6		5	0	14	0	0	0
Added Vol:	0 40	0	0	35	0		0	0	0	0	0	0
PasserByVol:	0 0	0	0	0	0		0	0	0	0	0	0
Initial Fut:	14 540	0	0	291	6		5	0	14	0	0	0
User Adj:	1.00 1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.93 0.93	0.93	0.93	0.93	0.93		0.93	0.93	0.93	0.93	0.93	0.93
PHF Volume:	15 579	0	0	312	6		5	0	15	0	0	0
Reduct Vol:	0 0	0	0	0	0		0	0	0	0	0	0
FinalVolume:	15 579	0	0	312	6		5	0	15	0	0	0
Critical Gap Module:												
Critical Gp:	4.1 xxxx xxxxx	xxxxx	xxxx	xxxxx			6.4	6.5	6.2	7.1	6.5	6.2
FollowUpTim:	2.2 xxxx xxxxx	xxxxx	xxxx	xxxxx			3.5	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	318 xxxx xxxxx	xxxx	xxxx	xxxxx			924	924	315	931	927	579
Potent Cap.:	1225 xxxx xxxxx	xxxx	xxxx	xxxxx			299	269	725	247	268	515
Move Cap.:	1225 xxxx xxxxx	xxxx	xxxx	xxxxx			296	266	725	240	265	515
Volume/Cap:	0.01 xxxx xxxx	xxxx	xxxx	xxxx			0.02	0.00	0.02	0.00	0.00	0.00
Level Of Service Module:												
2Way95thQ:	0.9 xxxx xxxxx	xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	8.0 xxxx xxxxx	xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A *	*	*	*	*		*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx xxxx xxxxx			xxxx xxxx xxxxx			xxxx	525	xxxxx	xxxx	0	xxxxx
SharedQueue:	0.0 xxxx xxxxx	xxxxx	xxxx	xxxxx	xxxxx		0.1	xxxxx	xxxxx	xxxx	xxxxx	
Shrd ConDel:	8.0 xxxx xxxxx	xxxxx	xxxx	xxxxx	xxxxx		12.1	xxxxx	xxxxx	xxxx	xxxxx	
Shared LOS:	A *	*	*	*	*		B	*	*	*	*	
ApproachDel:	xxxxxx		xxxxxx				12.1		xxxxxx			
ApproachLOS:	*		*				B		*			

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #9 SR-16 and Plainfield St

Average Delay (sec/veh): 1.2 Worst Case Level Of Service: C[19.9]

Street Name:	SR-16						Plainfield St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 1 0	1 0	5	1 0	0 1 0		0 0 1! 0	0	0	0 0 1! 0	0	0
Volume Module:												
Base Vol:	27 522	12	8	254	5	5	8	17	9	8	3	
Growth Adj:	1.00 1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Initial Bse:	27 522	12	8	254	5	5	8	17	9	8	3	
Added Vol:	0 39	0	0	35	0	0	0	0	0	0	1	
PasserByVol:	0 0	0	0	0	0	0	0	0	0	0	0	
Initial Fut:	27 561	12	8	289	5	5	8	17	9	8	4	
User Adj:	1.00 1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PHF Adj:	0.97 0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
PHF Volume:	28 580	12	8	299	5	5	8	18	9	8	4	
Reduct Vol:	0 0	0	0	0	0	0	0	0	0	0	0	
FinalVolume:	28 580	12	8	299	5	5	8	18	9	8	4	
Critical Gap Module:												
Critical Gp:	4.1 xxxx xxxxx		4.1 xxxx xxxxx			7.1	6.5	6.2	7.1	6.5	6.2	
FollowUpTim:	2.2 xxxx xxxxx		2.2 xxxx xxxxx			3.5	4.0	3.3	3.5	4.0	3.3	
Capacity Module:												
Cnflict Vol:	304 xxxx xxxxx		593 xxxx xxxxx			668	966	301	973	963	296	
Potent Cap.:	1240 xxxx xxxxx		969 xxxx xxxxx			372	254	738	231	256	743	
Move Cap.:	1240 xxxx xxxxx		969 xxxx xxxxx			352	246	738	215	248	743	
Volume/Cap:	0.02 xxxx xxxx		0.01 xxxx xxxx			0.01	0.03	0.02	0.04	0.03	0.01	
Level Of Service Module:												
2Way95thQ:	1.7 xxxx xxxxx		0.6 xxxx xxxxx			xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	
Control Del:	8.0 xxxx xxxxx		8.7 xxxx xxxxx			xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	
LOS by Move:	A *	*	A	*	*	*	*	*	*	*	*	
Movement:	LT - LTR - RT		LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			
Shared Cap.:	xxxx xxxx xxxxx		xxxx xxxx xxxxx			xxxx	430	xxxxx	xxxx	264	xxxxx	
SharedQueue:	0.1 xxxx xxxxx		xxxxx xxxx xxxxx			xxxxx	0.2	xxxxx	xxxxx	0.3	xxxxx	
Shrd ConDel:	8.0 xxxx xxxxx		xxxxx xxxx xxxxx			xxxxx	14.0	xxxxx	xxxxx	19.9	xxxxx	
Shared LOS:	A *	*	*	*	*	*	B	*	*	C	*	
ApproachDel:	xxxxxx		xxxxxx			14.0			19.9			
ApproachLOS:	*		*			B			C			

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #10 SR-16 and County Road 21A

Cycle (sec):	100	Critical Vol./Cap.(X):	0.497
Loss Time (sec):	0	Average Delay (sec/veh):	11.1
Optimal Cycle:	0	Level Of Service:	B

Street Name:	SR-16						County Road 21A					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Ignore		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	0 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	1 0	1
Volume Module:												
Base Vol:	0	0	0	276	0	7	4	120	0	0	105	558
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	276	0	7	4	120	0	0	105	558
Added Vol:	0	0	0	34	0	1	1	0	0	0	0	38
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	310	0	8	5	120	0	0	105	596
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
PHF Adj:	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.00
PHF Volume:	0	0	0	352	0	9	6	136	0	0	119	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	352	0	9	6	136	0	0	119	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
FinalVolume:	0	0	0	352	0	9	6	136	0	0	119	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	0.97	0.00	0.03	0.04	0.96	0.00	0.00	1.00	1.00
Final Sat.:	0	0	0	708	0	18	27	639	0	0	605	686
Capacity Analysis Module:												
Vol/Sat:	xxxx	xxxx	xxxx	0.50	xxxx	0.50	0.21	0.21	xxxx	xxxx	0.20	0.00
Crit Moves:				****				****			****	
Delay/Veh:	0.0	0.0	0.0	12.3	0.0	12.3	9.4	9.4	0.0	0.0	9.6	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	12.3	0.0	12.3	9.4	9.4	0.0	0.0	9.6	0.0
LOS by Move:	*	*	*	B	*	B	A	A	*	*	A	*
ApproachDel:	xxxxxx			12.3			9.4			9.6		
Delay Adj:	xxxxx			1.00			1.00			1.00		
ApprAdjDel:	xxxxxx			12.3			9.4			9.6		
LOS by Appr:	*			B			A			A		
AllWayAvgQ:	0.0	0.0	0.0	22.6	22.6	22.6	6.0	6.0	6.0	0.0	5.4	0.0

Note: Queue reported is the distance per lane in feet.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #11 County Rd 85B and County Rd 21A

Average Delay (sec/veh): 5.9 Worst Case Level Of Service: A[8.9]

Street Name:	County Rd 85B									County Rd 21A								
Approach:	North Bound						South Bound						East Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Uncontrolled						Uncontrolled						Stop Sign					
Rights:	Include						Include						Include					
Lanes:	0	0	0	1	0		0	1	0	0	0		0	0	0	0	0	
Volume Module:																		
Base Vol:	0	32	0				87	24	0				0	0	0			
Growth Adj:	1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00			
Initial Bse:	0	32	0				87	24	0				0	0	0			
Added Vol:	0	1	1				0	1	0				0	0	0			
PasserByVol:	0	0	0				0	0	0				0	0	0			
Initial Fut:	0	33	1				87	25	0				0	0	0			
User Adj:	1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00			
PHF Adj:	0.79	0.79	0.79				0.79	0.79	0.79				0.79	0.79	0.79			
PHF Volume:	0	42	1				111	32	0				0	0	0			
Reduct Vol:	0	0	0				0	0	0				0	0	0			
FinalVolume:	0	42	1				111	32	0				0	0	0			
Critical Gap Module:																		
Critical Gp:	xxxxx	xxxx	xxxxx				4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx		6.4	6.5			6.2
FollowUpTim:	xxxxx	xxxx	xxxxx				2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx		3.5	4.0			3.3
Capacity Module:																		
Cnflict Vol:	xxxx	xxxx	xxxxx				43	xxxx	xxxxx	xxxx	xxxx	xxxxx		296	296			43
Potent Cap.:	xxxx	xxxx	xxxxx				1565	xxxx	xxxxx	xxxx	xxxx	xxxxx		695	616			1028
Move Cap.:	xxxx	xxxx	xxxxx				1565	xxxx	xxxxx	xxxx	xxxx	xxxxx		655	569			1028
Volume/Cap:	xxxx	xxxx	xxxx				0.07	xxxx	xxxx	xxxx	xxxx	xxxx		0.00	0.00			0.09
Level Of Service Module:																		
2Way95thQ:	xxxx	xxxx	xxxxx				5.7	xxxx	xxxxx	xxxx	xxxx	xxxxx		xxxx	xxxx			xxxxx
Control Del:	xxxxx	xxxx	xxxxx				7.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx		xxxxx	xxxx			xxxxx
LOS by Move:	*	*	*				A	*	*	*	*	*		*	*			*
Movement:	LT	-	LTR	-	RT		LT	-	LTR	-	RT		LT	-	LTR	-	RT	
Shared Cap.:	xxxx	xxxx	xxxxx				xxxx	xxxx	xxxxx				xxxx	xxxx	xxxxx			
SharedQueue:	xxxxx	xxxx	xxxxx				0.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx		xxxxx	0.3			xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx				7.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx		xxxxx	8.9			xxxxx
Shared LOS:	*	*	*				A	*	*	*	*	*		*	A			*
ApproachDel:	xxxxxx						xxxxxx				xxxxxx				8.9			
ApproachLOS:	*						*				*				A			

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #12 Country Villa Estates and County Rd 21A

Average Delay (sec/veh): 0.1 Worst Case Level Of Service: A[9.9]

Street Name:	Country Villa Estates									County Rd 21A								
Approach:	North Bound			South Bound			East Bound			West Bound								
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled								
Rights:	Include			Include			Include			Include								
Lanes:	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	1	0
Volume Module:																				
Base Vol:	0	0	0	3	0	0	0	105	0	0	82	9								
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
Initial Bse:	0	0	0	3	0	0	0	105	0	0	82	9								
Added Vol:	0	0	0	0	0	0	0	1	0	0	1	0								
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0								
Initial Fut:	0	0	0	3	0	0	0	106	0	0	83	9								
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
PHF Adj:	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79								
PHF Volume:	0	0	0	4	0	0	0	134	0	0	105	11								
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0								
FinalVolume:	0	0	0	4	0	0	0	134	0	0	105	11								
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx	xxxxx	245	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx								
Potent Cap.:	xxxx	xxxx	xxxxx	743	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx								
Move Cap.:	xxxx	xxxx	xxxxx	743	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx								
Volume/Cap:	xxxx	xxxx	xxxx	0.01	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx								
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	xxxxx	0.4	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx								
Control Del:	xxxxx	xxxx	xxxxx	9.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
LOS by Move:	*	*	*	A	*	*	*	*	*	*	*	*								
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx		
SharedQueue:	xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx		
Shrd ConDel:	xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx		
Shared LOS:	*	*	*			*	*	*			*	*	*			*	*	*		
ApproachDel:	xxxxxx					9.9					xxxxxx					xxxxxx				
ApproachLOS:	*					A					*					*				

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #13 Fremont St and County Rd 21A

Average Delay (sec/veh): 1.2 Worst Case Level Of Service: A[9.9]

Street Name:	Fremont St						County Rd 21A					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0 0		0 0 1!	0 0		0 1 0	0 0		0 0 0	1 0	
Volume Module:												
Base Vol:	0	0	0	14	0	8	10	106	0	0	84	25
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	14	0	8	10	106	0	0	84	25
Added Vol:	0	0	0	0	0	0	0	1	0	0	1	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	14	0	8	10	107	0	0	85	25
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
PHF Volume:	0	0	0	19	0	11	13	142	0	0	113	33
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	19	0	11	13	142	0	0	113	33
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	298	298	129	146	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	693	614	920	1436	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	688	608	920	1436	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.03	0.00	0.01	0.01	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.7	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	758	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.1	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	9.9	xxxxx	7.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	A	*	A	*	*	*	*	*
ApproachDel:	xxxxxx			9.9			xxxxxx			xxxxxx		
ApproachLOS:	*			A			*			*		

Note: Queue reported is the distance per lane in feet.

DELAY (CONTROL)

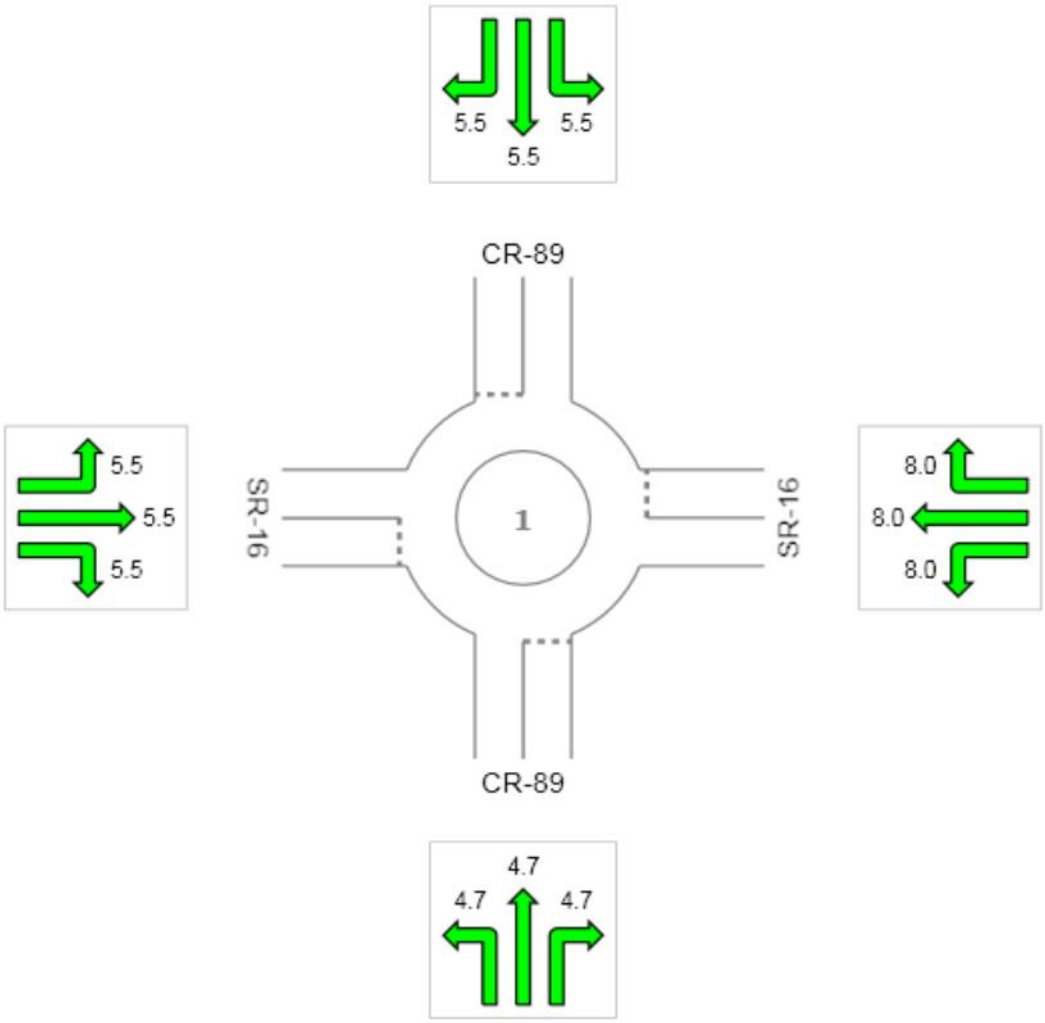
Average control delay per vehicle, or average pedestrian delay (seconds)

Site: SR-16/CR-89

Near-Term Sat PM
Roundabout

All Movement Classes

	South	East	North	West	Intersection
Delay (Control)	4.7	8.0	5.5	5.5	6.9
LOS	A	A	A	A	A



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F | Continuous

Level of Service Method: Delay & v/c (HCM 2010)
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Roundabout Level of Service Method: Same as Sign Control
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #15 SR-16 and SB I-505

Average Delay (sec/veh): 0.3 Worst Case Level Of Service: C[17.3]

Street Name:	SB I-505								SR-16							
Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	0	0 0	0	1	0	0 1	0	0	0	1 0	0	0	1	0 1
Volume Module:																
Base Vol:	0	0	0		6	1	7		0	169	181		0	644	34	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	0	0	0		6	1	7		0	169	181		0	644	34	
Added Vol:	0	0	0		0	0	3		0	27	7		0	35	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	0	0	0		6	1	10		0	196	188		0	679	34	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.89	0.89	0.89		0.89	0.89	0.89		0.89	0.89	0.89		0.89	0.89	0.89	
PHF Volume:	0	0	0		7	1	11		0	221	212		0	766	38	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
FinalVolume:	0	0	0		7	1	11		0	221	212		0	766	38	
Critical Gap Module:																
Critical Gp:	xxxxx	xxxx	xxxxx		6.4	6.6	6.3		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
FollowUpTim:	xxxxx	xxxx	xxxxx		3.5	4.0	3.3		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Capacity Module:																
Cnflict Vol:	xxxx	xxxx	xxxxx		1094	1200	766		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Potent Cap.:	xxxx	xxxx	xxxxx		234	183	398		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Move Cap.:	xxxx	xxxx	xxxxx		234	183	398		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Volume/Cap:	xxxx	xxxx	xxxx		0.03	0.01	0.03		xxxx	xxxx	xxxx		xxxx	xxxx	xxxx	
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	xxxxx		xxxx	xxxx	2.2		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Control Del:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	14.3		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
LOS by Move:	*	*	*		*	*	B		*	*	*		*	*	*	
Movement:	LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT	
Shared Cap.:	xxxx	xxxx	xxxxx		225	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
SharedQueue:	xxxxx	xxxx	xxxxx		0.1	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shrd ConDel:	xxxxx	xxxx	xxxxx		21.6	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shared LOS:	*	*	*		C	*	*		*	*	*		*	*	*	
ApproachDel:	xxxxxx				17.3				xxxxxx				xxxxxx			
ApproachLOS:	*				C				*				*			

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #16 SR-16 and NB I-505

Cycle (sec):	50	Critical Vol./Cap.(X):	0.624
Loss Time (sec):	6	Average Delay (sec/veh):	12.2
Optimal Cycle:	47	Level Of Service:	B

Street Name:	NB I-505						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Ignore			Include		
Min. Green:	5	5	5	0	0	0	0	5	5	0	5	5
Y+R:	4.1	4.1	4.1	4.0	4.0	4.0	4.0	5.5	5.5	4.0	5.5	5.5
Lanes:	0 1	0	0 1	0	0	0 0	0	0	1 0 1	0	0	1 0 1
Volume Module:												
Base Vol:	353	0	46	0	0	0	0	171	5	0	334	6
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	353	0	46	0	0	0	0	171	5	0	334	6
Added Vol:	8	0	0	0	0	0	0	24	3	0	27	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	361	0	46	0	0	0	0	195	8	0	361	6
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Adj:	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.00	0.87	0.87	0.87
PHF Volume:	414	0	53	0	0	0	0	223	0	0	414	7
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	414	0	53	0	0	0	0	223	0	0	414	7
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
FinalVolume:	414	0	53	0	0	0	0	223	0	0	414	7
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.68	1.00	0.81	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.81
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00
Final Sat.:	1291	0	1537	0	0	0	0	1809	1900	0	1809	1537
Capacity Analysis Module:												
Vol/Sat:	0.32	0.00	0.03	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.23	0.00
Crit Moves:	****										****	
Green/Cycle:	0.51	0.00	0.51	0.00	0.00	0.00	0.00	0.37	0.00	0.00	0.37	0.37
Volume/Cap:	0.62	0.00	0.07	0.00	0.00	0.00	0.00	0.34	0.00	0.00	0.62	0.01
Uniform Del:	8.7	0.0	6.1	0.0	0.0	0.0	0.0	11.4	0.0	0.0	13.0	10.1
IncremntDel:	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	1.9	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00
Delay/Veh:	10.6	0.0	6.2	0.0	0.0	0.0	0.0	11.7	0.0	0.0	14.9	10.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	10.6	0.0	6.2	0.0	0.0	0.0	0.0	11.7	0.0	0.0	14.9	10.1
LOS by Move:	B	A	A	A	A	A	A	B	A	A	B	B
HCM2kAvgQ:	142	0	11	0	0	0	0	69	0	0	132	2

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #17 SR-16 and Wild Wings Dr

Average Delay (sec/veh): 1.7 Worst Case Level Of Service: C[15.1]

Street Name:	Wild Wings Dr						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			1 0 0 0 1			1 0 1 0 0			0 0 1 0 1		
Volume Module:												
Base Vol:	0	0	0	65	0	14	9	216	0	0	314	69
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	65	0	14	9	216	0	0	314	69
Added Vol:	0	0	0	0	0	0	0	24	0	0	27	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	65	0	14	9	240	0	0	341	69
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
PHF Volume:	0	0	0	76	0	16	11	280	0	0	398	81
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	76	0	16	11	280	0	0	398	81
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	700	xxxx	398	479	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	406	xxxx	651	1068	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	403	xxxx	651	1068	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.19	xxxx	0.03	0.01	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	17.1	xxxx	1.9	0.7	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	16.0	xxxx	10.7	8.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	C	*	B	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			15.1			xxxxxx			xxxxxx		
ApproachLOS:	*			C			*			*		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #18 SR-16 and County Rd 94B

Average Delay (sec/veh): 0.6 Worst Case Level Of Service: B[14.4]

Street Name:	County Rd 94B						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0	0	0 0 0	1	0	0 1 0	0	0	0 0 1!	0	0
Volume Module:												
Base Vol:	6	0	5	0	4	11	4	273	0	9	357	1
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	6	0	5	0	4	11	4	273	0	9	357	1
Added Vol:	0	0	0	0	0	0	0	24	0	0	27	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	6	0	5	0	4	11	4	297	0	9	384	1
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
PHF Volume:	7	0	6	0	5	12	5	335	0	10	433	1
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	7	0	6	0	5	12	5	335	0	10	433	1
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	xxxxx	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	807	799	335	xxxx	799	434	435	xxxx	xxxxx	335	xxxx	xxxxx
Potent Cap.:	300	319	707	xxxx	319	622	1109	xxxx	xxxxx	1207	xxxx	xxxxx
Move Cap.:	288	315	707	xxxx	315	622	1109	xxxx	xxxxx	1207	xxxx	xxxxx
Volume/Cap:	0.02	0.00	0.01	xxxx	0.01	0.02	0.00	xxxx	xxxx	0.01	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.3	xxxx	xxxxx	0.6	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.3	xxxx	xxxxx	8.0	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	394	xxxxx	xxxx	xxxx	494	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.1	xxxxx	xxxxx	xxxx	0.1	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	14.4	xxxxx	xxxxx	xxxx	12.6	8.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	B	*	*	*	B	A	*	*	*	*	*
ApproachDel:		14.4			12.6		xxxxxx			xxxxxx		
ApproachLOS:		B			B		*			*		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #19 SR-16 and County Rd 95

Average Delay (sec/veh): 0.9 Worst Case Level Of Service: C[16.4]

Street Name:	County Rd 95								SR-16							
Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	1! 0	0	0	0	1	0 0	0	0	1	0 0	0	1	0	0 0
Volume Module:																
Base Vol:	10	3	22	0	4	0	0	276	0	19	358	0				
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Initial Bse:	10	3	22	0	4	0	0	276	0	19	358	0				
Added Vol:	0	0	0	0	0	0	0	23	0	0	27	0				
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0				
Initial Fut:	10	3	22	0	4	0	0	299	0	19	385	0				
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92				
PHF Volume:	11	3	24	0	4	0	0	325	0	21	418	0				
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0				
FinalVolume:	11	3	24	0	4	0	0	325	0	21	418	0				
Critical Gap Module:																
Critical Gp:	7.1	6.5	6.2	xxxxx	6.5	xxxxx	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx				
FollowUpTim:	3.5	4.0	3.3	xxxxx	4.0	xxxxx	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx				
Capacity Module:																
Cnflict Vol:	787	785	325	xxxx	785	xxxxx	xxxx	xxxx	xxxxx	325	xxxx	xxxxx				
Potent Cap.:	309	325	716	xxxx	325	xxxxx	xxxx	xxxx	xxxxx	1218	xxxx	xxxxx				
Move Cap.:	302	319	716	xxxx	319	xxxxx	xxxx	xxxx	xxxxx	1218	xxxx	xxxxx				
Volume/Cap:	0.04	0.01	0.03	xxxx	0.01	xxxx	xxxx	xxxx	xxxx	0.02	xxxx	xxxx				
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	1.0	xxxxx	xxxx	xxxx	xxxxx	1.3	xxxx	xxxxx				
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	16.4	xxxxx	xxxxx	xxxx	xxxxx	8.0	xxxx	xxxxx				
LOS by Move:	*	*	*	*	C	*	*	*	*	A	*	*				
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT				
Shared Cap.:	xxxx	478	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx				
SharedQueue:	xxxxx	0.3	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	0.1	xxxx	xxxxx				
Shrd ConDel:	xxxxx	13.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.0	xxxx	xxxxx				
Shared LOS:	*	B	*	*	*	*	*	*	*	A	*	*				
ApproachDel:	13.2			16.4			xxxxxx			xxxxxx						
ApproachLOS:	B			C			*			*						

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #20 SR-16 and County Rd 98

Cycle (sec):	80	Critical Vol./Cap.(X):	0.366
Loss Time (sec):	12	Average Delay (sec/veh):	24.7
Optimal Cycle:	80	Level Of Service:	C

Street Name:	County Rd 98						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	5	5	5	5	6	6	5	5	5
Y+R:	4.0	6.0	6.0	4.0	6.0	6.0	4.0	5.3	5.3	4.0	5.3	5.3
Lanes:	1 0	0	1 0	1 0	1	0 1	1 0	1	0 1	1 0	1	0 1
Volume Module:												
Base Vol:	97	114	81	47	107	57	56	199	80	43	214	45
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	97	114	81	47	107	57	56	199	80	43	214	45
Added Vol:	4	0	0	0	0	16	14	6	4	0	7	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	101	114	81	47	107	73	70	205	84	43	221	45
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
PHF Volume:	104	118	84	49	110	75	72	212	87	44	228	46
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	104	118	84	49	110	75	72	212	87	44	228	46
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	104	118	84	49	110	75	72	212	87	44	228	46
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.92	0.92	0.93	0.98	0.83	0.90	0.86	0.86	0.90	0.95	0.81
Lanes:	1.00	0.58	0.42	1.00	1.00	1.00	1.00	1.42	0.58	1.00	1.00	1.00
Final Sat.:	1769	1021	725	1769	1862	1583	1718	2331	955	1718	1809	1537
Capacity Analysis Module:												
Vol/Sat:	0.06	0.12	0.12	0.03	0.06	0.05	0.04	0.09	0.09	0.03	0.13	0.03
Crit Moves:		****		****			****				****	
Green/Cycle:	0.20	0.32	0.32	0.07	0.20	0.20	0.11	0.27	0.27	0.19	0.34	0.34
Volume/Cap:	0.30	0.37	0.37	0.37	0.30	0.24	0.37	0.33	0.33	0.14	0.37	0.09
Uniform Del:	27.5	21.2	21.2	35.2	27.6	27.2	32.7	23.3	23.3	27.1	19.6	17.7
IncremntDel:	0.5	0.4	0.4	1.7	0.5	0.4	1.2	0.2	0.2	0.2	0.4	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	28.0	21.6	21.6	36.9	28.0	27.6	33.9	23.5	23.5	27.3	20.0	17.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	28.0	21.6	21.6	36.9	28.0	27.6	33.9	23.5	23.5	27.3	20.0	17.8
LOS by Move:	C	C	C	D	C	C	C	C	C	C	C	B
HCM2kAvgQ:	60	101	101	28	56	38	40	75	75	25	109	20

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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #21 SR-16 and W. Kentucky Ave

Cycle (sec):	80	Critical Vol./Cap.(X):	0.230
Loss Time (sec):	12	Average Delay (sec/veh):	19.2
Optimal Cycle:	80	Level Of Service:	B

Street Name:	SR-16						W. Kentucky Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	5	5	5	5	5	5	5	5	5
Y+R:	4.0	6.0	6.0	4.0	6.0	6.0	4.0	5.3	5.3	4.0	5.3	5.3
Lanes:	1 0	0	1 0	1 0	0	1 0	1 0	0	1 0	1 0	0	1 0
Volume Module:												
Base Vol:	5	134	64	12	133	25	15	34	12	42	46	8
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	5	134	64	12	133	25	15	34	12	42	46	8
Added Vol:	0	9	5	0	11	0	0	0	0	5	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	5	143	69	12	144	25	15	34	12	47	46	8
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
PHF Volume:	5	153	74	13	154	27	16	36	13	50	49	9
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	5	153	74	13	154	27	16	36	13	50	49	9
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	5	153	74	13	154	27	16	36	13	50	49	9
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.90	0.91	0.91	0.90	0.93	0.93	0.93	0.94	0.94	0.93	0.96	0.96
Lanes:	1.00	0.67	0.33	1.00	0.85	0.15	1.00	0.74	0.26	1.00	0.85	0.15
Final Sat.:	1718	1160	560	1718	1507	262	1769	1323	467	1769	1551	270
Capacity Analysis Module:												
Vol/Sat:	0.00	0.13	0.13	0.01	0.10	0.10	0.01	0.03	0.03	0.03	0.03	0.03
Crit Moves:		****		****				****		****		
Green/Cycle:	0.23	0.55	0.55	0.06	0.38	0.38	0.12	0.12	0.12	0.12	0.12	0.12
Volume/Cap:	0.01	0.24	0.24	0.12	0.27	0.27	0.08	0.24	0.24	0.24	0.27	0.27
Uniform Del:	23.6	9.2	9.2	35.4	17.0	17.0	31.5	32.2	32.2	31.9	32.2	32.2
IncremntDel:	0.0	0.1	0.1	0.5	0.2	0.2	0.2	0.6	0.6	0.6	0.7	0.7
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	23.6	9.3	9.3	35.9	17.2	17.2	31.6	32.8	32.8	32.5	32.9	32.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	23.6	9.3	9.3	35.9	17.2	17.2	31.6	32.8	32.8	32.5	32.9	32.9
LOS by Move:	C	A	A	D	B	B	C	C	C	C	C	C
HCM2kAvgQ:	2	70	70	10	78	78	10	33	33	33	38	38

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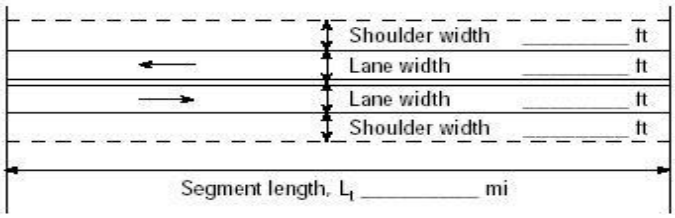
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*CCCR to County Road 85*
Date Performed	*5/16/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *593*veh/h
Opposing direction vol., V_o *401*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *6.7*

☑ Class I highway ☐ Class II highway ☐ Class III highway
Terrain ☐ Level ☑ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.93*
No-passing zone *75%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.7*	*2.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.1*	*1.1*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.962*	*0.949*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*0.97*	*0.92*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*683*	*494*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.6 mi/h*	Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*51.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*39.9 mi/h*
		Percent free flow speed, PFFS	*77.3 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.2*	*1.6*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.990*	*0.971*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*0.98*	*0.92*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*657*	*483*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*60.7*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*32.1*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*79.2*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.40*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1531*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1583*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*77.3*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*637.6*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.35*
Bicycle level of service (Exhibit 15-4)	*E*
Notes	

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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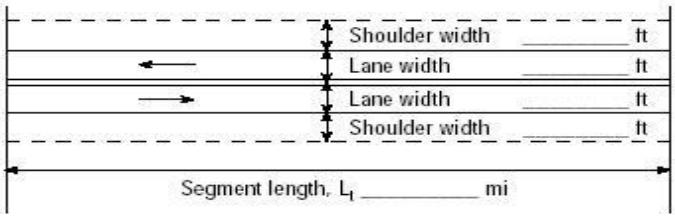
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*CCCR to County Road 85*
Date Performed	*5/16/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *401*veh/h
Opposing direction vol., V_o *593*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *6.7*

☑ Class I highway ☐ Class II highway ☐ Class III highway
Terrain ☐ Level ☑ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.93*
No-passing zone *75%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*2.0*	*1.7*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.1*	*1.1*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.949*	*0.962*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*0.92*	*0.97*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*494*	*683*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.8 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*51.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*40.7 mi/h*
		Percent free flow speed, PFFS	*78.8 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.6*	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.971*	*0.990*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*0.92*	*0.98*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*483*	*657*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*51.7*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*32.1*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*65.3*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.29*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1611*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1666*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*78.8*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*431.2*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.15*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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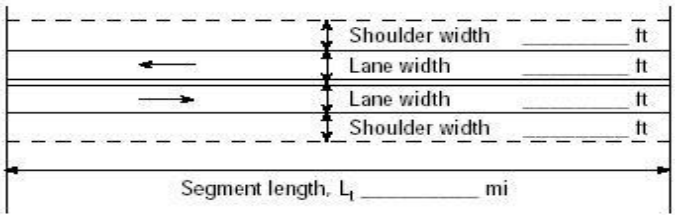
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*County Road 85 to Esparto Town*
Date Performed	*5/16/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *586*veh/h

Opposing direction vol., V_o *367*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *1.4*

Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.92*

No-passing zone *85%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *5*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.3*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.985*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*640*	*405*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*0.3 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.6 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*42.1 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*31.4 mi/h*
		Percent free flow speed, PFFS	*74.6 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*637*	*401*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*57.4*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*34.1*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*78.3*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.37*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*74.6*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*637.0*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.35*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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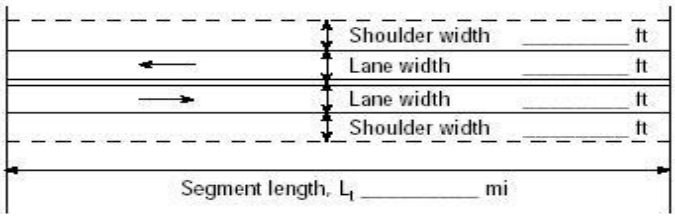
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*County Road 85 to Esparto Town*
Date Performed	*5/16/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Show North Arrow

Analysis direction vol., V_d	*367*veh/h	Grade Length mi	Up/down
Opposing direction vol., V_o	*586*veh/h	Peak-hour factor, PHF	*0.92*
Shoulder width ft	*2.0*	No-passing zone	*85%*
Lane Width ft	*12.0*	% Trucks and Buses , P_T	*5 %*
Segment Length mi	*1.4*	% Recreational vehicles, P_R	*4%*
		Access points *mi*	*5*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.3*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.985*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*405*	*640*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*0.3 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.7 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*42.1 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*32.3 mi/h*
		Percent free flow speed, PFFS	*76.7 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*401*	*637*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*46.1*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*34.1*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*59.3*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*C*
Volume to capacity ratio, *v/c*	*0.24*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*76.7*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*398.9*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.11*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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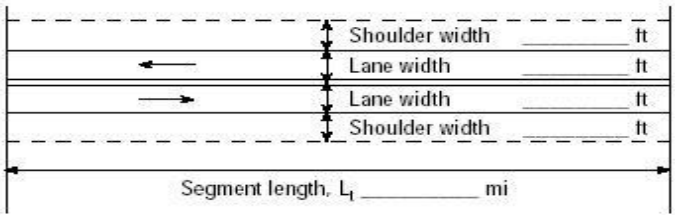
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*through Esparto Town*
Date Performed	*5/16/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Analysis direction vol., V_d	*601*veh/h	Grade Length	mi Up/down
Opposing direction vol., V_o	*318*veh/h	Peak-hour factor, PHF	*0.92*
Shoulder width ft	*2.0*	No-passing zone	*95%*
Lane Width ft	*12.0*	% Trucks and Buses , P_T	*5 %*
Segment Length mi	*1.2*	% Recreational vehicles, P_R	*4%*
		Access points *mi*	*14*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.4*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.980*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*657*	*353*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*3.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*3.3 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*38.9 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*27.8 mi/h*
		Percent free flow speed, PFFS	*71.4 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*653*	*347*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*57.8*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*33.4*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*79.6*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.38*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*71.4*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*653.3*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.36*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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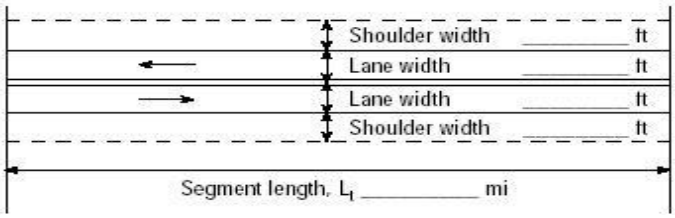
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*through Esparto Town*
Date Performed	*5/16/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.92*

No-passing zone *95%*

Analysis direction vol., V_d *318*veh/h

Opposing direction vol., V_o *601*veh/h

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Shoulder width ft *2.0*

Lane Width ft *12.0*

Access points *mi* *14*/mi

Segment Length mi *1.2*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.4*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.980*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*353*	*657*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*3.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.8 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*38.9 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*29.3 mi/h*
		Percent free flow speed, PFFS	*75.2 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*347*	*653*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*42.4*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*33.4*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*54.0*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*B*
Volume to capacity ratio, *v/c*	*0.20*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*75.2*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*345.7*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.04*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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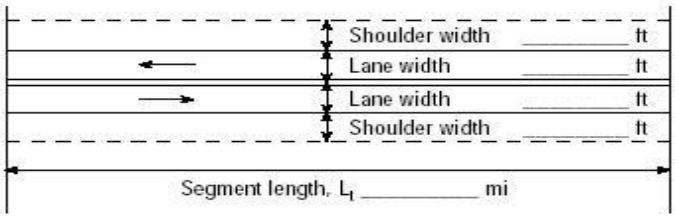
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*Esparto Town to County Rd 89*
Date Performed	*5/16/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2016)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.92*

No-passing zone *80%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *3*/mi

Analysis direction vol., V_d *701*veh/h

Opposing direction vol., V_o *430*veh/h

Shoulder width ft *4.0*

Lane Width ft *12.0*

Segment Length mi *2.7*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.3*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.985*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*766*	*475*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.7 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*40.6 mi/h*
		Percent free flow speed, PFFS	*76.7 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*762*	*470*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*64.9*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*29.2*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*83.0*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.45*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1683*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*76.7*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*762.0*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.14*
Bicycle level of service (Exhibit 15-4)	*E*
Notes	
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain. 2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10. 6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.	

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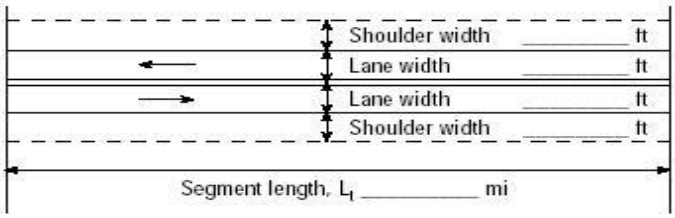
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*Esparto Town to County Rd 89*
Date Performed	*5/16/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2016)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *430*veh/h
Opposing direction vol., V_o *701*veh/h
Shoulder width ft *4.0*
Lane Width ft *12.0*
Segment Length mi *2.7*

☑ Class I highway ☐ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.92*
No-passing zone *80%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.3*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.985*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*475*	*766*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, FFS=$S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.5 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.9 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*41.8 mi/h*
		Percent free flow speed, PFFS	*79.0 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*470*	*762*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*53.0*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*29.2*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*64.1*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.28*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*79.0*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*467.4*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.89*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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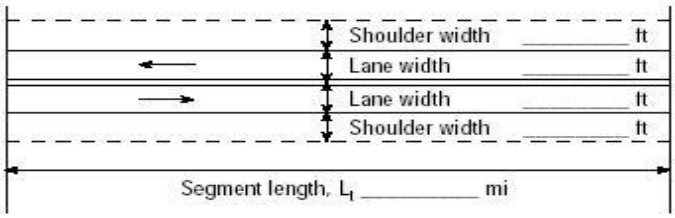
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*County Rd 89 to I-505*
Date Performed	*5/16/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *689*veh/h

Opposing direction vol., V_o *425*veh/h

Shoulder width ft *4.0*

Lane Width ft *12.0*

Segment Length mi *0.8*

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.93*

No-passing zone *100*%

% Trucks and Buses , P_T *5* %

% Recreational vehicles, P_R *4*%

Access points *mi* *4*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.3*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.985*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*745*	*464*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*1.0 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.8 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.7 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*40.5 mi/h*
		Percent free flow speed, PFFS	*76.9* %

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*741*	*459*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*63.3*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*31.0*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*82.4*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.44*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1683*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*76.9*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*740.9*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.12*
Bicycle level of service (Exhibit 15-4)	*E*
Notes	

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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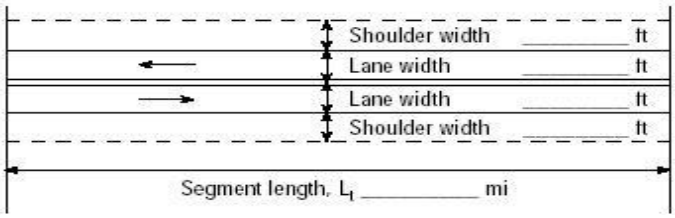
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*County Rd 89 to I-505*
Date Performed	*5/16/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *425*veh/h

Opposing direction vol., V_o *689*veh/h

Shoulder width ft *4.0*

Lane Width ft *12.0*

Segment Length mi *0.8*

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.93*

No-passing zone *100*%

% Trucks and Buses , P_T *5* %

% Recreational vehicles, P_R *4*%

Access points *mi* *4*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.3*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.985*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*464*	*745*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*1.0 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.7 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.7 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*41.6 mi/h*
		Percent free flow speed, PFFS	*79.0 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*459*	*741*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*51.5*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*31.0*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*63.4*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.27*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*79.0*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*457.0*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.88*
Bicycle level of service (Exhibit 15-4)	*E*
Notes	
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain. 2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10. 6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.	

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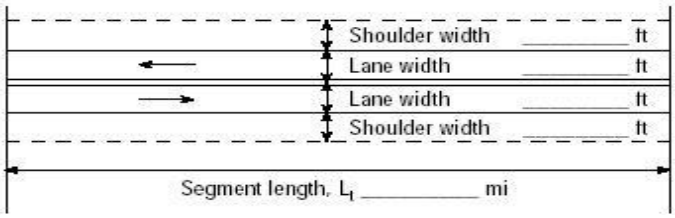
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*I-505 to County Rd 98*
Date Performed	*5/16/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *395*veh/h

Opposing direction vol., V_o *359*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *8.3*

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.92*

No-passing zone *100*%

% Trucks and Buses , P_T *5* %

% Recreational vehicles, P_R *4*%

Access points *mi* *35*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.3*	*1.3*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.985*	*0.985*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*436*	*396*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0* *mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6* *mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*8.8* *mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.8* *mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*43.6* *mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*34.3* *mi/h*
		Percent free flow speed, PFFS	*78.8* %

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*431*	*392*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*45.2*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*44.7*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*68.6*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.26*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1675*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*78.8*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*429.3*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.15*
Bicycle level of service (Exhibit 15-4)	*E*
Notes	
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain. 2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10. 6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.	

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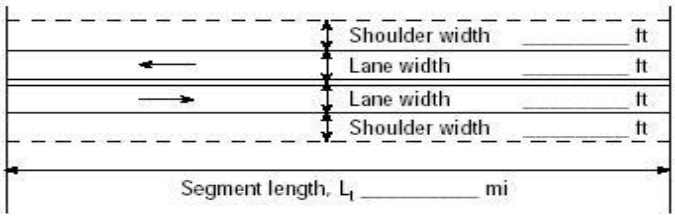
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*I-505 to County Rd 98*
Date Performed	*5/16/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *359*veh/h
Opposing direction vol., V_o *395*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *8.3*

Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.92*
No-passing zone *100*%
% Trucks and Buses , P_T *5* %
% Recreational vehicles, P_R *4*%
Access points *mi* *35*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.3*	*1.3*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.985*	*0.985*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*396*	*436*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0* *mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6* *mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*8.8* *mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.8* *mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*43.6* *mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*34.3* *mi/h*
		Percent free flow speed, PFFS	*78.8* %

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*392*	*431*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*43.2*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*44.7*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*64.5*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.23*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1675*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*78.8*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*390.2*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.10*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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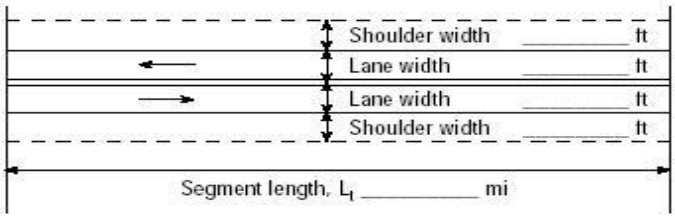
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 21A (EB)*
Agency or Company	*Yolo County*	From/To	*County Rd 85 to SR-16*
Date Performed	*5/16/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *125*veh/h

Opposing direction vol., V_o veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *1.2*

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.84*

No-passing zone *25%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* 7/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.8*	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.962*	*0.962*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*155*	*155*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*0.3 mi/h*	Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*40.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*37.9 mi/h*
		Percent free flow speed, PFFS	*93.3 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*150*	*150*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*16.8*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*38.5*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*36.0*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*A*
Volume to capacity ratio, *v/c*	*0.09*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1642*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*93.3*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*148.8*
Effective width, Wv (Eq. 15-29) ft	*19.25*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.74*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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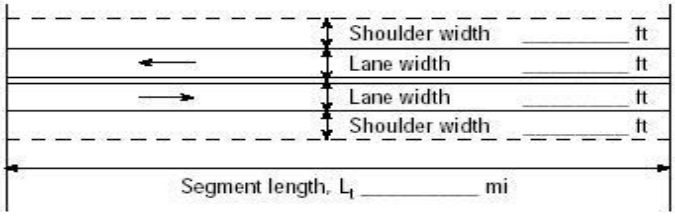
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 21A (WB)*
Agency or Company	*Yolo County*	From/To	*County Rd 85 to SR-16*
Date Performed	*5/16/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *113*veh/h
Opposing direction vol., V_o *125*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *1.2*

Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.84*
No-passing zone *25%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* 7/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.8*	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.962*	*0.962*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*140*	*155*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*0.3 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*40.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*38.0 mi/h*
		Percent free flow speed, PFFS	*93.6 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*135*	*150*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*15.3*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*37.1*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*32.9*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*A*
Volume to capacity ratio, *v/c*	*0.08*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1642*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*93.6*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*134.5*
Effective width, Wv (Eq. 15-29) ft	*20.09*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.52*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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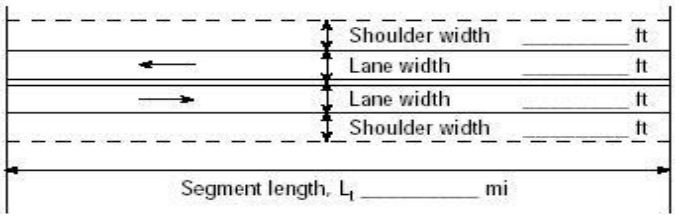
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 85B (NB)*
Agency or Company	*Yolo County*	From/To	*SR-16 to County Rd 21A*
Date Performed	*5/16/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *104*veh/h
Opposing direction vol., V_o *120*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *0.9*

☐ Class I highway ☑ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.86*
No-passing zone *80%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *6*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.8*	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.962*	*0.962*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*126*	*145*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.7 mi/h*	Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*40.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*36.1 mi/h*
		Percent free flow speed, PFFS	*88.3 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*122*	*140*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*13.9*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*54.3*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*39.2*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*A*
Volume to capacity ratio, *v/c*	*0.07*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1642*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*88.3*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*120.9*
Effective width, Wv (Eq. 15-29) ft	*20.72*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.34*
Bicycle level of service (Exhibit 15-4)	*C*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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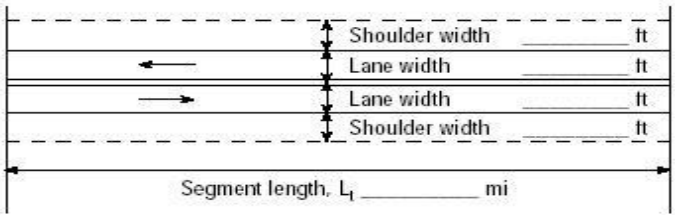
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 85B (SB)*
Agency or Company	*Yolo County*	From/To	*SR-16 to County Rd 21A*
Date Performed	*5/16/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *120*veh/h
Opposing direction vol., V_o *104*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *0.9*

☐ Class I highway ☑ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.86*
No-passing zone *80%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *6*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.8*	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.962*	*0.962*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*145*	*126*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.4 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*40.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*36.4 mi/h*
		Percent free flow speed, PFFS	*89.0 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*140*	*122*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*15.8*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*54.3*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*44.8*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*B*
Volume to capacity ratio, *v/c*	*0.08*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*89.0*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*139.5*
Effective width, Wv (Eq. 15-29) ft	*19.60*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.64*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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LONG-TERM TRAFFIC CONDITIONS

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 SR-16 and North Casino Entrance

Cycle (sec):	65	Critical Vol./Cap.(X):	0.241
Loss Time (sec):	6	Average Delay (sec/veh):	11.9
Optimal Cycle:	62	Level Of Service:	B

Street Name:	SR-16						North Casino Entrance					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ovl			Include			Include			Include		
Min. Green:	0	8	8	5	8	0	0	0	0	5	5	5
Y+R:	4.0	5.5	5.5	4.0	5.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	1	0 1	1 0	1	0 0	0 0	0	0 0	1 0	0	0 1
Volume Module:												
Base Vol:	0	84	166	21	158	0	0	0	0	198	0	20
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	84	166	21	158	0	0	0	0	198	0	20
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	84	166	21	158	0	0	0	0	198	0	20
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
PHF Volume:	0	108	213	27	202	0	0	0	0	254	0	26
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	108	213	27	202	0	0	0	0	254	0	26
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	108	213	27	202	0	0	0	0	254	0	26
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	0.81	0.90	0.95	1.00	1.00	1.00	1.00	0.93	1.00	0.83
Lanes:	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Final Sat.:	0	1809	1537	1718	1809	0	0	0	0	1769	0	1583
Capacity Analysis Module:												
Vol/Sat:	0.00	0.06	0.14	0.02	0.11	0.00	0.00	0.00	0.00	0.14	0.00	0.02
Crit Moves:		****		****						****		
Green/Cycle:	0.00	0.13	0.83	0.08	0.21	0.00	0.00	0.00	0.00	0.70	0.00	0.70
Volume/Cap:	0.00	0.46	0.17	0.20	0.53	0.00	0.00	0.00	0.00	0.20	0.00	0.02
Uniform Del:	0.0	26.2	1.1	27.9	22.8	0.0	0.0	0.0	0.0	3.4	0.0	3.0
IncremntDel:	0.0	1.4	0.1	0.7	1.5	0.0	0.0	0.0	0.0	0.1	0.0	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Delay/Veh:	0.0	27.6	1.2	28.6	24.3	0.0	0.0	0.0	0.0	3.5	0.0	3.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	27.6	1.2	28.6	24.3	0.0	0.0	0.0	0.0	3.5	0.0	3.0
LOS by Move:	A	C	A	C	C	A	A	A	A	A	A	A
HCM2kAvgQ:	0	65	24	17	108	0	0	0	0	46	0	4

Level Of Service Computation Report
Unknown Method (Future Volume Alternative)

Intersection #2 SR-16 and Central Casino Entrance

Street Name:	SR-16						Central Casino Entrance					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0 0 1 0			0 0 1 0 0			0 0 0 0 0			0 0 0 0 0		
Volume Module:												
Base Vol:	0	249	43	0	358	0	0	0	0	0	0	0
Growth Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Bse:	0	0	0	0	0	0	0	0	0	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	0	0	0	0	0	0	0	0	0
User Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Volume:	0	0	0	0	0	0	0	0	0	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PCE Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MLF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FinalVolume:	0	0	0	0	0	0	0	0	0	0	0	0
Critical Gap Module: >> Population:0 << >> Run Speed(N/S): 30 MPH <<												
Critical Gp:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capacity Module:												
Cnflict Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Potent Cap.:	0	0	0	0	0	0	0	0	0	0	0	0
Level Of Service Module:												
LOS by Move:												
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	0	0	0	0	0	0	0	0	0	0	0	0

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #3 SR-16 and South Casino Entrance

Average Delay (sec/veh): 1.0 Worst Case Level Of Service: C[17.3]

Street Name:	SR-16						South Casino Entrance					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 1 0			0 0 1 0 0			0 0 0 0 0			1 0 0 0 1		
Volume Module:												
Base Vol:	0	290	42	0	361	0	0	0	0	39	0	2
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	290	42	0	361	0	0	0	0	39	0	2
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	290	42	0	361	0	0	0	0	39	0	2
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Volume:	0	363	53	0	452	0	0	0	0	49	0	3
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	363	53	0	452	0	0	0	0	49	0	3
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	842	xxxx	390
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	334	xxxx	659
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	334	xxxx	659
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.15	xxxx	0.00
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	12.7	xxxx	0.3
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	17.6	xxxx	10.5
LOS by Move:	*	*	*	*	*	*	*	*	*	C	*	B
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			17.3		
ApproachLOS:	*			*			*			C		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #4 SR-16 and County Rd 85

Average Delay (sec/veh): 0.8 Worst Case Level Of Service: B[13.0]

Street Name:	County Rd 85						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0 0		0 0 1!	0 0		0 1 0	0 0		0 0 0	1 0	
Volume Module:												
Base Vol:	0	0	0	13	0	18	27	425	0	0	315	5
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	13	0	18	27	425	0	0	315	5
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	13	0	18	27	425	0	0	315	5
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
PHF Volume:	0	0	0	14	0	19	28	442	0	0	328	5
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	14	0	19	28	442	0	0	328	5
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	829	829	330	333	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	341	306	711	1210	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	334	299	711	1210	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.04	0.00	0.03	0.02	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1.8	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	483	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.2	xxxxx	0.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	13.0	xxxxx	8.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	B	*	A	*	*	*	*	*
ApproachDel:	xxxxxx			13.0			xxxxxx			xxxxxx		
ApproachLOS:	*			B			*			*		

Note: Queue reported is the distance per lane in feet.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #5 SR-16 and County Rd 85B

Average Delay (sec/veh): 0.9 Worst Case Level Of Service: A[9.3]

Street Name:	County Rd 85B									SR-16								
Approach:	North Bound						South Bound						East Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Uncontrolled					
Rights:	Include						Include						Include					
Lanes:	0	0	1!	0	0		0	0	0	0	0		0	0	1	0	1	
Volume Module:																		
Base Vol:	66	0	5	0	0		0	0	0	0	0		315	123	5	251	0	
Growth Adj:	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Initial Bse:	66	0	5	0	0		0	0	0	0	0		315	123	5	251	0	
Added Vol:	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	
PasserByVol:	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	
Initial Fut:	66	0	5	0	0		0	0	0	0	0		315	123	5	251	0	
User Adj:	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
PHF Adj:	0.93	0.93	0.93	0.93	0.93		0.93	0.93	0.93	0.93	0.93		0.93	0.93	0.93	0.93	0.93	
PHF Volume:	71	0	5	0	0		0	0	0	0	0		340	133	5	271	0	
Reduct Vol:	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	
FinalVolume:	71	0	5	0	0		0	0	0	0	0		340	133	5	271	0	
Critical Gap Module:																		
Critical Gp:	6.4	6.5	6.2	xxxxx	xxxx		xxxxx	xxxxx	xxxx	xxxxx			4.1	xxxx	xxxxx			
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxx		xxxxx	xxxxx	xxxx	xxxxx			2.2	xxxx	xxxxx			
Capacity Module:																		
Cnflict Vol:	622	622	340	xxxx	xxxx		xxxxx	xxxx	xxxx	xxxxx			473	xxxx	xxxxx			
Potent Cap.:	450	403	702	xxxx	xxxx		xxxxx	xxxx	xxxx	xxxxx			1073	xxxx	xxxxx			
Move Cap.:	449	401	702	xxxx	xxxx		xxxxx	xxxx	xxxx	xxxxx			1073	xxxx	xxxxx			
Volume/Cap:	0.16	0.00	0.01	xxxx	xxxx		xxxx	xxxx	xxxx	xxxx			0.01	xxxx	xxxx			
Level Of Service Module:																		
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx		xxxxx	xxxx	xxxx	xxxxx			0.4	xxxx	xxxxx			
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx		xxxxx	xxxxx	xxxx	xxxxx			8.4	xxxx	xxxxx			
LOS by Move:	*	*	*	*	*		*	*	*	*			A	*	*			
Movement:	LT	-	LTR	-	RT		LT	-	LTR	-	RT		LT	-	LTR	-	RT	
Shared Cap.:	xxxx		914	xxxxx			xxxx	xxxx	xxxxx				xxxx	xxxx	xxxxx			
SharedQueue:	xxxxx		0.3	xxxxx	xxxxx		xxxx	xxxxx	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx			
Shrd ConDel:	xxxxx		9.3	xxxxx	xxxxx		xxxx	xxxxx	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx			
Shared LOS:	*		A	*	*		*	*	*	*	*		*	*	*			
ApproachDel:			9.3		xxxxxx				xxxxxx					xxxxxx				
ApproachLOS:			A		*				*					*				

Note: Queue reported is the distance per lane in feet.

6: Yolo Ave & Woodland Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.2	0.4	0.2	0.3	0.2	0.1	0.4	0.2	3.6	0.1	0.2	0.1
Total Del/Veh (s)	13.5	11.3	6.1	8.7	9.1	6.0	1.0	1.4	0.5	9.7	10.5	5.1

6: Yolo Ave & Woodland Ave Performance by movement

Movement	All
Denied Del/Veh (s)	0.4
Total Del/Veh (s)	4.5

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #7 SR-16 and Capay St

Average Delay (sec/veh): 1.7 Worst Case Level Of Service: C[17.4]

Street Name:	SR-16						Capay St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	32	335	20	9	297	15	5	7	14	12	17	5
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	32	335	20	9	297	15	5	7	14	12	17	5
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	32	335	20	9	297	15	5	7	14	12	17	5
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	34	358	21	10	317	16	5	7	15	13	18	5
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	34	358	21	10	317	16	5	7	15	13	18	5
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx	7.1	6.5	6.2	7.1	6.5	6.2
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	3.5	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	333	xxxx	xxxxx	379	xxxx	xxxxx	793	792	325	793	790	369
Potent Cap.:	1209	xxxx	xxxxx	1163	xxxx	xxxxx	306	321	716	307	323	677
Move Cap.:	1209	xxxx	xxxxx	1163	xxxx	xxxxx	282	310	716	286	311	677
Volume/Cap:	0.03	xxxx	xxxx	0.01	xxxx	xxxx	0.02	0.02	0.02	0.04	0.06	0.01
Level Of Service Module:												
2Way95thQ:	2.2	xxxx	xxxxx	0.6	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	8.1	xxxx	xxxxx	8.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	434	xxxxx	xxxx	327	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.2	xxxxx	xxxxx	0.4	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	13.9	xxxxx	xxxxx	17.4	xxxxx
Shared LOS:	*	*	*	*	*	*	*	B	*	*	C	*
ApproachDel:	xxxxxx			xxxxxx			13.9			17.4		
ApproachLOS:	*			*			B			C		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #8 SR-16 and Madison St

Average Delay (sec/veh): 1.1 Worst Case Level Of Service: C[17.0]

Street Name:	SR-16						Madison St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	16	391	5	5	352	16	6	5	9	7	14	5
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	16	391	5	5	352	16	6	5	9	7	14	5
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	16	391	5	5	352	16	6	5	9	7	14	5
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
PHF Volume:	17	404	5	5	364	17	6	5	9	7	14	5
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	17	404	5	5	364	17	6	5	9	7	14	5
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx	7.1	6.5	6.2	7.1	6.5	6.2
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	3.5	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	380	xxxx	xxxxx	409	xxxx	xxxxx	832	824	372	829	830	407
Potent Cap.:	1162	xxxx	xxxxx	1134	xxxx	xxxxx	289	308	674	290	306	644
Move Cap.:	1162	xxxx	xxxxx	1134	xxxx	xxxxx	272	302	674	278	300	644
Volume/Cap:	0.01	xxxx	xxxx	0.00	xxxx	xxxx	0.02	0.02	0.01	0.03	0.05	0.01
Level Of Service Module:												
2Way95thQ:	1.1	xxxx	xxxxx	0.3	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	8.1	xxxx	xxxxx	8.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	385	xxxxx	xxxx	327	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.2	xxxxx	xxxxx	0.3	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	14.9	xxxxx	xxxxx	17.0	xxxxx
Shared LOS:	*	*	*	*	*	*	*	B	*	*	C	*
ApproachDel:	xxxxxx			xxxxxx			14.9			17.0		
ApproachLOS:	*			*			B			C		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #9 SR-16 and Plainfield St

Average Delay (sec/veh): 2.0 Worst Case Level Of Service: C[20.3]

Street Name:	SR-16						Plainfield St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 1 0	1 0	0	1 0	0 1 0	0	0 0 1! 0	0	0	0 0 1! 0	0	0
Volume Module:												
Base Vol:	57 383	27		15 341	10		5	6	32	15	9	10
Growth Adj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00	
Initial Bse:	57 383	27		15 341	10		5	6	32	15	9	10
Added Vol:	0 0	0		0 0	0		0	0	0	0	0	0
PasserByVol:	0 0	0		0 0	0		0	0	0	0	0	0
Initial Fut:	57 383	27		15 341	10		5	6	32	15	9	10
User Adj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00	
PHF Adj:	0.92 0.92	0.92		0.92 0.92	0.92		0.92 0.92	0.92		0.92 0.92	0.92	
PHF Volume:	62 415	29		16 370	11		5	7	35	16	10	11
Reduct Vol:	0 0	0		0 0	0		0	0	0	0	0	0
FinalVolume:	62 415	29		16 370	11		5	7	35	16	10	11
Critical Gap Module:												
Critical Gp:	4.1 xxxx xxxxx			4.1 xxxx xxxxx			7.1	6.5	6.2	7.1	6.5	6.2
FollowUpTim:	2.2 xxxx xxxxx			2.2 xxxx xxxxx			3.5	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	381 xxxx xxxxx			445 xxxx xxxxx			744	976	375	982	967	222
Potent Cap.:	1162 xxxx xxxxx			1100 xxxx xxxxx			331	251	671	228	254	817
Move Cap.:	1162 xxxx xxxxx			1100 xxxx xxxxx			299	233	671	200	236	817
Volume/Cap:	0.05 xxxx xxxx			0.01 xxxx xxxx			0.02	0.03	0.05	0.08	0.04	0.01
Level Of Service Module:												
2Way95thQ:	4.2 xxxx xxxxx			1.1 xxxx xxxxx			xxxx xxxx xxxxx			xxxx xxxx xxxxx		
Control Del:	8.3 xxxx xxxxx			8.3 xxxx xxxxx			xxxxx xxxx xxxxx			xxxxx xxxx xxxxx		
LOS by Move:	A	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx xxxx xxxxx			xxxx xxxx xxxxx			xxxx	477	xxxxx	xxxx	272	xxxxx
SharedQueue:	0.2 xxxx xxxxx			xxxxx xxxx xxxxx			xxxxx	0.3	xxxxx	xxxxx	0.5	xxxxx
Shrd ConDel:	8.3 xxxx xxxxx			xxxxx xxxx xxxxx			xxxxx	13.4	xxxxx	xxxxx	20.3	xxxxx
Shared LOS:	A	*	*	*	*	*	*	B	*	*	C	*
ApproachDel:	xxxxxx			xxxxxx			13.4			20.3		
ApproachLOS:	*			*			B			C		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #10 SR-16 and County Road 21A

Cycle (sec):	100	Critical Vol./Cap.(X):	0.738
Loss Time (sec):	0	Average Delay (sec/veh):	16.7
Optimal Cycle:	0	Level Of Service:	C

Street Name:	SR-16						County Road 21A					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Ignore		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	0 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	1 0	1
Volume Module:												
Base Vol:	0	0	0	486	0	9	7	128	0	0	84	595
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	486	0	9	7	128	0	0	84	595
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	486	0	9	7	128	0	0	84	595
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
PHF Adj:	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.00
PHF Volume:	0	0	0	532	0	10	8	140	0	0	92	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	532	0	10	8	140	0	0	92	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
FinalVolume:	0	0	0	532	0	10	8	140	0	0	92	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	0.98	0.01	0.01	0.05	0.95	0.00	0.00	1.00	1.00
Final Sat.:	0	0	0	721	0	13	31	572	0	0	544	607
Capacity Analysis Module:												
Vol/Sat:	xxxx	xxxx	xxxx	0.74	0.00	0.74	0.25	0.25	xxxx	xxxx	0.17	0.00
Crit Moves:				****			****				****	
Delay/Veh:	0.0	0.0	0.0	19.7	19.7	19.7	10.2	10.2	0.0	0.0	10.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	19.7	19.7	19.7	10.2	10.2	0.0	0.0	10.0	0.0
LOS by Move:	*	*	*	C	C	C	B	B	*	*	A	*
ApproachDel:	xxxxxx			19.7			10.2			10.0		
Delay Adj:	xxxxx			1.00			1.00			1.00		
ApprAdjDel:	xxxxxx			19.7			10.2			10.0		
LOS by Appr:	*			C			B			A		
AllWayAvgQ:	0.0	0.0	0.0	60.4	60.4	60.4	6.8	6.8	6.8	0.0	4.3	0.0

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #11 County Rd 85B and County Rd 21A

Average Delay (sec/veh): 5.4 Worst Case Level Of Service: A[9.3]

Street Name:	County Rd 85B									County Rd 21A								
Approach:	North Bound						South Bound						East Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Uncontrolled						Uncontrolled						Stop Sign					
Rights:	Include						Include						Include					
Lanes:	0	0	0	1	0		0	1	0	0	0		0	0	0	0	0	
Volume Module:																		
Base Vol:	0	26	6				93	34	0				0	0	0			
Growth Adj:	1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00			
Initial Bse:	0	26	6				93	34	0				0	0	0			
Added Vol:	0	0	0				0	0	0				0	0	0			
PasserByVol:	0	0	0				0	0	0				0	0	0			
Initial Fut:	0	26	6				93	34	0				0	0	0			
User Adj:	1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00			
PHF Adj:	0.73	0.73	0.73				0.73	0.73	0.73				0.73	0.73	0.73			
PHF Volume:	0	36	8				128	47	0				0	0	0			
Reduct Vol:	0	0	0				0	0	0				0	0	0			
FinalVolume:	0	36	8				128	47	0				0	0	0			
Critical Gap Module:																		
Critical Gp:	xxxxx	xxxx	xxxxx				4.1	xxxx	xxxxx				xxxxx	xxxx	xxxxx			
FollowUpTim:	xxxxx	xxxx	xxxxx				2.2	xxxx	xxxxx				xxxxx	xxxx	xxxxx			
Capacity Module:																		
Cnflict Vol:	xxxx	xxxx	xxxxx				44	xxxx	xxxxx				xxxx	xxxx	xxxxx			
Potent Cap.:	xxxx	xxxx	xxxxx				1564	xxxx	xxxxx				xxxx	xxxx	xxxxx			
Move Cap.:	xxxx	xxxx	xxxxx				1564	xxxx	xxxxx				xxxx	xxxx	xxxxx			
Volume/Cap:	xxxx	xxxx	xxxx				0.08	xxxx	xxxx				xxxx	xxxx	xxxx			
Level Of Service Module:																		
2Way95thQ:	xxxx	xxxx	xxxxx				6.7	xxxx	xxxxx				xxxx	xxxx	xxxxx			
Control Del:	xxxxx	xxxx	xxxxx				7.5	xxxx	xxxxx				xxxxx	xxxx	xxxxx			
LOS by Move:	*	*	*				A	*	*				*	*	*			
Movement:	LT	-	LTR	-	RT		LT	-	LTR	-	RT		LT	-	LTR	-	RT	
Shared Cap.:	xxxx	xxxx	xxxxx				xxxx	xxxx	xxxxx				xxxx	xxxx	xxxxx			
SharedQueue:	xxxxx	xxxx	xxxxx				0.3	xxxx	xxxxx				xxxxx	xxxx	xxxxx			
Shrd ConDel:	xxxxx	xxxx	xxxxx				7.5	xxxx	xxxxx				xxxxx	xxxx	xxxxx			
Shared LOS:	*	*	*				A	*	*				*	*	*			
ApproachDel:	xxxxxx						xxxxxx						xxxxxx					
ApproachLOS:	*						*						*					

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #12 Country Villa Estates and County Rd 21A

Average Delay (sec/veh): 0.5 Worst Case Level Of Service: A[9.9]

Street Name:	Country Villa Estates									County Rd 21A								
Approach:	North Bound			South Bound			East Bound			West Bound								
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled								
Rights:	Include			Include			Include			Include								
Lanes:	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1!	0	0
Volume Module:																				
Base Vol:	0	0	0	5	0	0	3	105	0	1	44	12								
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
Initial Bse:	0	0	0	5	0	0	3	105	0	1	44	12								
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0								
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0								
Initial Fut:	0	0	0	5	0	0	3	105	0	1	44	12								
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
PHF Adj:	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69								
PHF Volume:	0	0	0	7	0	0	4	153	0	1	64	17								
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0								
FinalVolume:	0	0	0	7	0	0	4	153	0	1	64	17								
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	xxxxx	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx								
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	xxxxx	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx								
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx	xxxxx	238	xxxx	xxxxx	82	xxxx	xxxxx	153	xxxx	xxxxx								
Potent Cap.:	xxxx	xxxx	xxxxx	751	xxxx	xxxxx	1516	xxxx	xxxxx	1428	xxxx	xxxxx								
Move Cap.:	xxxx	xxxx	xxxxx	748	xxxx	xxxxx	1516	xxxx	xxxxx	1428	xxxx	xxxxx								
Volume/Cap:	xxxx	xxxx	xxxx	0.01	xxxx	xxxx	0.00	xxxx	xxxx	0.00	xxxx	xxxx								
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	xxxxx	0.7	xxxx	xxxxx	0.2	xxxx	xxxxx	0.1	xxxx	xxxxx								
Control Del:	xxxxx	xxxx	xxxxx	9.9	xxxx	xxxxx	7.4	xxxx	xxxxx	7.5	xxxx	xxxxx								
LOS by Move:	*	*	*	A	*	*	A	*	*	A	*	*								
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx								
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Shared LOS:	*	*	*	*	*	*	A	*	*	*	*	*								
ApproachDel:	xxxxxx			9.9			xxxxxx			xxxxxx										
ApproachLOS:	*			A			*			*										

Note: Queue reported is the distance per lane in feet.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #13 Fremont St and County Rd 21A

Average Delay (sec/veh): 1.8 Worst Case Level Of Service: A[9.8]

Street Name:	Fremont St						County Rd 21A					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0 0		0 0 1!	0 0		0 1 0	0 0		0 0 0	1 0	
Volume Module:												
Base Vol:	0	0	0	20	0	10	17	103	0	0	57	21
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	20	0	10	17	103	0	0	57	21
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	20	0	10	17	103	0	0	57	21
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
PHF Volume:	0	0	0	25	0	13	22	130	0	0	72	27
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	25	0	13	22	130	0	0	72	27
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	259	259	85	99	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	730	646	973	1494	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	722	636	973	1494	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.04	0.00	0.01	0.01	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1.1	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	790	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.2	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	9.8	xxxxx	7.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	A	*	A	*	*	*	*	*
ApproachDel:	xxxxxx			9.8			xxxxxx			xxxxxx		
ApproachLOS:	*			A			*			*		

Note: Queue reported is the distance per lane in feet.

DELAY (CONTROL)

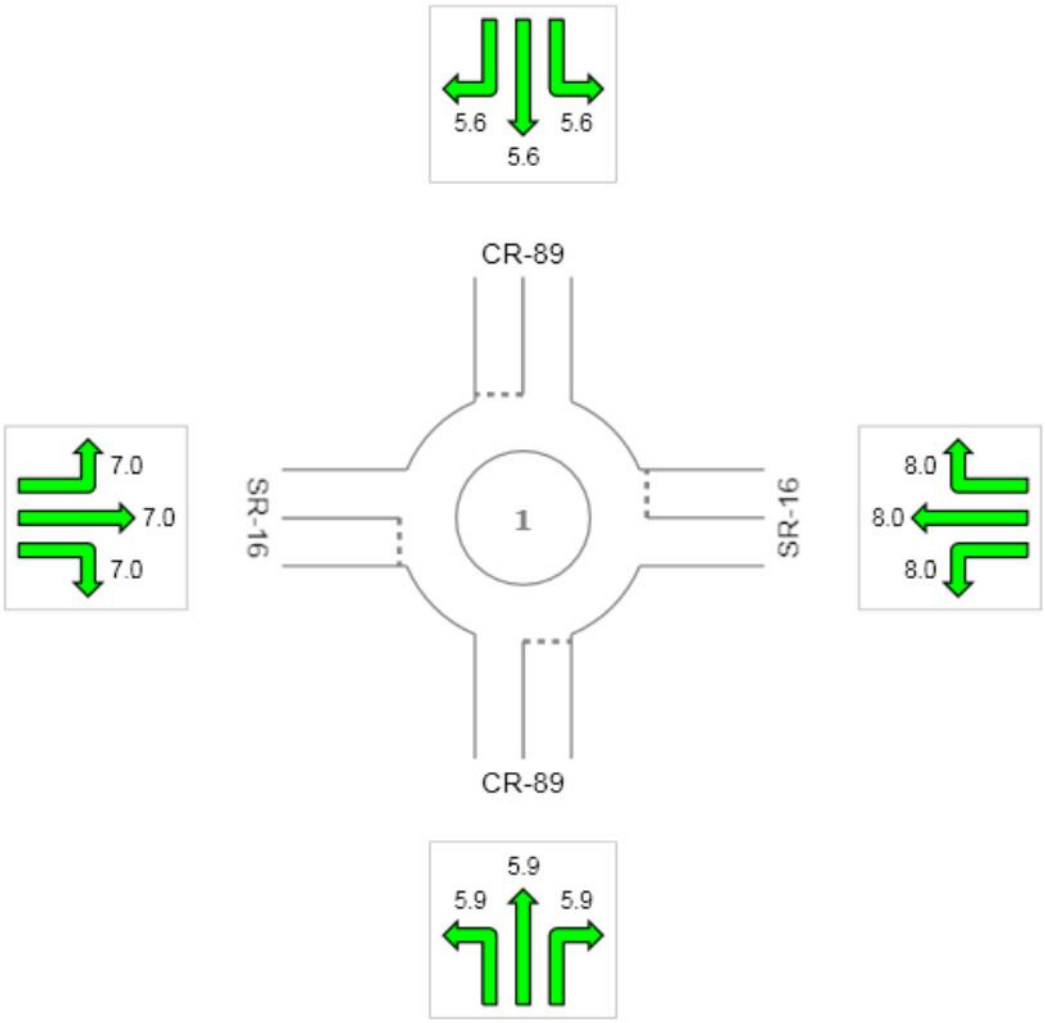
Average control delay per vehicle, or average pedestrian delay (seconds)

Site: SR-16/CR-89

Long-Term Fri PM
Roundabout

All Movement Classes

	South	East	North	West	Intersection
Delay (Control)	5.9	8.0	5.6	7.0	7.4
LOS	A	A	A	A	A



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F | Continuous

Level of Service Method: Delay & v/c (HCM 2010)
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Roundabout Level of Service Method: Same as Sign Control
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #15 SR-16 and SB I-505

Average Delay (sec/veh): 0.5 Worst Case Level Of Service: C[20.2]

Street Name:	SB I-505								SR-16							
Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	0	0 0	0	1	0	0 1	0	0	0	1 0	0	0	1	0 1
Volume Module:																
Base Vol:	0	0	0		7	7	19		0	328	294		0	517	62	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	0	0	0		7	7	19		0	328	294		0	517	62	
Added Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	0	0	0		7	7	19		0	328	294		0	517	62	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.81	0.81	0.81		0.81	0.81	0.81		0.81	0.81	0.81		0.81	0.81	0.81	
PHF Volume:	0	0	0		9	9	23		0	403	362		0	636	76	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
FinalVolume:	0	0	0		9	9	23		0	403	362		0	636	76	
Critical Gap Module:																
Critical Gp:	xxxxx	xxxx	xxxxx		6.4	6.6	6.3		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
FollowUpTim:	xxxxx	xxxx	xxxxx		3.5	4.0	3.3		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Capacity Module:																
Cnflict Vol:	xxxx	xxxx	xxxxx		1220	1401	636		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Potent Cap.:	xxxx	xxxx	xxxxx		196	138	473		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Move Cap.:	xxxx	xxxx	xxxxx		196	138	473		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Volume/Cap:	xxxx	xxxx	xxxx		0.04	0.06	0.05		xxxx	xxxx	xxxx		xxxx	xxxx	xxxx	
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	xxxxx		xxxx	xxxx	3.9		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Control Del:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	13.0		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
LOS by Move:	*	*	*		*	*	B		*	*	*		*	*	*	
Movement:	LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT	
Shared Cap.:	xxxx	xxxx	xxxxx		162	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
SharedQueue:	xxxxx	xxxx	xxxxx		0.3	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shrd ConDel:	xxxxx	xxxx	xxxxx		29.8	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shared LOS:	*	*	*		D	*	*		*	*	*		*	*	*	
ApproachDel:	xxxxxx				20.2				xxxxxx				xxxxxx			
ApproachLOS:	*				C				*				*			

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #16 SR-16 and NB I-505

Cycle (sec):	50	Critical Vol./Cap.(X):	0.596
Loss Time (sec):	6	Average Delay (sec/veh):	10.1
Optimal Cycle:	47	Level Of Service:	B

Street Name:	NB I-505						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Ignore			Include		
Min. Green:	5	5	5	0	0	0	0	5	5	0	5	5
Y+R:	4.1	4.1	4.1	4.0	4.0	4.0	4.0	5.5	5.5	4.0	5.5	5.5
Lanes:	0 1	0	0 1	0	0	0 0	0	0	1 0 1	0	0	1 0 1
Volume Module:												
Base Vol:	198	0	210	0	0	0	0	312	19	0	520	9
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	198	0	210	0	0	0	0	312	19	0	520	9
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	198	0	210	0	0	0	0	312	19	0	520	9
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Adj:	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.00	0.84	0.84	0.84
PHF Volume:	236	0	250	0	0	0	0	371	0	0	619	11
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	236	0	250	0	0	0	0	371	0	0	619	11
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
FinalVolume:	236	0	250	0	0	0	0	371	0	0	619	11
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.68	1.00	0.81	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.81
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00
Final Sat.:	1291	0	1537	0	0	0	0	1809	1900	0	1809	1537
Capacity Analysis Module:												
Vol/Sat:	0.18	0.00	0.16	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.34	0.01
Crit Moves:	****										****	
Green/Cycle:	0.31	0.00	0.31	0.00	0.00	0.00	0.00	0.57	0.00	0.00	0.57	0.57
Volume/Cap:	0.60	0.00	0.53	0.00	0.00	0.00	0.00	0.36	0.00	0.00	0.60	0.01
Uniform Del:	14.7	0.0	14.4	0.0	0.0	0.0	0.0	5.7	0.0	0.0	6.9	4.6
IncremntDel:	2.5	0.0	1.2	0.0	0.0	0.0	0.0	0.2	0.0	0.0	1.0	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00
Delay/Veh:	17.2	0.0	15.5	0.0	0.0	0.0	0.0	5.9	0.0	0.0	7.9	4.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	17.2	0.0	15.5	0.0	0.0	0.0	0.0	5.9	0.0	0.0	7.9	4.6
LOS by Move:	B	A	B	A	A	A	A	A	A	A	A	A
HCM2kAvgQ:	104	0	99	0	0	0	0	83	0	0	155	2

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #17 SR-16 and Wild Wings Dr

Average Delay (sec/veh): 1.5 Worst Case Level Of Service: D[27.9]

Street Name:	Wild Wings Dr						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			1 0 0 0 1			1 0 1 0 0			0 0 1 0 1		
Volume Module:												
Base Vol:	0	0	0	54	0	7	15	492	0	0	543	88
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	54	0	7	15	492	0	0	543	88
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	54	0	7	15	492	0	0	543	88
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
PHF Volume:	0	0	0	60	0	8	17	550	0	0	607	98
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	60	0	8	17	550	0	0	607	98
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	1191	xxxx	607	706	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	207	xxxx	496	879	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	204	xxxx	496	879	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.30	xxxx	0.02	0.02	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	29.6	xxxx	1.2	1.5	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	29.9	xxxx	12.4	9.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	D	*	B	A	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			27.9			xxxxxx			xxxxxx		
ApproachLOS:	*			D			*			*		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #18 SR-16 and County Rd 94B

Average Delay (sec/veh): 25.5 Worst Case Level Of Service: F[253.9]

Street Name:	County Rd 94B						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0	0	0 0 1!	0	0	0 1	0	0 0	0 0 1!	0	0
Volume Module:												
Base Vol:	99	0	15	10	14	7	8	454	0	98	516	1
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	99	0	15	10	14	7	8	454	0	98	516	1
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	99	0	15	10	14	7	8	454	0	98	516	1
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
PHF Volume:	116	0	18	12	16	8	9	533	0	115	606	1
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	116	0	18	12	16	8	9	533	0	115	606	1
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1402	1390	533	1398	1390	607	608	xxxx	xxxxx	533	xxxx	xxxxx
Potent Cap.:	117	142	546	118	142	496	956	xxxx	xxxxx	1019	xxxx	xxxxx
Move Cap.:	94	124	546	103	124	496	956	xxxx	xxxxx	1019	xxxx	xxxxx
Volume/Cap:	1.24	0.00	0.03	0.11	0.13	0.02	0.01	xxxx	xxxx	0.11	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.7	xxxx	xxxxx	9.5	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.8	xxxx	xxxxx	9.0	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	105	xxxxx	xxxx	138	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	9.1	xxxxx	xxxxx	1.0	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	254	xxxxx	xxxxx	40.1	xxxxx	8.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	F	*	*	E	*	A	*	*	*	*	*
ApproachDel:	253.9			40.1			xxxxxx			xxxxxx		
ApproachLOS:	F			E			*			*		

Note: Queue reported is the distance per lane in feet.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #19 SR-16 and County Rd 95

Average Delay (sec/veh): 0.9 Worst Case Level Of Service: C[24.4]

Street Name:	County Rd 95						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0	0	0 0	0 1	0	0 0	0 1	0	0 1	0 0	0
Volume Module:												
Base Vol:	6	3	22	0	6	2	0	538	2	28	553	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	6	3	22	0	6	2	0	538	2	28	553	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	6	3	22	0	6	2	0	538	2	28	553	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	7	3	24	0	7	2	0	596	2	31	612	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	7	3	24	0	7	2	0	596	2	31	612	0
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	xxxxx	6.5	6.2	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	4.0	3.3	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1276	1271	597	xxxx	1272	612	xxxx	xxxx	xxxxx	598	xxxx	xxxxx
Potent Cap.:	144	168	503	xxxx	167	493	xxxx	xxxx	xxxxx	964	xxxx	xxxxx
Move Cap.:	135	162	503	xxxx	162	493	xxxx	xxxx	xxxxx	964	xxxx	xxxxx
Volume/Cap:	0.05	0.02	0.05	xxxx	0.04	0.00	xxxx	xxxx	xxxx	0.03	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	2.5	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.9	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	291	xxxxx	xxxx	xxxx	195	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.4	xxxxx	xxxxx	xxxx	0.1	xxxxx	xxxx	xxxxx	0.1	xxxx	xxxxx
Shrd ConDel:	xxxxx	19.0	xxxxx	xxxxx	xxxx	24.4	xxxxx	xxxx	xxxxx	8.9	xxxx	xxxxx
Shared LOS:	*	C	*	*	*	C	*	*	*	A	*	*
ApproachDel:		19.0			24.4			xxxxxx			xxxxxx	
ApproachLOS:		C			C			*			*	

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #20 SR-16 and County Rd 98

Cycle (sec):	80	Critical Vol./Cap.(X):	0.496
Loss Time (sec):	12	Average Delay (sec/veh):	25.7
Optimal Cycle:	80	Level Of Service:	C

Street Name:	County Rd 98						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	5	5	5	5	6	6	5	5	5
Y+R:	4.0	6.0	6.0	4.0	6.0	6.0	4.0	5.3	5.3	4.0	5.3	5.3
Lanes:	1 0	0	1 0	1 0	1	0 1	1 0	1	1 0	1 0	1	0 1
Volume Module:												
Base Vol:	100	127	80	67	188	108	166	279	133	67	260	62
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	100	127	80	67	188	108	166	279	133	67	260	62
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	100	127	80	67	188	108	166	279	133	67	260	62
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	106	135	85	71	200	115	177	297	142	71	277	66
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	106	135	85	71	200	115	177	297	142	71	277	66
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	106	135	85	71	200	115	177	297	142	71	277	66
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.92	0.92	0.93	0.98	0.83	0.90	0.86	0.86	0.90	0.95	0.81
Lanes:	1.00	0.61	0.39	1.00	1.00	1.00	1.00	1.35	0.65	1.00	1.00	1.00
Final Sat.:	1769	1076	678	1769	1862	1583	1718	2216	1056	1718	1809	1537
Capacity Analysis Module:												
Vol/Sat:	0.06	0.13	0.13	0.04	0.11	0.07	0.10	0.13	0.13	0.04	0.15	0.04
Crit Moves:		****		****			****				****	
Green/Cycle:	0.12	0.25	0.25	0.08	0.21	0.21	0.21	0.35	0.35	0.16	0.31	0.31
Volume/Cap:	0.49	0.50	0.50	0.50	0.51	0.34	0.50	0.38	0.38	0.25	0.50	0.14
Uniform Del:	32.7	25.5	25.5	35.2	27.9	26.8	28.0	19.4	19.4	29.2	22.6	20.0
IncremntDel:	1.7	0.9	0.9	2.7	1.1	0.6	1.1	0.2	0.2	0.5	0.7	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	34.5	26.4	26.4	37.9	29.0	27.4	29.1	19.6	19.6	29.7	23.3	20.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	34.5	26.4	26.4	37.9	29.0	27.4	29.1	19.6	19.6	29.7	23.3	20.1
LOS by Move:	C	C	C	D	C	C	C	B	B	C	C	C
HCM2kAvgQ:	78	128	128	43	107	58	95	103	103	43	150	31

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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #21 SR-16 and W. Kentucky Ave

Cycle (sec):	80	Critical Vol./Cap.(X):	0.449
Loss Time (sec):	12	Average Delay (sec/veh):	20.2
Optimal Cycle:	80	Level Of Service:	C

Street Name:	SR-16						W. Kentucky Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	5	5	5	5	5	5	5	5	5
Y+R:	4.0	6.0	6.0	4.0	6.0	6.0	4.0	5.3	5.3	4.0	5.3	5.3
Lanes:	1 0	0	1 0	1 0	0	1 0	1 0	0	1 0	1 0	0	1 0
Volume Module:												
Base Vol:	20	225	120	17	175	35	24	38	7	106	64	28
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	20	225	120	17	175	35	24	38	7	106	64	28
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	20	225	120	17	175	35	24	38	7	106	64	28
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
PHF Volume:	26	290	155	22	226	45	31	49	9	137	83	36
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	26	290	155	22	226	45	31	49	9	137	83	36
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	26	290	155	22	226	45	31	49	9	137	83	36
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.90	0.90	0.90	0.90	0.93	0.93	0.93	0.96	0.96	0.93	0.93	0.93
Lanes:	1.00	0.65	0.35	1.00	0.83	0.17	1.00	0.84	0.16	1.00	0.70	0.30
Final Sat.:	1718	1118	596	1718	1470	294	1769	1536	283	1769	1236	541
Capacity Analysis Module:												
Vol/Sat:	0.02	0.26	0.26	0.01	0.15	0.15	0.02	0.03	0.03	0.08	0.07	0.07
Crit Moves:		****		****				****		****		
Green/Cycle:	0.18	0.55	0.55	0.06	0.44	0.44	0.11	0.07	0.07	0.17	0.12	0.12
Volume/Cap:	0.08	0.47	0.47	0.20	0.35	0.35	0.16	0.47	0.47	0.47	0.55	0.55
Uniform Del:	27.4	10.7	10.7	35.6	14.9	14.9	32.1	35.9	35.9	30.2	33.2	33.2
IncremntDel:	0.1	0.4	0.4	0.9	0.3	0.3	0.4	2.8	2.8	1.2	3.2	3.2
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	27.5	11.1	11.1	36.6	15.2	15.2	32.4	38.7	38.7	31.4	36.3	36.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	27.5	11.1	11.1	36.6	15.2	15.2	32.4	38.7	38.7	31.4	36.3	36.3
LOS by Move:	C	B	B	D	B	B	C	D	D	C	D	D
HCM2kAvgQ:	13	161	161	18	113	113	20	51	51	90	91	91

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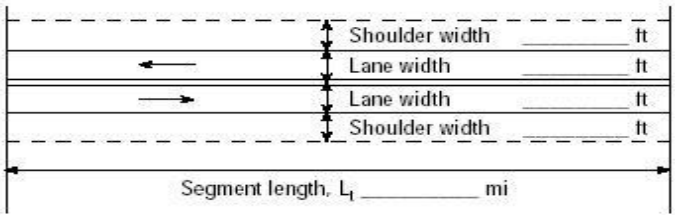
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*CCCR to County Road 85*
Date Performed	*5/16/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☐ Level ☑ Rolling

Analysis direction vol., V_d	*333*veh/h	Grade Length	mi Up/down
Opposing direction vol., V_o	*452*veh/h	Peak-hour factor, PHF	*0.88*
Shoulder width ft	*2.0*	No-passing zone	*75%*
Lane Width ft	*12.0*	% Trucks and Buses , P_T	*5 %*
Segment Length mi	*6.7*	% Recreational vehicles, P_R	*4%*
		Access points *mi*	*3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*2.1*	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.1*	*1.1*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.944*	*0.958*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*0.88*	*0.95*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*456*	*564*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.8 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*51.6 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*40.9 mi/h*
		Percent free flow speed, PFFS	*79.2 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.7*	*1.4*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.966*	*0.980*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*0.89*	*0.96*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*440*	*546*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*47.9*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*36.3*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*64.1*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.27*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1563*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1616*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*79.2*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*378.4*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.08*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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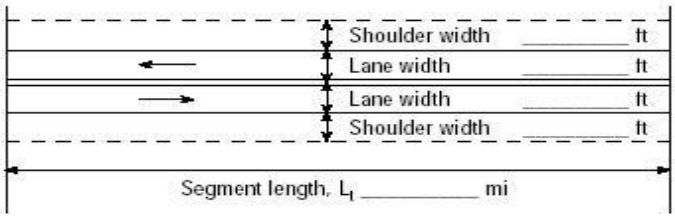
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*CCCR to County Road 85*
Date Performed	*5/16/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☐ Level ☑ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.88*

No-passing zone *75%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *3*/mi

Analysis direction vol., V_d *452*veh/h

Opposing direction vol., V_o *333*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *6.7*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.8*	*2.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.1*	*1.1*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.958*	*0.944*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*0.95*	*0.88*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*564*	*456*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*3.0 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*51.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*40.7 mi/h*
		Percent free flow speed, PFFS	*78.8 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.4*	*1.7*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.980*	*0.966*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*0.96*	*0.89*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*546*	*440*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*52.9*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*36.3*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*73.0*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.33*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1490*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1533*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*78.8*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*513.6*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.24*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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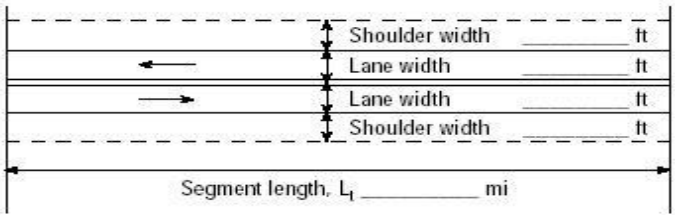
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*County Road 85 to Esparto Town*
Date Performed	*5/16/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Analysis direction vol., V_d	*320*veh/h	Grade Length	mi Up/down
Opposing direction vol., V_o	*438*veh/h	Peak-hour factor, PHF	*0.95*
Shoulder width ft	*2.0*	No-passing zone	*85%*
Lane Width ft	*12.0*	% Trucks and Buses , P_T	*5* %
Segment Length mi	*1.4*	% Recreational vehicles, P_R	*4%*
		Access points *mi*	*5*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.4*	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.980*	*0.990*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*344*	*466*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*0.3 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.1 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*42.1 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*33.7 mi/h*
		Percent free flow speed, PFFS	*80.1 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*339*	*461*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*38.9*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*41.4*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*56.4*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*C*
Volume to capacity ratio, *v/c*	*0.20*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1683*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*80.1*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*336.8*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.02*
Bicycle level of service (Exhibit 15-4)	*E*
Notes	
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain. 2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10. 6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.	

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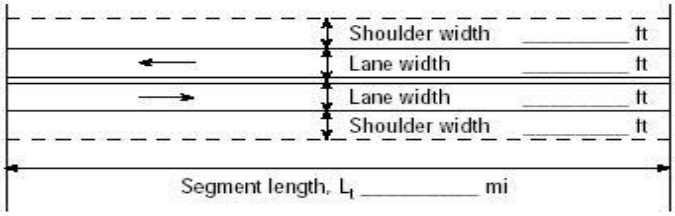
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*County Road 85 to Esparto Town*
Date Performed	*5/16/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d veh/h

Opposing direction vol., V_o *320*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *1.4*

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.95*

No-passing zone *85%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *5*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.2*	*1.4*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.990*	*0.980*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*514*	*344*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.3 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*3.2 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*42.1 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*32.2 mi/h*
		Percent free flow speed, PFFS	*76.6 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*508*	*339*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*49.9*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*39.1*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*73.4*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.30*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*76.6*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*508.4*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.23*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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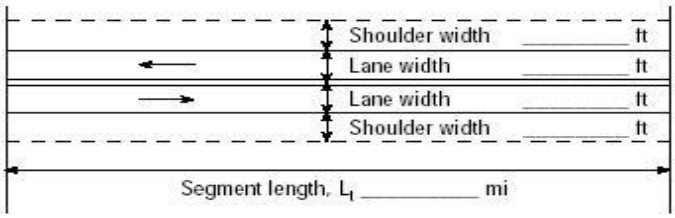
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*through Esparto Town*
Date Performed	*5/16/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Analysis direction vol., V_d	*602*veh/h	Grade Length	mi Up/down
Opposing direction vol., V_o	*495*veh/h	Peak-hour factor, PHF	*0.93*
Shoulder width ft	*2.0*	No-passing zone	*95%*
Lane Width ft	*12.0*	% Trucks and Buses , P_T	*5 %*
Segment Length mi	*1.2*	% Recreational vehicles, P_R	*4%*
		Access points *mi*	*14*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.990*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*651*	*538*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*3.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.2 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*38.9 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*27.5 mi/h*
		Percent free flow speed, PFFS	*70.6 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*647*	*532*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*59.7*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*33.6*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*78.1*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.38*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*70.6*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*647.3*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.35*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
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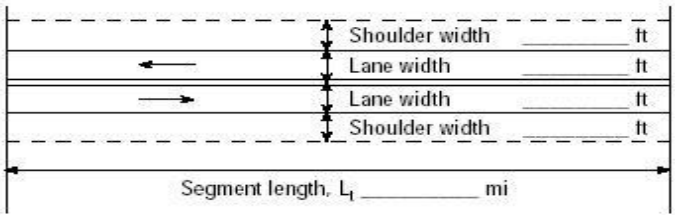
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*through Esparto Town*
Date Performed	*5/16/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *495*veh/h
Opposing direction vol., V_o *602*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *1.2*

☐ Class I highway ☑ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.93*
No-passing zone *95%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *14*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.2*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.990*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*538*	*651*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*3.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.8 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*38.9 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*27.9 mi/h*
		Percent free flow speed, PFFS	*71.7 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*532*	*647*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*55.1*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*33.6*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*70.3*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.31*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*71.7*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*532.3*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.25*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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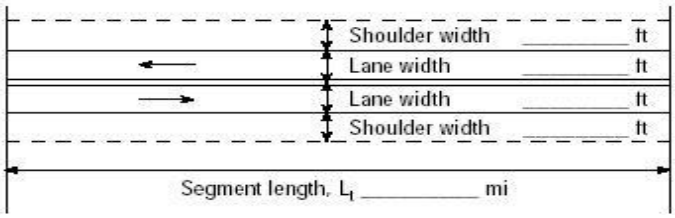
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*Esparto Town to County Rd 89*
Date Performed	*5/16/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *679*veh/h

Opposing direction vol., V_o *614*veh/h

Shoulder width ft *4.0*

Lane Width ft *12.0*

Segment Length mi *2.7*

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.86*

No-passing zone *80%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*794*	*718*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.8 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*39.4 mi/h*
		Percent free flow speed, PFFS	*74.4 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*790*	*714*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*68.5*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*25.5*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*81.9*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.47*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*74.4*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*789.5*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.16*
Bicycle level of service (Exhibit 15-4)	*E*
Notes	
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain. 2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10. 6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.	

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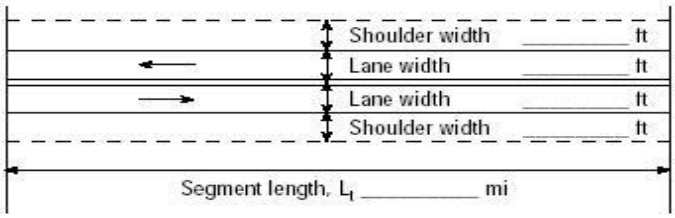
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*Esparto Town to County Rd 89*
Date Performed	*5/16/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Analysis direction vol., V_d	*614*veh/h	Grade Length mi	Up/down
Opposing direction vol., V_o	*679*veh/h	Peak-hour factor, PHF	*0.86*
Shoulder width ft	*4.0*	No-passing zone	*80%*
Lane Width ft	*12.0*	% Trucks and Buses , P_T	*5 %*
Segment Length mi	*2.7*	% Recreational vehicles, P_R	*4%*
		Access points *mi*	*3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*718*	*794*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.6 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*39.6 mi/h*
		Percent free flow speed, PFFS	*74.8 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*714*	*790*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*65.4*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*25.5*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*77.5*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.42*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*74.8*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*714.0*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.10*
Bicycle level of service (Exhibit 15-4)	*E*
Notes	
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain. 2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10. 6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.	

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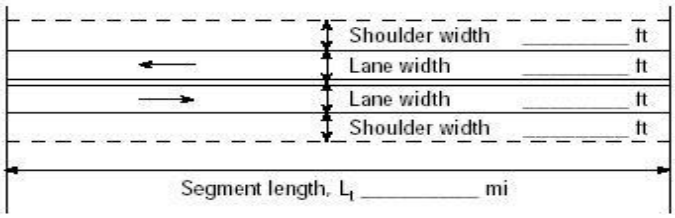
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*County Rd 89 to I-505*
Date Performed	*5/16/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *536*veh/h
Opposing direction vol., V_o *622*veh/h
Shoulder width ft *4.0*
Lane Width ft *12.0*
Segment Length mi *0.8*

Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.81*
No-passing zone *100*%
% Trucks and Buses , P_T *5* %
% Recreational vehicles, P_R *4*%
Access points *mi* *4*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.2*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.990*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*668*	*772*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*1.0 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.9 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.7 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*39.6 mi/h*
		Percent free flow speed, PFFS	*75.2* %

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*662*	*768*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*63.2*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*27.6*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*76.0*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.39*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*75.2*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*661.7*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.07*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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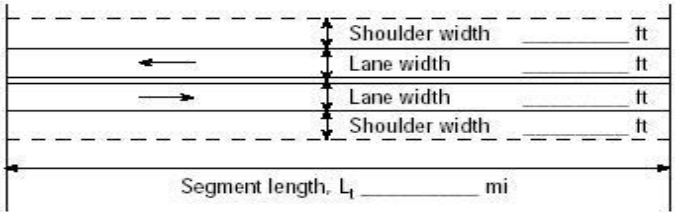
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*County Rd 89 to I-505*
Date Performed	*3/23/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *622*veh/h
Opposing direction vol., V_o *536*veh/h
Shoulder width ft *4.0*
Lane Width ft *12.0*
Segment Length mi *0.8*

☑ Class I highway ☐ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.81*
No-passing zone *100%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *4*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.990*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*772*	*668*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.0 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.2 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.7 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*39.3 mi/h*
		Percent free flow speed, PFFS	*74.6 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*768*	*662*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*67.2*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*27.6*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*82.0*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.45*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*74.6*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*767.9*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.14*
Bicycle level of service (Exhibit 15-4)	*E*
Notes	
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain. 2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10. 6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.	

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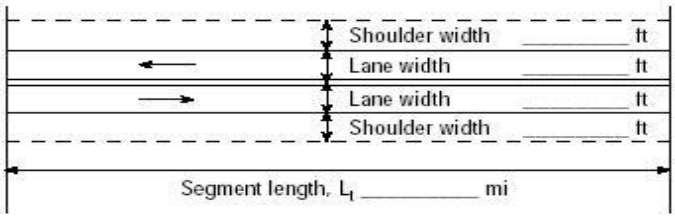
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*I-505 to County Rd 98*
Date Performed	*5/16/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *529*veh/h

Opposing direction vol., V_o *578*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *8.3*

Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.89*

No-passing zone *100*%

% Trucks and Buses , P_T *5* %

% Recreational vehicles, P_R *4*%

Access points *mi* *35*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.2*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.990*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*600*	*653*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0* *mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6* *mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*8.8* *mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.0* *mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*43.6* *mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*31.9* *mi/h*
		Percent free flow speed, PFFS	*73.1* %

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*594*	*649*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*58.5*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*32.8*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*74.2*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.35*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*73.1*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*594.4*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.31*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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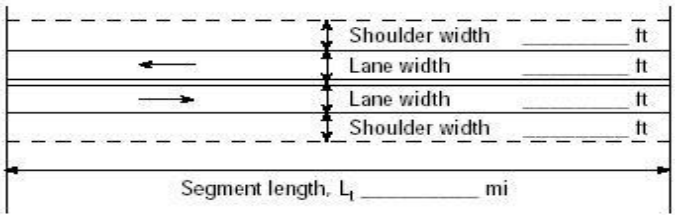
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*I-505 to County Rd 98*
Date Performed	*5/16/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *578*veh/h

Opposing direction vol., V_o *529*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *8.3*

Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.89*

No-passing zone *100*%

% Trucks and Buses , P_T *5* %

% Recreational vehicles, P_R *4*%

Access points *mi* *35*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.994*	*0.990*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*653*	*600*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0* *mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6* *mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*8.8* *mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.2* *mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*43.6* *mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*31.7* *mi/h*
		Percent free flow speed, PFFS	*72.7* %

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*649*	*594*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*60.7*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*32.8*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*77.8*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.38*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*72.7*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*649.4*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.36*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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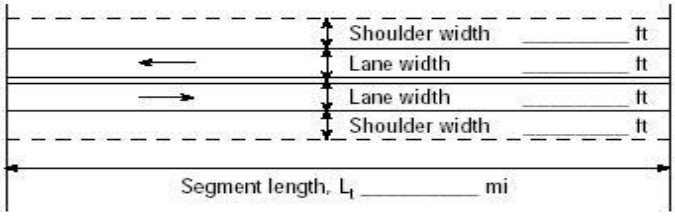
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 21A (WB)*
Agency or Company	*Yolo County*	From/To	*County Rd 85 to SR-16*
Date Performed	*5/16/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *93*veh/h

Opposing direction vol., V_o *135*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *1.2*

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.82*

No-passing zone *25%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* 7/mi

Show North Arrow

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.9*	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.957*	*0.962*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*119*	*171*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*1.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*40.6 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*37.7 mi/h*
		Percent free flow speed, PFFS	*93.0 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*114*	*165*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*13.1*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*35.4*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*27.6*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*A*
Volume to capacity ratio, *v/c*	*0.07*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1651*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*93.0*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*113.4*
Effective width, Wv (Eq. 15-29) ft	*21.49*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.14*
Bicycle level of service (Exhibit 15-4)	*C*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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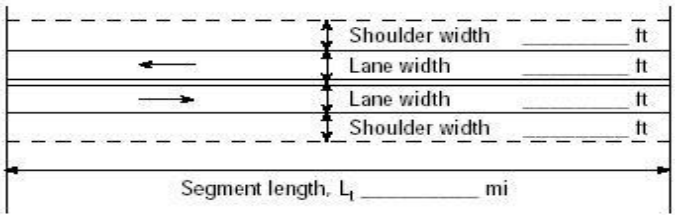
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 21A (EB)*
Agency or Company	*Yolo County*	From/To	*County Rd 85 to SR-16*
Date Performed	*5/16/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *135*veh/h

Opposing direction vol., V_o *93*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *1.2*

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.82*

No-passing zone *25%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* 7/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.8*	*1.9*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.962*	*0.957*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*171*	*119*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*0.2 mi/h*	Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*40.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*38.1 mi/h*
		Percent free flow speed, PFFS	*94.0 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*165*	*114*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*18.2*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*35.4*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*39.1*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*A*
Volume to capacity ratio, *v/c*	*0.10*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*94.0*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*164.6*
Effective width, Wv (Eq. 15-29) ft	*18.55*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.92*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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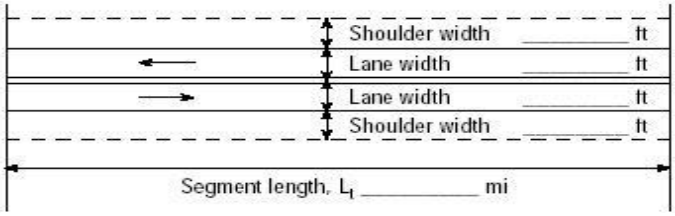
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 85B (NB)*
Agency or Company	*Yolo County*	From/To	*SR-16 to County Rd 21A*
Date Performed	*5/16/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *71*veh/h
Opposing direction vol., V_o *128*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *0.9*

Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.83*
No-passing zone *80%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *6*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.9*	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.957*	*0.962*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*89*	*160*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*1.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.7 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*40.9 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*36.3 mi/h*
		Percent free flow speed, PFFS	*88.7 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*86*	*155*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*10.1*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*50.9*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*28.3*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*A*
Volume to capacity ratio, *v/c*	*0.05*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1642*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*88.7*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*85.5*
Effective width, Wv (Eq. 15-29) ft	*23.03*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*2.66*
Bicycle level of service (Exhibit 15-4)	*C*
Notes	

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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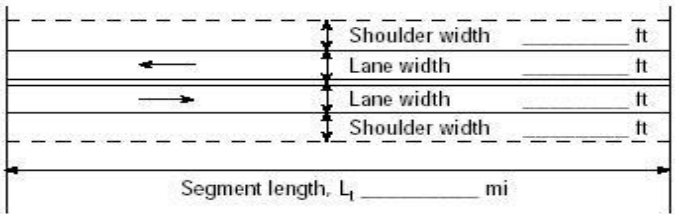
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 85B (SB)*
Agency or Company	*Yolo County*	From/To	*SR-16 to County Rd 21A*
Date Performed	*5/16/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *128*veh/h
Opposing direction vol., V_o *71*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *0.9*

☐ Class I highway ☑ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.83*
No-passing zone *80%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *6*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.8*	*1.9*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.962*	*0.957*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*160*	*89*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.2 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*40.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*36.8 mi/h*
		Percent free flow speed, PFFS	*89.9 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*155*	*86*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*17.3*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*50.9*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*50.0*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*B*
Volume to capacity ratio, *v/c*	*0.09*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*89.9*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*154.2*
Effective width, Wv (Eq. 15-29) ft	*19.04*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.79*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 SR-16 and North Casino Entrance

Cycle (sec):	65	Critical Vol./Cap.(X):	0.241
Loss Time (sec):	6	Average Delay (sec/veh):	9.0
Optimal Cycle:	62	Level Of Service:	A

Street Name:	SR-16						North Casino Entrance					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ovl			Include			Include			Include		
Min. Green:	0	8	8	5	8	0	0	0	0	5	5	5
Y+R:	4.0	5.5	5.5	4.0	5.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	1	0 1	1 0	1	0 0	0 0	0	0 0	1 0	0	0 1
Volume Module:												
Base Vol:	0	73	305	19	158	0	0	0	0	269	0	9
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	73	305	19	158	0	0	0	0	269	0	9
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	73	305	19	158	0	0	0	0	269	0	9
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
PHF Volume:	0	78	328	20	170	0	0	0	0	289	0	10
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	78	328	20	170	0	0	0	0	289	0	10
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	78	328	20	170	0	0	0	0	289	0	10
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	0.81	0.90	0.95	1.00	1.00	1.00	1.00	0.93	1.00	0.83
Lanes:	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Final Sat.:	0	1809	1537	1718	1809	0	0	0	0	1769	0	1583
Capacity Analysis Module:												
Vol/Sat:	0.00	0.04	0.21	0.01	0.09	0.00	0.00	0.00	0.00	0.16	0.00	0.01
Crit Moves:		****		****						****		
Green/Cycle:	0.00	0.13	0.83	0.08	0.21	0.00	0.00	0.00	0.00	0.70	0.00	0.70
Volume/Cap:	0.00	0.33	0.26	0.15	0.45	0.00	0.00	0.00	0.00	0.23	0.00	0.01
Uniform Del:	0.0	25.7	1.2	27.8	22.4	0.0	0.0	0.0	0.0	3.5	0.0	2.9
IncremntDel:	0.0	0.8	0.1	0.5	0.8	0.0	0.0	0.0	0.0	0.1	0.0	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Delay/Veh:	0.0	26.6	1.3	28.3	23.2	0.0	0.0	0.0	0.0	3.6	0.0	2.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	26.6	1.3	28.3	23.2	0.0	0.0	0.0	0.0	3.6	0.0	2.9
LOS by Move:	A	C	A	C	C	A	A	A	A	A	A	A
HCM2kAvgQ:	0	44	41	13	87	0	0	0	0	54	0	2

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Level Of Service Computation Report
Unknown Method (Future Volume Alternative)

Intersection #2 SR-16 and Central Casino Entrance

Street Name:	SR-16						Central Casino Entrance					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0 0 1 0			0 0 1 0 0			0 0 0 0 0			0 0 0 0 0		
Volume Module:												
Base Vol:	0	404	89	0	457	0	0	0	0	0	0	0
Growth Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Bse:	0	0	0	0	0	0	0	0	0	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	0	0	0	0	0	0	0	0	0
User Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Volume:	0	0	0	0	0	0	0	0	0	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PCE Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MLF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FinalVolume:	0	0	0	0	0	0	0	0	0	0	0	0
Critical Gap Module: >> Population:0 << >> Run Speed(N/S): 30 MPH <<												
Critical Gp:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capacity Module:												
Cnflict Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Potent Cap.:	0	0	0	0	0	0	0	0	0	0	0	0
Level Of Service Module:												
LOS by Move:												
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	0	0	0	0	0	0	0	0	0	0	0	0

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #3 SR-16 and South Casino Entrance

Average Delay (sec/veh): 1.9 Worst Case Level Of Service: D[26.1]

Street Name:	SR-16						South Casino Entrance					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 1 0			0 0 1 0 0			0 0 0 0 0			1 0 0 0 1		
Volume Module:												
Base Vol:	0	504	109	0	437	0	0	0	0	81	0	1
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	504	109	0	437	0	0	0	0	81	0	1
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	504	109	0	437	0	0	0	0	81	0	1
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	529	114	0	459	0	0	0	0	85	0	1
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	529	114	0	459	0	0	0	0	85	0	1
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1046	xxxx	587
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	253	xxxx	510
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	253	xxxx	510
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.34	xxxx	0.00
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	35.6	xxxx	0.2
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	26.3	xxxx	12.1
LOS by Move:	*	*	*	*	*	*	*	*	*	D	*	B
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			26.1		
ApproachLOS:	*			*			*			D		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #4 SR-16 and County Rd 85

Average Delay (sec/veh): 0.6 Worst Case Level Of Service: C[21.4]

Street Name:	County Rd 85						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			0 0 1! 0 0			0 1 0 0 0			0 0 0 1 0		
Volume Module:												
Base Vol:	0	0	0	13	0	10	17	464	0	0	645	5
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	13	0	10	17	464	0	0	645	5
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	13	0	10	17	464	0	0	645	5
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
PHF Volume:	0	0	0	14	0	11	19	512	0	0	711	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	14	0	11	19	512	0	0	711	6
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	1263	1263	714	717	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	187	170	431	870	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	184	166	431	870	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.08	0.00	0.03	0.02	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1.6	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	9.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	245	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.3	xxxxx	0.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	21.4	xxxxx	9.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	C	*	A	*	*	*	*	*
ApproachDel:	xxxxxx			21.4			xxxxxx			xxxxxx		
ApproachLOS:	*			C			*			*		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #5 SR-16 and County Rd 85B

Average Delay (sec/veh): 1.8 Worst Case Level Of Service: C[16.6]

Street Name:	County Rd 85B									SR-16								
Approach:	North Bound				South Bound					East Bound					West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	1!	0	0	0	0	0	0	0	0	0	1	0	1	1	0	1	0	0
Volume Module:																				
Base Vol:	113	0	5	0	0	0	0	343	121		5	511	0							
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00							
Initial Bse:	113	0	5	0	0	0	0	343	121		5	511	0							
Added Vol:	0	0	0	0	0	0	0	0	0		0	0	0							
PasserByVol:	0	0	0	0	0	0	0	0	0		0	0	0							
Initial Fut:	113	0	5	0	0	0	0	343	121		5	511	0							
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00							
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92		0.92	0.92	0.92							
PHF Volume:	123	0	5	0	0	0	0	373	132		5	555	0							
Reduct Vol:	0	0	0	0	0	0	0	0	0		0	0	0							
FinalVolume:	123	0	5	0	0	0	0	373	132		5	555	0							
Critical Gap Module:																				
Critical Gp:	6.4	6.5	6.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		4.1	xxxx	xxxxx							
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		2.2	xxxx	xxxxx							
Capacity Module:																				
Cnflict Vol:	939	939	373	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		504	xxxx	xxxxx							
Potent Cap.:	293	264	673	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		1045	xxxx	xxxxx							
Move Cap.:	292	263	673	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		1045	xxxx	xxxxx							
Volume/Cap:	0.42	0.00	0.01	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx		0.01	xxxx	xxxx							
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		0.4	xxxx	xxxxx							
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		8.5	xxxx	xxxxx							
LOS by Move:	*	*	*	*	*	*	*	*	*		A	*	*							
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx		439	xxxxx		xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx		
SharedQueue:	xxxxx		1.2	xxxxx		xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx		
Shrd ConDel:	xxxxx		16.6	xxxxx		xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx		
Shared LOS:	*		C	*		*	*	*			*	*	*			*	*	*		
ApproachDel:			16.6			xxxxxx					xxxxxx					xxxxxx				
ApproachLOS:			C			*					*					*				

Note: Queue reported is the distance per lane in feet.

6: Yolo Ave & Woodland Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.2	0.2	0.3	0.3	0.1	0.1	0.5	0.5	2.8	0.1	0.1	0.2
Total Del/Veh (s)	15.9	18.3	10.0	14.9	14.3	3.0	1.9	3.4	0.9	4.1	15.0	10.7

6: Yolo Ave & Woodland Ave Performance by movement

Movement	All
Denied Del/Veh (s)	0.4
Total Del/Veh (s)	5.8

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #7 SR-16 and Capay St

Average Delay (sec/veh): 1.3 Worst Case Level Of Service: D[25.5]

Street Name:	SR-16						Capay St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	42	614	22	9	397	15	5	4	23	6	3	8
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	42	614	22	9	397	15	5	4	23	6	3	8
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	42	614	22	9	397	15	5	4	23	6	3	8
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
PHF Volume:	48	699	25	10	452	17	6	5	26	7	3	9
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	48	699	25	10	452	17	6	5	26	7	3	9
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx	7.1	6.5	6.2	7.1	6.5	6.2
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	3.5	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	469	xxxx	xxxxx	724	xxxx	xxxxx	1295	1301	461	1304	1297	712
Potent Cap.:	1077	xxxx	xxxxx	865	xxxx	xxxxx	139	161	601	137	162	433
Move Cap.:	1077	xxxx	xxxxx	865	xxxx	xxxxx	128	152	601	123	153	433
Volume/Cap:	0.04	xxxx	xxxx	0.01	xxxx	xxxx	0.04	0.03	0.04	0.06	0.02	0.02
Level Of Service Module:												
2Way95thQ:	3.5	xxxx	xxxxx	0.9	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	8.5	xxxx	xxxxx	9.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	309	xxxxx	xxxx	195	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.4	xxxxx	xxxxx	0.3	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	18.2	xxxxx	xxxxx	25.5	xxxxx
Shared LOS:	*	*	*	*	*	*	*	C	*	*	D	*
ApproachDel:	xxxxxx			xxxxxx			18.2			25.5		
ApproachLOS:	*			*			C			D		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #8 SR-16 and Madison St

Average Delay (sec/veh): 0.9 Worst Case Level Of Service: C[22.9]

Street Name:	SR-16						Madison St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	22	633	5	5	383	16	5	5	14	5	5	5
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	22	633	5	5	383	16	5	5	14	5	5	5
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	22	633	5	5	383	16	5	5	14	5	5	5
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
PHF Volume:	24	678	5	5	411	17	5	5	15	5	5	5
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	24	678	5	5	411	17	5	5	15	5	5	5
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx	7.1	6.5	6.2	7.1	6.5	6.2
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	3.5	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	428	xxxx	xxxxx	684	xxxx	xxxxx	1163	1161	419	1168	1167	681
Potent Cap.:	1116	xxxx	xxxxx	895	xxxx	xxxxx	172	195	634	170	194	450
Move Cap.:	1116	xxxx	xxxxx	895	xxxx	xxxxx	162	190	634	159	188	450
Volume/Cap:	0.02	xxxx	xxxx	0.01	xxxx	xxxx	0.03	0.03	0.02	0.03	0.03	0.01
Level Of Service Module:												
2Way95thQ:	1.6	xxxx	xxxxx	0.5	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	8.3	xxxx	xxxxx	9.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	303	xxxxx	xxxx	217	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.3	xxxxx	xxxxx	0.2	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	18.0	xxxxx	xxxxx	22.9	xxxxx
Shared LOS:	*	*	*	*	*	*	*	C	*	*	C	*
ApproachDel:	xxxxxx			xxxxxx			18.0			22.9		
ApproachLOS:	*			*			C			C		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #9 SR-16 and Plainfield St

Average Delay (sec/veh): 2.2 Worst Case Level Of Service: D[31.9]

Street Name:	SR-16						Plainfield St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 1 0 1 0			1 0 0 1 0			0 0 1! 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	38	647	17	20	383	13	6	12	17	15	24	8
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	38	647	17	20	383	13	6	12	17	15	24	8
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	38	647	17	20	383	13	6	12	17	15	24	8
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
PHF Volume:	39	669	18	21	396	13	6	12	18	16	25	8
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	39	669	18	21	396	13	6	12	18	16	25	8
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx	7.1	6.5	6.2	7.1	6.5	6.2
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	3.5	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	410	xxxx	xxxxx	687	xxxx	xxxxx	870	1209	403	1216	1207	343
Potent Cap.:	1133	xxxx	xxxxx	893	xxxx	xxxxx	272	183	648	158	183	699
Move Cap.:	1133	xxxx	xxxxx	893	xxxx	xxxxx	229	172	648	139	173	699
Volume/Cap:	0.03	xxxx	xxxx	0.02	xxxx	xxxx	0.03	0.07	0.03	0.11	0.14	0.01
Level Of Service Module:												
2Way95thQ:	2.7	xxxx	xxxxx	1.8	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	8.3	xxxx	xxxxx	9.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	286	xxxxx	xxxx	182	xxxxx
SharedQueue:	0.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.4	xxxxx	xxxxx	1.0	xxxxx
Shrd ConDel:	8.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	19.4	xxxxx	xxxxx	31.9	xxxxx
Shared LOS:	A	*	*	*	*	*	*	C	*	*	D	*
ApproachDel:	xxxxxx			xxxxxx			19.4			31.9		
ApproachLOS:	*			*			C			D		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #10 SR-16 and County Road 21A

Cycle (sec):	100	Critical Vol./Cap.(X):	0.859
Loss Time (sec):	0	Average Delay (sec/veh):	23.6
Optimal Cycle:	0	Level Of Service:	C

Street Name:	SR-16						County Road 21A					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Ignore		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	0 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	1 0	1
Volume Module:												
Base Vol:	0	0	0	522	0	8	6	144	0	0	128	920
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	522	0	8	6	144	0	0	128	920
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	522	0	8	6	144	0	0	128	920
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
PHF Adj:	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.00
PHF Volume:	0	0	0	593	0	9	7	164	0	0	145	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	593	0	9	7	164	0	0	145	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
FinalVolume:	0	0	0	593	0	9	7	164	0	0	145	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	0.98	0.00	0.02	0.04	0.96	0.00	0.00	1.00	1.00
Final Sat.:	0	0	0	690	0	11	23	555	0	0	530	590
Capacity Analysis Module:												
Vol/Sat:	xxxx	xxxx	xxxx	0.86	xxxx	0.86	0.29	0.29	xxxx	xxxx	0.27	0.00
Crit Moves:				****				****			****	
Delay/Veh:	0.0	0.0	0.0	30.0	0.0	30.0	11.2	11.2	0.0	0.0	11.4	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	30.0	0.0	30.0	11.2	11.2	0.0	0.0	11.4	0.0
LOS by Move:	*	*	*	D	*	D	B	B	*	*	B	*
ApproachDel:	xxxxxx			30.0			11.2			11.4		
Delay Adj:	xxxxx			1.00			1.00			1.00		
ApprAdjDel:	xxxxxx			30.0			11.2			11.4		
LOS by Appr:	*			D			B			B		
AllWayAvgQ:	0.0	0.0	0.0	107	107	106.7	9.1	9.1	9.1	0.0	8.3	0.0

Note: Queue reported is the distance per lane in feet.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #11 County Rd 85B and County Rd 21A

Average Delay (sec/veh): 6.0 Worst Case Level Of Service: A[9.0]

Street Name:	County Rd 85B									County Rd 21A								
Approach:	North Bound						South Bound						East Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Uncontrolled						Uncontrolled						Stop Sign					
Rights:	Include						Include						Include					
Lanes:	0	0	0	1	0		0	1	0	0	0		0	0	0	0	0	
Volume Module:																		
Base Vol:	0	35	5				92	28	0				0	0	0			
Growth Adj:	1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00			
Initial Bse:	0	35	5				92	28	0				0	0	0			
Added Vol:	0	0	0				0	0	0				0	0	0			
PasserByVol:	0	0	0				0	0	0				0	0	0			
Initial Fut:	0	35	5				92	28	0				0	0	0			
User Adj:	1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00			
PHF Adj:	0.79	0.79	0.79				0.79	0.79	0.79				0.79	0.79	0.79			
PHF Volume:	0	45	6				117	36	0				0	0	0			
Reduct Vol:	0	0	0				0	0	0				0	0	0			
FinalVolume:	0	45	6				117	36	0				0	0	0			
Critical Gap Module:																		
Critical Gp:	xxxxx	xxxx	xxxxx				4.1	xxxx	xxxxx				xxxx	xxxxx				
FollowUpTim:	xxxxx	xxxx	xxxxx				2.2	xxxx	xxxxx				xxxx	xxxxx				
Capacity Module:																		
Cnflict Vol:	xxxx	xxxx	xxxxx				51	xxxx	xxxxx				xxxx	xxxx	xxxxx			
Potent Cap.:	xxxx	xxxx	xxxxx				1555	xxxx	xxxxx				xxxx	xxxx	xxxxx			
Move Cap.:	xxxx	xxxx	xxxxx				1555	xxxx	xxxxx				xxxx	xxxx	xxxxx			
Volume/Cap:	xxxx	xxxx	xxxx				0.08	xxxx	xxxx				xxxx	xxxx	xxxx			
Level Of Service Module:																		
2Way95thQ:	xxxx	xxxx	xxxxx				6.1	xxxx	xxxxx				xxxx	xxxx	xxxxx			
Control Del:	xxxxx	xxxx	xxxxx				7.5	xxxx	xxxxx				xxxxx	xxxx	xxxxx			
LOS by Move:	*	*	*				A	*	*				*	*	*			
Movement:	LT	-	LTR	-	RT		LT	-	LTR	-	RT		LT	-	LTR	-	RT	
Shared Cap.:	xxxx	xxxx	xxxxx				xxxx	xxxx	xxxxx				xxxx	xxxx	xxxxx			
SharedQueue:	xxxxx	xxxx	xxxxx				0.2	xxxx	xxxxx				xxxxx	xxxx	xxxxx			
Shrd ConDel:	xxxxx	xxxx	xxxxx				7.5	xxxx	xxxxx				xxxxx	xxxx	xxxxx			
Shared LOS:	*	*	*				A	*	*				*	*	*			
ApproachDel:	xxxxxx						xxxxxx						xxxxxx					
ApproachLOS:	*						*						*					

Note: Queue reported is the distance per lane in feet.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #12 Country Villa Estates and County Rd 21A

Average Delay (sec/veh): 0.2 Worst Case Level Of Service: A[10.0]

Street Name:	Country Villa Estates									County Rd 21A								
Approach:	North Bound			South Bound			East Bound			West Bound								
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled								
Rights:	Include			Include			Include			Include								
Lanes:	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1!	0	0
Volume Module:																				
Base Vol:	0	0	0	3	0	0	1	113	0	1	84	9								
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
Initial Bse:	0	0	0	3	0	0	1	113	0	1	84	9								
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0								
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0								
Initial Fut:	0	0	0	3	0	0	1	113	0	1	84	9								
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
PHF Adj:	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79								
PHF Volume:	0	0	0	4	0	0	1	143	0	1	106	11								
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0								
FinalVolume:	0	0	0	4	0	0	1	143	0	1	106	11								
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	xxxxx	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx								
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	xxxxx	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx								
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx	xxxxx	260	xxxx	xxxxx	118	xxxx	xxxxx	143	xxxx	xxxxx								
Potent Cap.:	xxxx	xxxx	xxxxx	728	xxxx	xxxxx	1470	xxxx	xxxxx	1439	xxxx	xxxxx								
Move Cap.:	xxxx	xxxx	xxxxx	727	xxxx	xxxxx	1470	xxxx	xxxxx	1439	xxxx	xxxxx								
Volume/Cap:	xxxx	xxxx	xxxx	0.01	xxxx	xxxx	0.00	xxxx	xxxx	0.00	xxxx	xxxx								
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	xxxxx	0.4	xxxx	xxxxx	0.1	xxxx	xxxxx	0.1	xxxx	xxxxx								
Control Del:	xxxxx	xxxx	xxxxx	10.0	xxxx	xxxxx	7.5	xxxx	xxxxx	7.5	xxxx	xxxxx								
LOS by Move:	*	*	*	A	*	*	A	*	*	A	*	*								
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT								
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx								
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Shared LOS:	*	*	*	*	*	*	A	*	*	*	*	*								
ApproachDel:	xxxxxx			10.0			xxxxxx			xxxxxx								
ApproachLOS:	*			A			*			*								

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #13 Fremont St and County Rd 21A

Average Delay (sec/veh): 1.1 Worst Case Level Of Service: B[10.1]

Street Name:	Fremont St						County Rd 21A					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			0 0 1! 0 0			0 1 0 0 0			0 0 0 1 0		
Volume Module:												
Base Vol:	0	0	0	14	0	8	10	114	0	0	94	25
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	14	0	8	10	114	0	0	94	25
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	14	0	8	10	114	0	0	94	25
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
PHF Volume:	0	0	0	19	0	11	13	151	0	0	125	33
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	19	0	11	13	151	0	0	125	33
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	319	319	141	158	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	674	597	906	1422	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	669	592	906	1422	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.03	0.00	0.01	0.01	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.7	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.6	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	740	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.1	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	10.1	xxxxx	7.6	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	B	*	A	*	*	*	*	*
ApproachDel:	xxxxxx			10.1			xxxxxx			xxxxxx		
ApproachLOS:	*			B			*			*		

Note: Queue reported is the distance per lane in feet.

DELAY (CONTROL)

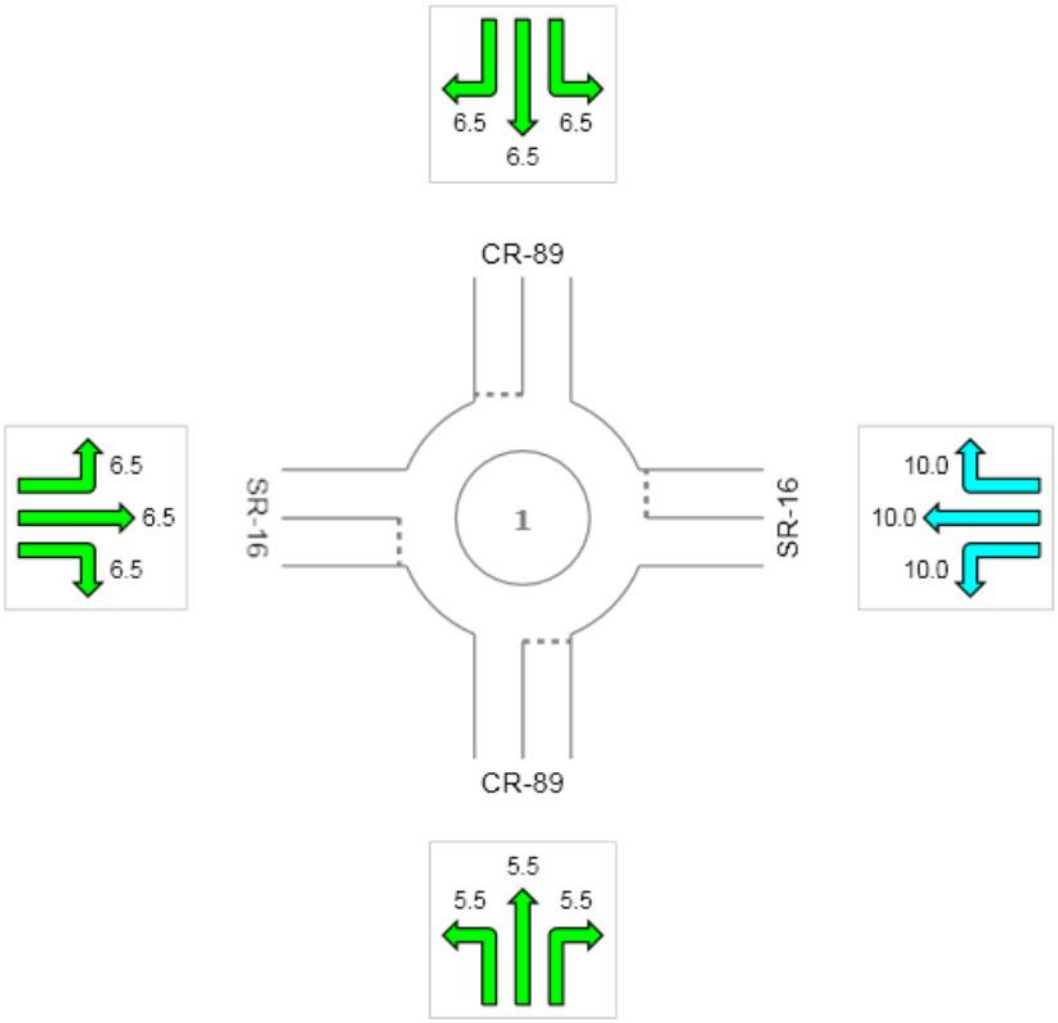
Average control delay per vehicle, or average pedestrian delay (seconds)

Site: SR-16/CR-89

Long-Term Sat PM
Roundabout

All Movement Classes

	South	East	North	West	Intersection
Delay (Control)	5.5	10.0	6.5	6.5	8.4
LOS	A	B	A	A	A



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F | Continuous

Level of Service Method: Delay & v/c (HCM 2010)
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Roundabout Level of Service Method: Same as Sign Control
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #15 SR-16 and SB I-505

Average Delay (sec/veh): 0.5 Worst Case Level Of Service: D[27.2]

Street Name:	SB I-505								SR-16							
Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	0	0 0	0	1	0	0 1	0	0	0	1 0	0	0	1	0 1
Volume Module:																
Base Vol:	0	0	0		11	4	12		0	235	443		0	783	37	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	0	0	0		11	4	12		0	235	443		0	783	37	
Added Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	0	0	0		11	4	12		0	235	443		0	783	37	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.89	0.89	0.89		0.89	0.89	0.89		0.89	0.89	0.89		0.89	0.89	0.89	
PHF Volume:	0	0	0		12	5	14		0	265	500		0	884	42	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
FinalVolume:	0	0	0		12	5	14		0	265	500		0	884	42	
Critical Gap Module:																
Critical Gp:	xxxxx	xxxx	xxxxx		6.4	6.6	6.3		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
FollowUpTim:	xxxxx	xxxx	xxxxx		3.5	4.0	3.3		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Capacity Module:																
Cnflict Vol:	xxxx	xxxx	xxxxx		1399	1649	884		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Potent Cap.:	xxxx	xxxx	xxxxx		153	97	340		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Move Cap.:	xxxx	xxxx	xxxxx		153	97	340		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Volume/Cap:	xxxx	xxxx	xxxx		0.08	0.05	0.04		xxxx	xxxx	xxxx		xxxx	xxxx	xxxx	
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	xxxxx		xxxx	xxxx	3.1		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Control Del:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	16.0		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
LOS by Move:	*	*	*		*	*	C		*	*	*		*	*	*	
Movement:	LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT	
Shared Cap.:	xxxx	xxxx	xxxxx		133	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
SharedQueue:	xxxxx	xxxx	xxxxx		0.4	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shrd ConDel:	xxxxx	xxxx	xxxxx		36.1	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shared LOS:	*	*	*		E	*	*		*	*	*		*	*	*	
ApproachDel:	xxxxxx				27.2				xxxxxx				xxxxxx			
ApproachLOS:	*				D				*				*			

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #16 SR-16 and NB I-505

Cycle (sec):	50	Critical Vol./Cap.(X):	0.808
Loss Time (sec):	6	Average Delay (sec/veh):	16.5
Optimal Cycle:	50	Level Of Service:	B

Street Name:	NB I-505						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Ignore			Include		
Min. Green:	5	5	5	0	0	0	0	5	5	0	5	5
Y+R:	4.1	4.1	4.1	4.0	4.0	4.0	4.0	5.5	5.5	4.0	5.5	5.5
Lanes:	0 1	0	0 1	0	0	0 0	0	0	1 0 1	0	0	1 0 1
Volume Module:												
Base Vol:	393	0	118	0	0	0	0	222	32	0	573	14
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	393	0	118	0	0	0	0	222	32	0	573	14
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	393	0	118	0	0	0	0	222	32	0	573	14
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Adj:	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.00	0.87	0.87	0.87
PHF Volume:	450	0	135	0	0	0	0	254	0	0	656	16
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	450	0	135	0	0	0	0	254	0	0	656	16
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
FinalVolume:	450	0	135	0	0	0	0	254	0	0	656	16
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.68	1.00	0.81	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.81
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00
Final Sat.:	1291	0	1537	0	0	0	0	1809	1900	0	1809	1537
Capacity Analysis Module:												
Vol/Sat:	0.35	0.00	0.09	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.36	0.01
Crit Moves:	****										****	
Green/Cycle:	0.43	0.00	0.43	0.00	0.00	0.00	0.00	0.45	0.00	0.00	0.45	0.45
Volume/Cap:	0.81	0.00	0.20	0.00	0.00	0.00	0.00	0.31	0.00	0.00	0.81	0.02
Uniform Del:	12.4	0.0	8.9	0.0	0.0	0.0	0.0	8.8	0.0	0.0	11.9	7.7
IncremntDel:	8.6	0.0	0.2	0.0	0.0	0.0	0.0	0.2	0.0	0.0	6.1	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00
Delay/Veh:	21.0	0.0	9.0	0.0	0.0	0.0	0.0	9.1	0.0	0.0	18.0	7.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	21.0	0.0	9.0	0.0	0.0	0.0	0.0	9.1	0.0	0.0	18.0	7.7
LOS by Move:	C	A	A	A	A	A	A	A	A	A	B	A
HCM2kAvgQ:	221	0	36	0	0	0	0	68	0	0	235	3

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #17 SR-16 and Wild Wings Dr

Average Delay (sec/veh): 1.9 Worst Case Level Of Service: C[23.9]

Street Name:	Wild Wings Dr						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			1 0 0 0 1			1 0 1 0 0			0 0 1 0 1		
Volume Module:												
Base Vol:	0	0	0	65	0	14	9	331	0	0	563	69
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	65	0	14	9	331	0	0	563	69
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	65	0	14	9	331	0	0	563	69
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
PHF Volume:	0	0	0	76	0	16	11	387	0	0	658	81
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	76	0	16	11	387	0	0	658	81
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	1065	xxxx	658	738	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	246	xxxx	464	854	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	244	xxxx	464	854	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.31	xxxx	0.04	0.01	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	31.9	xxxx	2.7	0.9	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	26.3	xxxx	13.0	9.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	D	*	B	A	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			23.9			xxxxxx			xxxxxx		
ApproachLOS:	*			C			*			*		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #18 SR-16 and County Rd 94B

Average Delay (sec/veh): 7.1 Worst Case Level Of Service: F[59.9]

Street Name:	County Rd 94B									SR-16								
Approach:	North Bound			South Bound			East Bound			West Bound								
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled								
Rights:	Include			Include			Include			Include								
Lanes:	0	0	1!	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1!	0	0
Volume Module:																				
Base Vol:	99	0	5	0	11	15	16	346	0	52	471	1								
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
Initial Bse:	99	0	5	0	11	15	16	346	0	52	471	1								
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0								
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0								
Initial Fut:	99	0	5	0	11	15	16	346	0	52	471	1								
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
PHF Adj:	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89								
PHF Volume:	112	0	6	0	12	17	18	391	0	59	532	1								
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0								
FinalVolume:	112	0	6	0	12	17	18	391	0	59	532	1								
Critical Gap Module:																				
Critical Gp:	7.1	6.5	6.2	xxxxx	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx								
FollowUpTim:	3.5	4.0	3.3	xxxxx	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx								
Capacity Module:																				
Cnflict Vol:	1091	1077	391	xxxx	1076	532	533	xxxx	xxxxx	391	xxxx	xxxxx								
Potent Cap.:	192	219	658	xxxx	219	547	1020	xxxx	xxxxx	1152	xxxx	xxxxx								
Move Cap.:	168	204	658	xxxx	204	547	1020	xxxx	xxxxx	1152	xxxx	xxxxx								
Volume/Cap:	0.66	0.00	0.01	xxxx	0.06	0.03	0.02	xxxx	xxxx	0.05	xxxx	xxxx								
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1.4	xxxx	xxxxx	4.0	xxxx	xxxxx								
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.6	xxxx	xxxxx	8.3	xxxx	xxxxx								
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*								
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	175	xxxxx	xxxx	xxxx	320	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx								
SharedQueue:	xxxxx	4.0	xxxxx	xxxxx	xxxx	0.3	0.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Shrd ConDel:	xxxxx	59.9	xxxxx	xxxxx	xxxx	17.4	8.6	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Shared LOS:	*	F	*	*	*	C	A	*	*	*	*	*								
ApproachDel:	59.9			17.4			xxxxxx			xxxxxx										
ApproachLOS:	F			C			*			*										

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #19 SR-16 and County Rd 95

Average Delay (sec/veh): 0.9 Worst Case Level Of Service: C[20.7]

Street Name:	County Rd 95									SR-16								
Approach:	North Bound			South Bound			East Bound			West Bound								
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled								
Rights:	Include			Include			Include			Include								
Lanes:	0	0	1!	0	0	0	0	1	0	0	0	0	1	0	0	0	1	0	0	0
Volume Module:																				
Base Vol:	10	3	22	0	4	0	0	390	0		21	499	0							
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00							
Initial Bse:	10	3	22	0	4	0	0	390	0		21	499	0							
Added Vol:	0	0	0	0	0	0	0	0	0		0	0	0							
PasserByVol:	0	0	0	0	0	0	0	0	0		0	0	0							
Initial Fut:	10	3	22	0	4	0	0	390	0		21	499	0							
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00							
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92		0.92	0.92	0.92							
PHF Volume:	11	3	24	0	4	0	0	424	0		23	542	0							
Reduct Vol:	0	0	0	0	0	0	0	0	0		0	0	0							
FinalVolume:	11	3	24	0	4	0	0	424	0		23	542	0							
Critical Gap Module:																				
Critical Gp:	7.1	6.5	6.2	xxxxx	6.5	xxxxx	xxxxx	xxxx	xxxxx		4.1	xxxx	xxxxx							
FollowUpTim:	3.5	4.0	3.3	xxxxx	4.0	xxxxx	xxxxx	xxxx	xxxxx		2.2	xxxx	xxxxx							
Capacity Module:																				
Cnflict Vol:	1014	1012	424	xxxx	1012	xxxxx	xxxx	xxxx	xxxxx		424	xxxx	xxxxx							
Potent Cap.:	217	239	630	xxxx	239	xxxxx	xxxx	xxxx	xxxxx		1119	xxxx	xxxxx							
Move Cap.:	211	234	630	xxxx	234	xxxxx	xxxx	xxxx	xxxxx		1119	xxxx	xxxxx							
Volume/Cap:	0.05	0.01	0.04	xxxx	0.02	xxxx	xxxx	xxxx	xxxx		0.02	xxxx	xxxx							
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	1.4	xxxxx	xxxx	xxxx	xxxxx		1.6	xxxx	xxxxx							
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	20.7	xxxxx	xxxxx	xxxx	xxxxx		8.3	xxxx	xxxxx							
LOS by Move:	*	*	*	*	C	*	*	*	*		A	*	*							
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx		368	xxxxx		xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx		
SharedQueue:	xxxxx		0.3	xxxxx		xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			0.1	xxxx	xxxxx		
Shrd ConDel:	xxxxx		15.9	xxxxx		xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			8.3	xxxx	xxxxx		
Shared LOS:	*		C	*		*	*	*			*	*	*			A	*	*		
ApproachDel:		15.9			20.7			xxxxxx				xxxxxx								
ApproachLOS:		C			C			*				*								

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #20 SR-16 and County Rd 98

Cycle (sec):	80	Critical Vol./Cap.(X):	0.430
Loss Time (sec):	12	Average Delay (sec/veh):	24.6
Optimal Cycle:	80	Level Of Service:	C

Street Name:	County Rd 98						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	5	5	5	5	6	6	5	5	5
Y+R:	4.0	6.0	6.0	4.0	6.0	6.0	4.0	5.3	5.3	4.0	5.3	5.3
Lanes:	1 0	0	1 0	1 0	1	0 1	1 0	1	0 1	1 0	1	0 1
Volume Module:												
Base Vol:	111	117	83	52	115	96	83	221	88	44	293	55
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	111	117	83	52	115	96	83	221	88	44	293	55
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	111	117	83	52	115	96	83	221	88	44	293	55
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
PHF Volume:	115	121	86	54	119	99	86	228	91	45	302	57
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	115	121	86	54	119	99	86	228	91	45	302	57
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	115	121	86	54	119	99	86	228	91	45	302	57
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.92	0.92	0.93	0.98	0.83	0.90	0.87	0.87	0.90	0.95	0.81
Lanes:	1.00	0.59	0.41	1.00	1.00	1.00	1.00	1.43	0.57	1.00	1.00	1.00
Final Sat.:	1769	1022	725	1769	1862	1583	1718	2352	937	1718	1809	1537
Capacity Analysis Module:												
Vol/Sat:	0.06	0.12	0.12	0.03	0.06	0.06	0.05	0.10	0.10	0.03	0.17	0.04
Crit Moves:		****		****			****				****	
Green/Cycle:	0.17	0.27	0.27	0.07	0.17	0.17	0.12	0.31	0.31	0.20	0.39	0.39
Volume/Cap:	0.37	0.43	0.43	0.43	0.37	0.37	0.43	0.32	0.32	0.13	0.43	0.09
Uniform Del:	29.2	23.9	23.9	35.6	29.3	29.3	32.9	21.3	21.3	26.4	17.9	15.5
IncremntDel:	0.8	0.6	0.6	2.4	0.7	0.8	1.5	0.2	0.2	0.2	0.4	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	29.9	24.5	24.5	38.0	30.1	30.1	34.4	21.5	21.5	26.6	18.4	15.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	29.9	24.5	24.5	38.0	30.1	30.1	34.4	21.5	21.5	26.6	18.4	15.6
LOS by Move:	C	C	C	D	C	C	C	C	C	C	B	B
HCM2kAvgQ:	71	113	113	32	63	53	49	76	76	25	142	23

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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #21 SR-16 and W. Kentucky Ave

Cycle (sec):	80	Critical Vol./Cap.(X):	0.263
Loss Time (sec):	12	Average Delay (sec/veh):	19.0
Optimal Cycle:	80	Level Of Service:	B

Street Name:	SR-16						W. Kentucky Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	5	5	5	5	5	5	5	5	5
Y+R:	4.0	6.0	6.0	4.0	6.0	6.0	4.0	5.3	5.3	4.0	5.3	5.3
Lanes:	1 0	0	1 0	1 0	0	1 0	1 0	0	1 0	1 0	0	1 0
Volume Module:												
Base Vol:	6	161	85	16	153	27	24	38	7	55	50	11
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	6	161	85	16	153	27	24	38	7	55	50	11
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	6	161	85	16	153	27	24	38	7	55	50	11
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
PHF Volume:	6	173	91	17	164	29	26	41	8	59	54	12
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	6	173	91	17	164	29	26	41	8	59	54	12
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	6	173	91	17	164	29	26	41	8	59	54	12
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.90	0.90	0.90	0.90	0.93	0.93	0.93	0.96	0.96	0.93	0.95	0.95
Lanes:	1.00	0.65	0.35	1.00	0.85	0.15	1.00	0.84	0.16	1.00	0.82	0.18
Final Sat.:	1718	1122	592	1718	1504	265	1769	1536	283	1769	1485	327
Capacity Analysis Module:												
Vol/Sat:	0.00	0.15	0.15	0.01	0.11	0.11	0.01	0.03	0.03	0.03	0.04	0.04
Crit Moves:		****		****				****		****		
Green/Cycle:	0.23	0.57	0.57	0.06	0.40	0.40	0.11	0.10	0.10	0.12	0.11	0.11
Volume/Cap:	0.02	0.27	0.27	0.16	0.27	0.27	0.13	0.27	0.27	0.27	0.33	0.33
Uniform Del:	23.8	8.9	8.9	35.5	16.2	16.2	32.1	33.4	33.4	31.8	32.8	32.8
IncremntDel:	0.0	0.2	0.2	0.7	0.2	0.2	0.3	0.8	0.8	0.7	1.0	1.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	23.9	9.0	9.0	36.2	16.4	16.4	32.4	34.3	34.3	32.5	33.8	33.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	23.9	9.0	9.0	36.2	16.4	16.4	32.4	34.3	34.3	32.5	33.8	33.8
LOS by Move:	C	A	A	D	B	B	C	C	C	C	C	C
HCM2kAvgQ:	3	80	80	14	81	81	17	34	34	39	45	45

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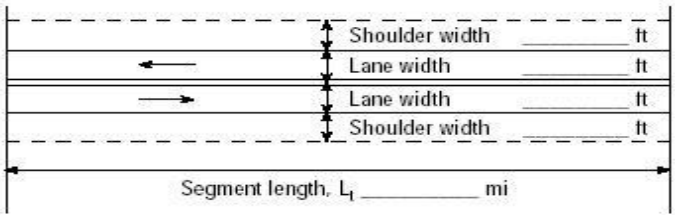
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*CCCR to County Road 85*
Date Performed	*5/17/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☐ Level ☑ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.93*

No-passing zone *75%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *3*/mi

Analysis direction vol., V_d *655*veh/h

Opposing direction vol., V_o *518*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *6.7*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.6*	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.1*	*1.1*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.967*	*0.958*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*0.98*	*0.96*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*743*	*606*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.2 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*51.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*38.9 mi/h*
		Percent free flow speed, PFFS	*75.4 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.4*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*0.980*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*0.99*	*0.97*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*711*	*586*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*63.0*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*29.1*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*79.0*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.44*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1586*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1633*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*75.4*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*704.3*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.40*
Bicycle level of service (Exhibit 15-4)	*E*
Notes	
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain. 2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10. 6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.	

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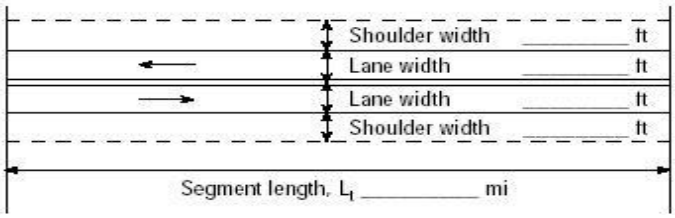
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*CCCR to County Road 85*
Date Performed	*5/17/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *518*veh/h

Opposing direction vol., V_o *655*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *6.7*

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☐ Level ☑ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.93*

No-passing zone *75%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.8*	*1.6*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.1*	*1.1*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.958*	*0.967*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*0.96*	*0.98*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*606*	*743*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.6 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*51.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*39.5 mi/h*
		Percent free flow speed, PFFS	*76.6 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.4*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.980*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*0.97*	*0.99*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*586*	*711*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*59.2*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*29.1*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*72.3*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.36*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1611*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1683*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*76.6*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*557.0*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.28*
Bicycle level of service (Exhibit 15-4)	*E*
Notes	
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain. 2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10. 6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.	

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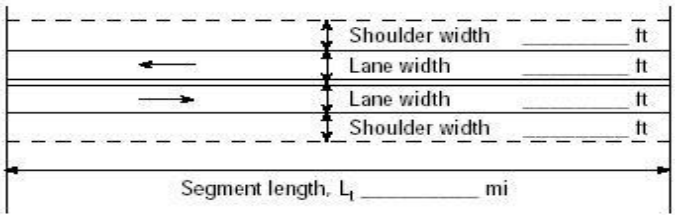
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*County Road 85 to Esparto Town*
Date Performed	*5/17/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.92*

No-passing zone *85%*

Analysis direction vol., V_d *650*veh/h

Opposing direction vol., V_o *477*veh/h

% Trucks and Buses , P_T *5* %

% Recreational vehicles, P_R *4%*

Access points *mi* *5*/mi

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *1.4*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.990*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*710*	*524*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*0.3 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.2 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*42.1 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*30.3 mi/h*
		Percent free flow speed, PFFS	*72.0 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*707*	*518*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*62.3*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*31.1*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*80.2*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.42*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*72.0*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*706.5*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.40*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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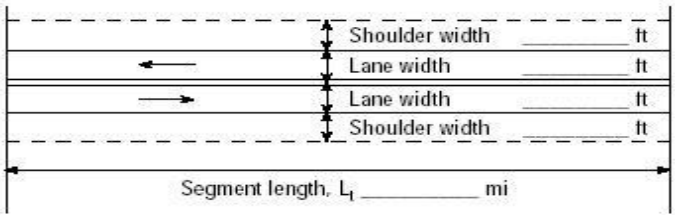
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*County Road 85 to Esparto Town*
Date Performed	*5/17/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *477*veh/h
Opposing direction vol., V_o *650*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *1.4*

☐ Class I highway ☑ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.92*
No-passing zone *85%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *5*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.2*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.990*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*524*	*710*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.3 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.5 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*42.1 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*31.0 mi/h*
		Percent free flow speed, PFFS	*73.7 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*518*	*707*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*54.7*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*31.1*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*67.9*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*C*
Volume to capacity ratio, *v/c*	*0.30*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*73.7*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*518.5*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.24*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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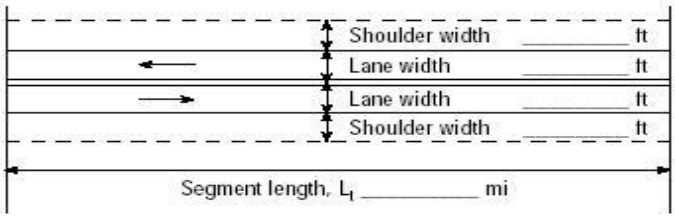
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*through Esparto Town*
Date Performed	*5/17/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Analysis direction vol., V_d	*926*veh/h	Grade Length	mi Up/down
Opposing direction vol., V_o	*530*veh/h	Peak-hour factor, PHF	*0.92*
Shoulder width ft	*2.0*	No-passing zone	*95%*
Lane Width ft	*12.0*	% Trucks and Buses , P_T	*5 %*
Segment Length mi	*1.2*	% Recreational vehicles, P_R	*4%*
		Access points *mi*	*14*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.0*	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*0.990*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*1007*	*582*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*3.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.1 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*38.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*24.5 mi/h*
		Percent free flow speed, PFFS	*62.9 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*1007*	*576*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*74.5*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*22.5*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*88.8*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.59*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*62.9*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*1006.5*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.58*
Bicycle level of service (Exhibit 15-4)	*F*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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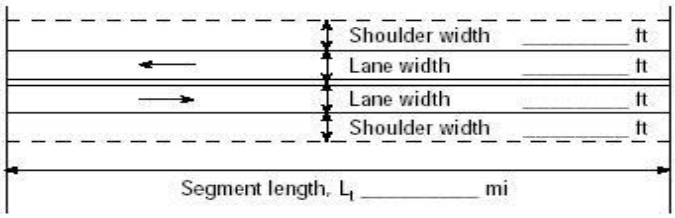
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*through Esparto Town*
Date Performed	*5/17/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *530*veh/h

Opposing direction vol., V_o *926*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *1.2*

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.92*

No-passing zone *95%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *14*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.2*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.990*	*1.000*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*582*	*1007*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, v		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*3.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.1 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*38.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*25.5 mi/h*
		Percent free flow speed, PFFS	*65.5 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*576*	*1007*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*61.4*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*22.5*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*69.6*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*C*
Volume to capacity ratio, *v/c*	*0.34*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1700*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*65.5*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*576.1*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.29*
Bicycle level of service (Exhibit 15-4)	*E*
Notes	
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain. 2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10. 6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.	

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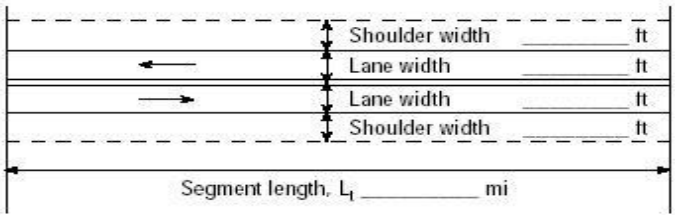
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*Esparto Town to County Rd 89*
Date Performed	*5/17/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *1048* veh/h
Opposing direction vol., V_o *666* veh/h
Shoulder width ft *4.0*
Lane Width ft *12.0*
Segment Length mi *2.7*

☑ Class I highway ☐ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.92*
No-passing zone *80%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.0*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*1139*	*728*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, v		Adj. for lane and shoulder width,[4] f_{LS} (Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.6 mi/h*	Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*52.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*36.8 mi/h*
		Percent free flow speed, PFFS	*69.6 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*1139*	*724*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*78.8*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*18.6*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*90.2*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.67*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*69.6*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*1139.1*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.34*
Bicycle level of service (Exhibit 15-4)	*E*
Notes	
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain. 2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10. 6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.	

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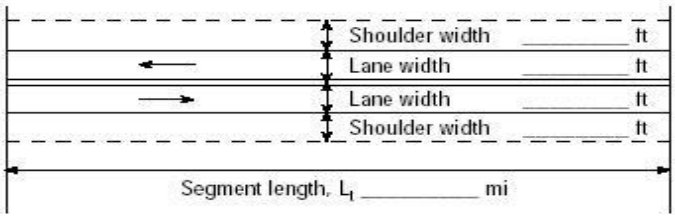
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*Esparto Town to County Rd 89*
Date Performed	*5/17/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Analysis direction vol., V_d	*666*veh/h	Grade Length	mi Up/down
Opposing direction vol., V_o	*1048*veh/h	Peak-hour factor, PHF	*0.92*
Shoulder width ft	*4.0*	No-passing zone	*80%*
Lane Width ft	*12.0*	% Trucks and Buses , P_T	*5 %*
Segment Length mi	*2.7*	% Recreational vehicles, P_R	*4%*
		Access points *mi*	*3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*1.000*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*728*	*1139*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*0.9 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*37.5 mi/h*
		Percent free flow speed, PFFS	*70.9 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*724*	*1139*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*69.8*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*18.6*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*77.0*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.43*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1700*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*70.9*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*723.9*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.11*
Bicycle level of service (Exhibit 15-4)	*E*
Notes	
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain. 2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10. 6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.	

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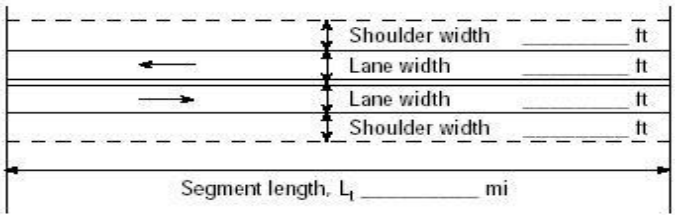
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*County Rd 89 to I-505*
Date Performed	*5/17/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *795*veh/h
Opposing direction vol., V_o *678*veh/h
Shoulder width ft *4.0*
Lane Width ft *12.0*
Segment Length mi *0.8*

☑ Class I highway ☐ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.93*
No-passing zone *100*%
% Trucks and Buses , P_T *5* %
% Recreational vehicles, P_R *4*%
Access points *mi* *4*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*859*	*733*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*1.0 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.7 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.7 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*38.6 mi/h*
		Percent free flow speed, PFFS	*73.3* %

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*855*	*729*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*71.0*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*25.1*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*84.5*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.51*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*73.3*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*854.8*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.20*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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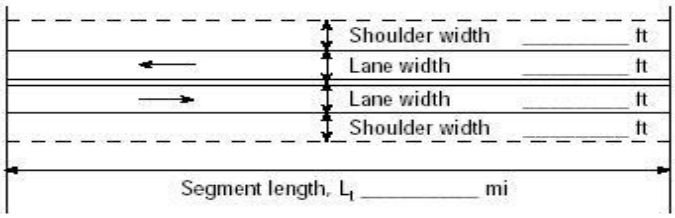
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*County Rd 89 to I-505*
Date Performed	*5/17/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Analysis direction vol., V_d	*678*veh/h	Grade Length	mi Up/down
Opposing direction vol., V_o	*795*veh/h	Peak-hour factor, PHF	*0.93*
Shoulder width ft	*4.0*	No-passing zone	*100*%
Lane Width ft	*12.0*	% Trucks and Buses , P_T	*5* %
Segment Length mi	*0.8*	% Recreational vehicles, P_R	*4*%
		Access points *mi*	*4*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*733*	*859*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.0 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.4 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.7 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*38.9 mi/h*
		Percent free flow speed, PFFS	*73.9* %

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*729*	*855*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*67.0*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*25.1*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*78.6*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.43*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1700*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*73.9*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*729.0*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.11*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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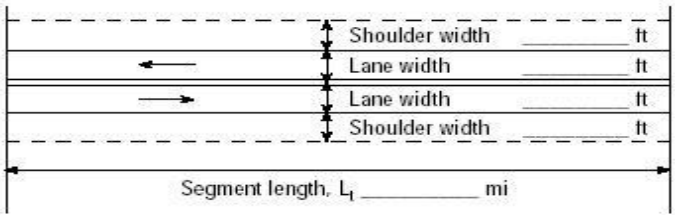
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*I-505 to County Rd 98*
Date Performed	*5/17/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *587*veh/h

Opposing direction vol., V_o *392*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *8.3*

Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.92*

No-passing zone *100*%

% Trucks and Buses , P_T *5* %

% Recreational vehicles, P_R *4*%

Access points *mi* *35*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.3*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.985*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*641*	*433*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0* *mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6* *mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*8.8* *mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.8* *mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*43.6* *mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*32.5* *mi/h*
		Percent free flow speed, PFFS	*74.5* %

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*638*	*428*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*58.9*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*35.1*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*79.9*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.38*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1675*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*74.5*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*638.0*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.35*
Bicycle level of service (Exhibit 15-4)	*E*
Notes	

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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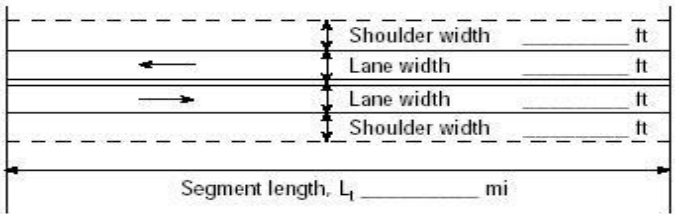
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*I-505 to County Rd 98*
Date Performed	*5/17/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *392*veh/h
Opposing direction vol., V_o *587*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *8.3*

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.92*
No-passing zone *100*%
% Trucks and Buses , P_T *5* %
% Recreational vehicles, P_R *4*%
Access points *mi* *35*/mi

Show North Arrow

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.3*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.985*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*433*	*641*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0* *mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6* *mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*8.8* *mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.0* *mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*43.6* *mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*33.3* *mi/h*
		Percent free flow speed, PFFS	*76.3* %

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*428*	*638*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*48.0*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*35.1*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*62.1*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.25*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*76.3*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*426.1*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.14*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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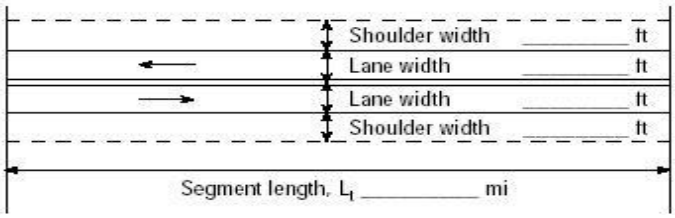
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 21A (EB)*
Agency or Company	*Yolo County*	From/To	*County Rd 85 to SR-16*
Date Performed	*5/17/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *150*veh/h

Opposing direction vol., V_o *136*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *1.2*

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.84*

No-passing zone *25%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* 7/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.7*	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.966*	*0.962*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*185*	*168*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*0.5 mi/h*	Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*40.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*37.4 mi/h*
		Percent free flow speed, PFFS	*92.0 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*179*	*163*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*19.6*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*39.9*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*40.5*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*B*
Volume to capacity ratio, *v/c*	*0.11*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*92.0*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*178.6*
Effective width, Wv (Eq. 15-29) ft	*17.50*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.15*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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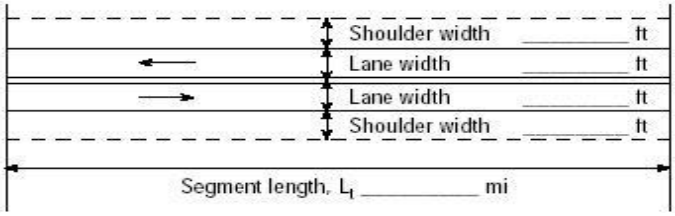
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 21A (WB)*
Agency or Company	*Yolo County*	From/To	*County Rd 85 to SR-16*
Date Performed	*5/17/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *136*veh/h

Opposing direction vol., V_o *150*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *1.2*

Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.84*

No-passing zone *25%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* 7/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.8*	*1.7*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.962*	*0.966*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*168*	*185*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*0.6 mi/h*	Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*40.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*37.3 mi/h*
		Percent free flow speed, PFFS	*91.8 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*163*	*179*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*18.0*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*39.9*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*37.0*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*A*
Volume to capacity ratio, *v/c*	*0.10*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1651*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*91.8*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*161.9*
Effective width, Wv (Eq. 15-29) ft	*18.48*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.92*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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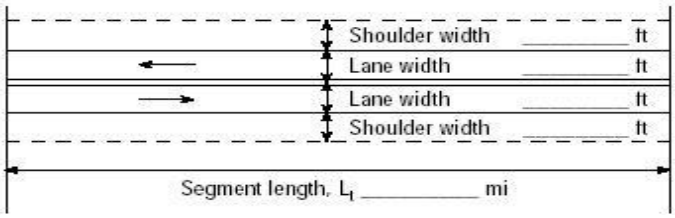
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 85B (NB)*
Agency or Company	*Yolo County*	From/To	*SR-16 to County Rd 21A*
Date Performed	*5/17/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.86*

No-passing zone *80%*

Analysis direction vol., V_d *119*veh/h

Opposing direction vol., V_o *126*veh/h

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Shoulder width ft *2.0*

Lane Width ft *12.0*

Access points *mi* *6*/mi

Segment Length mi *0.9*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.8*	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.962*	*0.962*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*144*	*152*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.5 mi/h*	Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*40.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*36.1 mi/h*
		Percent free flow speed, PFFS	*88.3 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*139*	*147*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*15.7*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*56.1*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*43.0*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*B*
Volume to capacity ratio, *v/c*	*0.08*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1642*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*88.3*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*138.4*
Effective width, Wv (Eq. 15-29) ft	*19.67*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.62*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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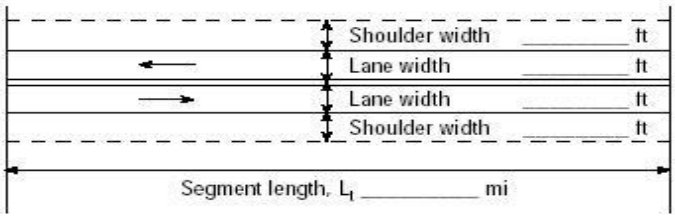
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 85B (SB)*
Agency or Company	*Yolo County*	From/To	*SR-16 to County Rd 21A*
Date Performed	*5/147/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *126*veh/h
Opposing direction vol., V_o *119*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *0.9*

☐ Class I highway ☑ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.86*
No-passing zone *80%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *6*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.8*	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.962*	*0.962*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*152*	*144*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*40.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*35.7 mi/h*
		Percent free flow speed, PFFS	*87.3 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*147*	*139*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*16.5*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*56.1*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*45.3*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*B*
Volume to capacity ratio, *v/c*	*0.09*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*87.3*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*146.5*
Effective width, Wv (Eq. 15-29) ft	*19.18*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.74*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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NEAR-TERM PLUS PROJECT TRAFFIC CONDITIONS

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 SR-16 and North Casino Entrance

Cycle (sec):	65	Critical Vol./Cap.(X):	0.263
Loss Time (sec):	6	Average Delay (sec/veh):	10.2
Optimal Cycle:	62	Level Of Service:	B

Street Name:	SR-16						North Casino Entrance					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ovl			Include			Include			Include		
Min. Green:	0	8	8	5	8	0	0	0	0	5	5	5
Y+R:	4.0	5.5	5.5	4.0	5.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	1 0	1	1 0	1 0	0	0 0	0 0	0 0	1 0	0 0	1
Volume Module:												
Base Vol:	0	38	166	21	38	0	0	0	0	198	0	20
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	38	166	21	38	0	0	0	0	198	0	20
Added Vol:	0	36	62	4	110	0	0	0	0	34	0	2
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	74	228	25	148	0	0	0	0	232	0	22
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
PHF Volume:	0	95	292	32	190	0	0	0	0	297	0	28
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	95	292	32	190	0	0	0	0	297	0	28
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	95	292	32	190	0	0	0	0	297	0	28
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	0.81	0.90	0.95	1.00	1.00	1.00	1.00	0.93	1.00	0.83
Lanes:	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Final Sat.:	0	1809	1537	1718	1809	0	0	0	0	1769	0	1583
Capacity Analysis Module:												
Vol/Sat:	0.00	0.05	0.19	0.02	0.10	0.00	0.00	0.00	0.00	0.17	0.00	0.02
Crit Moves:		****		****						****		
Green/Cycle:	0.00	0.13	0.83	0.08	0.21	0.00	0.00	0.00	0.00	0.70	0.00	0.70
Volume/Cap:	0.00	0.40	0.23	0.23	0.50	0.00	0.00	0.00	0.00	0.24	0.00	0.03
Uniform Del:	0.0	26.0	1.2	28.0	22.7	0.0	0.0	0.0	0.0	3.5	0.0	3.0
IncremntDel:	0.0	1.1	0.1	0.9	1.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Delay/Veh:	0.0	27.1	1.3	28.9	23.7	0.0	0.0	0.0	0.0	3.6	0.0	3.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	27.1	1.3	28.9	23.7	0.0	0.0	0.0	0.0	3.6	0.0	3.0
LOS by Move:	A	C	A	C	C	A	A	A	A	A	A	A
HCM2kAvgQ:	0	56	35	21	99	0	0	0	0	56	0	5

Level Of Service Computation Report
Unknown Method (Future Volume Alternative)

Intersection #2 SR-16 and Central Casino Entrance

Street Name:	SR-16						Central Casino Entrance					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0 0 1 0			0 0 1 0 0			0 0 0 0 0			0 0 0 0 0		
Volume Module:												
Base Vol:	0	203	43	0	238	0	0	0	0	0	0	0
Growth Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Bse:	0	0	0	0	0	0	0	0	0	0	0	0
Added Vol:	0	98	16	0	145	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	0	0	0	0	0	0	0	0	0
User Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Volume:	0	0	0	0	0	0	0	0	0	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PCE Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MLF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FinalVolume:	0	0	0	0	0	0	0	0	0	0	0	0
Critical Gap Module: >> Population:0 << >> Run Speed(N/S): 30 MPH <<												
Critical Gp:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capacity Module:												
Cnflict Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Potent Cap.:	0	0	0	0	0	0	0	0	0	0	0	0
Level Of Service Module:												
LOS by Move:												
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	0	0	0	0	0	0	0	0	0	0	0	0

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #3 SR-16 and South Casino Entrance

Average Delay (sec/veh): 1.2 Worst Case Level Of Service: C[20.7]

Street Name:	SR-16						South Casino Entrance					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 1 0			0 0 1 0 0			0 0 0 0 0			1 0 0 0 1		
Volume Module:												
Base Vol:	0	244	42	0	241	0	0	0	0	39	0	2
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	244	42	0	241	0	0	0	0	39	0	2
Added Vol:	0	113	19	0	145	0	0	0	0	7	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	357	61	0	386	0	0	0	0	46	0	2
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Volume:	0	447	76	0	484	0	0	0	0	58	0	3
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	447	76	0	484	0	0	0	0	58	0	3
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	969	xxxx	486
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	281	xxxx	582
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	281	xxxx	582
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.21	xxxx	0.00
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	18.8	xxxx	0.3
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	21.1	xxxx	11.2
LOS by Move:	*	*	*	*	*	*	*	*	*	C	*	B
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			20.7		
ApproachLOS:	*			*			*			C		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #4 SR-16 and County Rd 85

Average Delay (sec/veh): 0.5 Worst Case Level Of Service: B[12.6]

Street Name:	County Rd 85						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0 0		0 0 1!	0 0		0 1 0	0 0		0 0 1	0 0	
Volume Module:												
Base Vol:	0	0	0	5	0	17	14	307	0	0	270	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	5	0	17	14	307	0	0	270	0
Added Vol:	0	0	0	1	0	3	3	148	0	0	130	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	6	0	20	17	455	0	0	400	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
PHF Volume:	0	0	0	6	0	21	18	473	0	0	416	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	6	0	21	18	473	0	0	416	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	925	925	416	416	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	299	269	636	1127	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	295	265	636	1127	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.02	0.00	0.03	0.02	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1.2	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	502	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.2	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	12.6	xxxxx	8.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	B	*	A	*	*	*	*	*
ApproachDel:	xxxxxx			12.6			xxxxxx			xxxxxx		
ApproachLOS:	*			B			*			*		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #5 SR-16 and County Rd 85B

Average Delay (sec/veh): 1.0 Worst Case Level Of Service: B[10.3]

Street Name:	County Rd 85B									SR-16								
Approach:	North Bound				South Bound					East Bound					West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	1!	0	0	0	0	0	0	0	0	0	1	0	1	1	0	1	0	0
Volume Module:																				
Base Vol:	59	0	2	0	0	0	0	201	118		3	217	0							
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00							
Initial Bse:	59	0	2	0	0	0	0	201	118		3	217	0							
Added Vol:	24	0	0	0	0	0	0	131	18		0	106	0							
PasserByVol:	0	0	0	0	0	0	0	0	0		0	0	0							
Initial Fut:	83	0	2	0	0	0	0	332	136		3	323	0							
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00							
PHF Adj:	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93		0.93	0.93	0.93							
PHF Volume:	90	0	2	0	0	0	0	359	147		3	349	0							
Reduct Vol:	0	0	0	0	0	0	0	0	0		0	0	0							
FinalVolume:	90	0	2	0	0	0	0	359	147		3	349	0							
Critical Gap Module:																				
Critical Gp:	6.4	6.5	6.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		4.1	xxxx	xxxxx							
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		2.2	xxxx	xxxxx							
Capacity Module:																				
Cnflict Vol:	714	714	359	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		505	xxxx	xxxxx							
Potent Cap.:	398	357	686	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		1044	xxxx	xxxxx							
Move Cap.:	397	356	686	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		1044	xxxx	xxxxx							
Volume/Cap:	0.23	0.00	0.00	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx		0.00	xxxx	xxxx							
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		0.2	xxxx	xxxxx							
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		8.5	xxxx	xxxxx							
LOS by Move:	*	*	*	*	*	*	*	*	*		A	*	*							
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx		771	xxxxx		xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx		
SharedQueue:	xxxxx		0.4	xxxxx		xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx		
Shrd ConDel:	xxxxx		10.3	xxxxx		xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx		
Shared LOS:	*		B	*		*	*	*			*	*	*			*	*	*		
ApproachDel:		10.3			xxxxxx				xxxxxx					xxxxxx						
ApproachLOS:		B			*				*					*						

Note: Queue reported is the distance per lane in feet.

6: Yolo Ave & Woodland Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR	All
Denied Del/Veh (s)	0.3	0.5	0.3	0.1	0.1	0.1	0.4	0.4	3.5	0.1	0.2	0.4
Total Del/Veh (s)	12.3	12.6	6.6	7.4	13.3	1.3	1.3	2.1	0.5	8.8	4.8	4.6

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #7 SR-16 and Capay St

Average Delay (sec/veh): 0.9 Worst Case Level Of Service: C[16.3]

Street Name:	SR-16						Capay St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			0 0 0 1 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	23	255	10	3	179	7	0	4	14	6	6	2
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	23	255	10	3	179	7	0	4	14	6	6	2
Added Vol:	0	116	0	0	133	0	0	0	0	0	0	1
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	23	371	10	3	312	7	0	4	14	6	6	3
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	25	396	11	3	333	7	0	4	15	6	6	3
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	25	396	11	3	333	7	0	4	15	6	6	3
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx	xxxxx	6.5	6.2	7.1	6.5	6.2
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	341	xxxx	xxxxx	407	xxxx	xxxxx	xxxx	800	337	804	798	402
Potent Cap.:	1202	xxxx	xxxxx	1136	xxxx	xxxxx	xxxx	318	705	301	319	649
Move Cap.:	1202	xxxx	xxxxx	1136	xxxx	xxxxx	xxxx	311	705	287	311	649
Volume/Cap:	0.02	xxxx	xxxx	0.00	xxxx	xxxx	xxxx	0.01	0.02	0.02	0.02	0.00
Level Of Service Module:												
2Way95thQ:	1.6	xxxx	xxxxx	0.2	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	8.1	xxxx	xxxxx	8.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	550	xxxx	335	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	0.1	xxxxx	0.2	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	11.8	xxxxx	16.3	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	B	*	C	*
ApproachDel:	xxxxxx			xxxxxx			11.8			16.3		
ApproachLOS:	*			*			B			C		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #8 SR-16 and Madison St

Average Delay (sec/veh): 0.4 Worst Case Level Of Service: C[15.4]

Street Name:	SR-16								Madison St							
Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Lanes:	0	1	0	0 0	0	0	0	1 0	0	0	1!	0 0	0	0	1!	0 0
Volume Module:																
Base Vol:	10	309	0	0	235	6			6	0	9		1	1	0	
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	10	309	0	0	235	6			6	0	9		1	1	0	
Added Vol:	0	114	0	0	132	0			0	0	0		0	0	1	
PasserByVol:	0	0	0	0	0	0			0	0	0		0	0	0	
Initial Fut:	10	423	0	0	367	6			6	0	9		1	1	1	
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.97	0.97	0.97	0.97	0.97	0.97			0.97	0.97	0.97		0.97	0.97	0.97	
PHF Volume:	10	437	0	0	379	6			6	0	9		1	1	1	
Reduct Vol:	0	0	0	0	0	0			0	0	0		0	0	0	
FinalVolume:	10	437	0	0	379	6			6	0	9		1	1	1	
Critical Gap Module:																
Critical Gp:	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx			7.1	6.5	6.2		7.1	6.5	6.2	
FollowUpTim:	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx			3.5	4.0	3.3		3.5	4.0	3.3	
Capacity Module:																
Cnflict Vol:	385	xxxx	xxxxx	xxxx	xxxx	xxxxx			841	840	382		845	843	437	
Potent Cap.:	1157	xxxx	xxxxx	xxxx	xxxx	xxxxx			284	302	665		283	300	620	
Move Cap.:	1157	xxxx	xxxxx	xxxx	xxxx	xxxxx			281	299	665		277	298	620	
Volume/Cap:	0.01	xxxx	xxxx	xxxx	xxxx	xxxx			0.02	0.00	0.01		0.00	0.00	0.00	
Level Of Service Module:																
2Way95thQ:	0.7	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx				
Control Del:	8.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx				
LOS by Move:	A	*	*	*	*	*	*	*	*	*	*	*				
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT				
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	430	xxxxx	xxxx	349	xxxxx				
SharedQueue:	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.1	xxxxx	xxxxx	0.0	xxxxx				
Shrd ConDel:	8.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	13.7	xxxxx	xxxxx	15.4	xxxxx				
Shared LOS:	A	*	*	*	*	*	*	B	*	*	C	*				
ApproachDel:	xxxxxx			xxxxxx			13.7			15.4						
ApproachLOS:	*			*			B			C						

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #9 SR-16 and Plainfield St

Average Delay (sec/veh): 1.3 Worst Case Level Of Service: C[19.1]

Street Name:	SR-16						Plainfield St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 1 0	1	0	1 0	0	0	1! 0	0	0	0	1! 0	0
Volume Module:												
Base Vol:	40 309	19	6	226	4	4	4	32	9	3		4
Growth Adj:	1.00 1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00
Initial Bse:	40 309	19	6	226	4	4	4	32	9	3		4
Added Vol:	0 113	0	1	129	1	0	0	0	0	0		1
PasserByVol:	0 0	0	0	0	0	0	0	0	0	0		0
Initial Fut:	40 422	19	7	355	5	4	4	32	9	3		5
User Adj:	1.00 1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00
PHF Adj:	0.92 0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92		0.92
PHF Volume:	43 458	21	8	385	5	4	4	35	10	3		5
Reduct Vol:	0 0	0	0	0	0	0	0	0	0	0		0
FinalVolume:	43 458	21	8	385	5	4	4	35	10	3		5
Critical Gap Module:												
Critical Gp:	4.1 xxxx xxxxx		4.1	xxxx xxxxx		7.1	6.5	6.2	7.1	6.5		6.2
FollowUpTim:	2.2 xxxx xxxxx		2.2	xxxx xxxxx		3.5	4.0	3.3	3.5	4.0		3.3
Capacity Module:												
Cnflict Vol:	390 xxxx xxxxx		478	xxxx xxxxx		720	968	388	977	960		239
Potent Cap.:	1152 xxxx xxxxx		1069	xxxx xxxxx		343	254	660	230	256		800
Move Cap.:	1152 xxxx xxxxx		1069	xxxx xxxxx		325	242	660	207	245		800
Volume/Cap:	0.04 xxxx xxxx		0.01	xxxx xxxx		0.01	0.02	0.05	0.05	0.01		0.01
Level Of Service Module:												
2Way95thQ:	2.9 xxxx xxxxx		0.5	xxxx xxxxx		xxxx	xxxx	xxxxx	xxxx	xxxx		xxxxx
Control Del:	8.2 xxxx xxxxx		8.4	xxxx xxxxx		xxxxx	xxxx	xxxxx	xxxxx	xxxx		xxxxx
LOS by Move:	A *	*	A	*	*	*	*	*	*	*		*
Movement:	LT - LTR - RT		LT	- LTR - RT		LT	- LTR - RT		LT	- LTR - RT		
Shared Cap.:	xxxx xxxx xxxxx		xxxx	xxxx xxxxx		xxxx	518	xxxxx	xxxx	275		xxxxx
SharedQueue:	0.1 xxxx xxxxx		xxxxx	xxxx xxxxx		xxxxx	0.3	xxxxx	xxxxx	0.2		xxxxx
Shrd ConDel:	8.2 xxxx xxxxx		xxxxx	xxxx xxxxx		xxxxx	12.6	xxxxx	xxxxx	19.1		xxxxx
Shared LOS:	A *	*	*	*	*	*	B	*	*	C		*
ApproachDel:	xxxxxx		xxxxxx			12.6			19.1			
ApproachLOS:	*		*			B			C			

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #10 SR-16 and County Road 21A

Cycle (sec):	100	Critical Vol./Cap.(X):	0.583
Loss Time (sec):	0	Average Delay (sec/veh):	12.4
Optimal Cycle:	0	Level Of Service:	B

Street Name:	SR-16						County Road 21A					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Ignore		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	0 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	1 0	1
Volume Module:												
Base Vol:	0	0	0	257	0	8	5	107	0	0	69	361
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	257	0	8	5	107	0	0	69	361
Added Vol:	0	0	0	128	0	1	2	10	0	0	16	112
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	385	0	9	7	117	0	0	85	473
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
PHF Adj:	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.00
PHF Volume:	0	0	0	422	0	10	8	128	0	0	93	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	422	0	10	8	128	0	0	93	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
FinalVolume:	0	0	0	422	0	10	8	128	0	0	93	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	0.97	0.01	0.02	0.06	0.94	0.00	0.00	1.00	1.00
Final Sat.:	0	0	0	724	0	17	36	608	0	0	582	655
Capacity Analysis Module:												
Vol/Sat:	xxxx	xxxx	xxxx	0.58	0.00	0.58	0.21	0.21	xxxx	xxxx	0.16	0.00
Crit Moves:				****			****				****	
Delay/Veh:	0.0	0.0	0.0	13.9	13.9	13.9	9.5	9.5	0.0	0.0	9.5	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	13.9	13.9	13.9	9.5	9.5	0.0	0.0	9.5	0.0
LOS by Move:	*	*	*	B	B	B	A	A	*	*	A	*
ApproachDel:	xxxxxx			13.9			9.5			9.5		
Delay Adj:	xxxxx			1.00			1.00			1.00		
ApprAdjDel:	xxxxxx			13.9			9.5			9.5		
LOS by Appr:	*			B			A			A		
AllWayAvgQ:	0.0	0.0	0.0	31.8	31.8	31.8	5.8	5.8	5.8	0.0	4.1	0.0

Note: Queue reported is the distance per lane in feet.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #11 County Rd 85B and County Rd 21A

Average Delay (sec/veh): 5.5 Worst Case Level Of Service: A[9.3]

Street Name:	County Rd 85B									County Rd 21A								
Approach:	North Bound				South Bound					East Bound					West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1!	0	0
Volume Module:																				
Base Vol:	0	24		4		88	29		0		0	0		0		8	0		27	
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
Initial Bse:	0	24		4		88	29		0		0	0		0		8	0		27	
Added Vol:	0	8		2		10	7		0		0	0		0		1	0		16	
PasserByVol:	0	0		0		0	0		0		0	0		0		0	0		0	
Initial Fut:	0	32		6		98	36		0		0	0		0		9	0		43	
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
PHF Adj:	0.73	0.73		0.73		0.73	0.73		0.73		0.73	0.73		0.73		0.73	0.73		0.73	
PHF Volume:	0	44		8		135	50		0		0	0		0		12	0		59	
Reduct Vol:	0	0		0		0	0		0		0	0		0		0	0		0	
FinalVolume:	0	44		8		135	50		0		0	0		0		12	0		59	
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx		xxxxx		4.1	xxxx		xxxxx		xxxxx	xxxx		xxxxx		6.4	6.5		6.2	
FollowUpTim:	xxxxx	xxxx		xxxxx		2.2	xxxx		xxxxx		xxxxx	xxxx		xxxxx		3.5	4.0		3.3	
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx		xxxxx		52	xxxx		xxxxx		xxxx	xxxx		xxxxx		368	368		48	
Potent Cap.:	xxxx	xxxx		xxxxx		1553	xxxx		xxxxx		xxxx	xxxx		xxxxx		632	561		1021	
Move Cap.:	xxxx	xxxx		xxxxx		1553	xxxx		xxxxx		xxxx	xxxx		xxxxx		587	508		1021	
Volume/Cap:	xxxx	xxxx		xxxx		0.09	xxxx		xxxx		xxxx	xxxx		xxxx		0.02	0.00		0.06	
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx		xxxxx		7.1	xxxx		xxxxx		xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx	
Control Del:	xxxxx	xxxx		xxxxx		7.5	xxxx		xxxxx		xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx	
LOS by Move:	*	*		*		A	*		*		*	*		*		*	*		*	
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx		xxxx	905		xxxxx	
SharedQueue:	xxxxx	xxxx		xxxxx		0.3	xxxx		xxxxx		xxxxx	xxxx		xxxxx		xxxxx	0.3		xxxxx	
Shrd ConDel:	xxxxx	xxxx		xxxxx		7.5	xxxx		xxxxx		xxxxx	xxxx		xxxxx		xxxxx	9.3		xxxxx	
Shared LOS:	*	*		*		A	*		*		*	*		*		*	A		*	
ApproachDel:	xxxxxx					xxxxxx					xxxxxx						9.3			
ApproachLOS:	*					*					*						A			

Note: Queue reported is the distance per lane in feet.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #12 Country Villa Estates and County Rd 21A

Average Delay (sec/veh): 0.4 Worst Case Level Of Service: B[10.1]

Street Name:	Country Villa Estates									County Rd 21A								
Approach:	North Bound			South Bound			East Bound			West Bound								
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled								
Rights:	Include			Include			Include			Include								
Lanes:	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1!	0	0
Volume Module:																				
Base Vol:	0	0	0	5	0	0	3	98	0	1	43	12								
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
Initial Bse:	0	0	0	5	0	0	3	98	0	1	43	12								
Added Vol:	0	0	0	0	0	0	0	12	0	0	17	0								
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0								
Initial Fut:	0	0	0	5	0	0	3	110	0	1	60	12								
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
PHF Adj:	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69								
PHF Volume:	0	0	0	7	0	0	4	160	0	1	87	17								
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0								
FinalVolume:	0	0	0	7	0	0	4	160	0	1	87	17								
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	xxxxx	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx								
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	xxxxx	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx								
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx	xxxxx	268	xxxx	xxxxx	105	xxxx	xxxxx	160	xxxx	xxxxx								
Potent Cap.:	xxxx	xxxx	xxxxx	721	xxxx	xxxxx	1486	xxxx	xxxxx	1419	xxxx	xxxxx								
Move Cap.:	xxxx	xxxx	xxxxx	719	xxxx	xxxxx	1486	xxxx	xxxxx	1419	xxxx	xxxxx								
Volume/Cap:	xxxx	xxxx	xxxx	0.01	xxxx	xxxx	0.00	xxxx	xxxx	0.00	xxxx	xxxx								
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	xxxxx	0.8	xxxx	xxxxx	0.2	xxxx	xxxxx	0.1	xxxx	xxxxx								
Control Del:	xxxxx	xxxx	xxxxx	10.1	xxxx	xxxxx	7.4	xxxx	xxxxx	7.5	xxxx	xxxxx								
LOS by Move:	*	*	*	B	*	*	A	*	*	A	*	*								
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx	xxxxx				xxxx	xxxx	xxxxx				xxxx	xxxx	xxxxx					
SharedQueue:	xxxxx	xxxx	xxxxx				xxxxx	xxxx	xxxxx				0.0	xxxx	xxxxx					
Shrd ConDel:	xxxxx	xxxx	xxxxx				xxxxx	xxxx	xxxxx				7.4	xxxx	xxxxx					
Shared LOS:	*	*	*				*	*	*				A	*	*					
ApproachDel:	xxxxxx						10.1						xxxxxx							
ApproachLOS:	*						B						*							

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #13 Fremont St and County Rd 21A

Average Delay (sec/veh): 1.7 Worst Case Level Of Service: A[9.9]

Street Name:	Fremont St						County Rd 21A					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0 0		0 0 1!	0 0		0 1 0	0 0		0 0 0	1 0	
Volume Module:												
Base Vol:	0	0	0	20	0	10	17	96	0	0	51	21
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	20	0	10	17	96	0	0	51	21
Added Vol:	0	0	0	0	0	0	0	12	0	0	17	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	20	0	10	17	108	0	0	68	21
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
PHF Volume:	0	0	0	25	0	13	22	137	0	0	86	27
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	25	0	13	22	137	0	0	86	27
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	279	279	99	113	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	711	629	956	1477	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	703	620	956	1477	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.04	0.00	0.01	0.01	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1.1	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	771	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.2	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	9.9	xxxxx	7.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	A	*	A	*	*	*	*	*
ApproachDel:	xxxxxx			9.9			xxxxxx			xxxxxx		
ApproachLOS:	*			A			*			*		

Note: Queue reported is the distance per lane in feet.

DELAY (CONTROL)

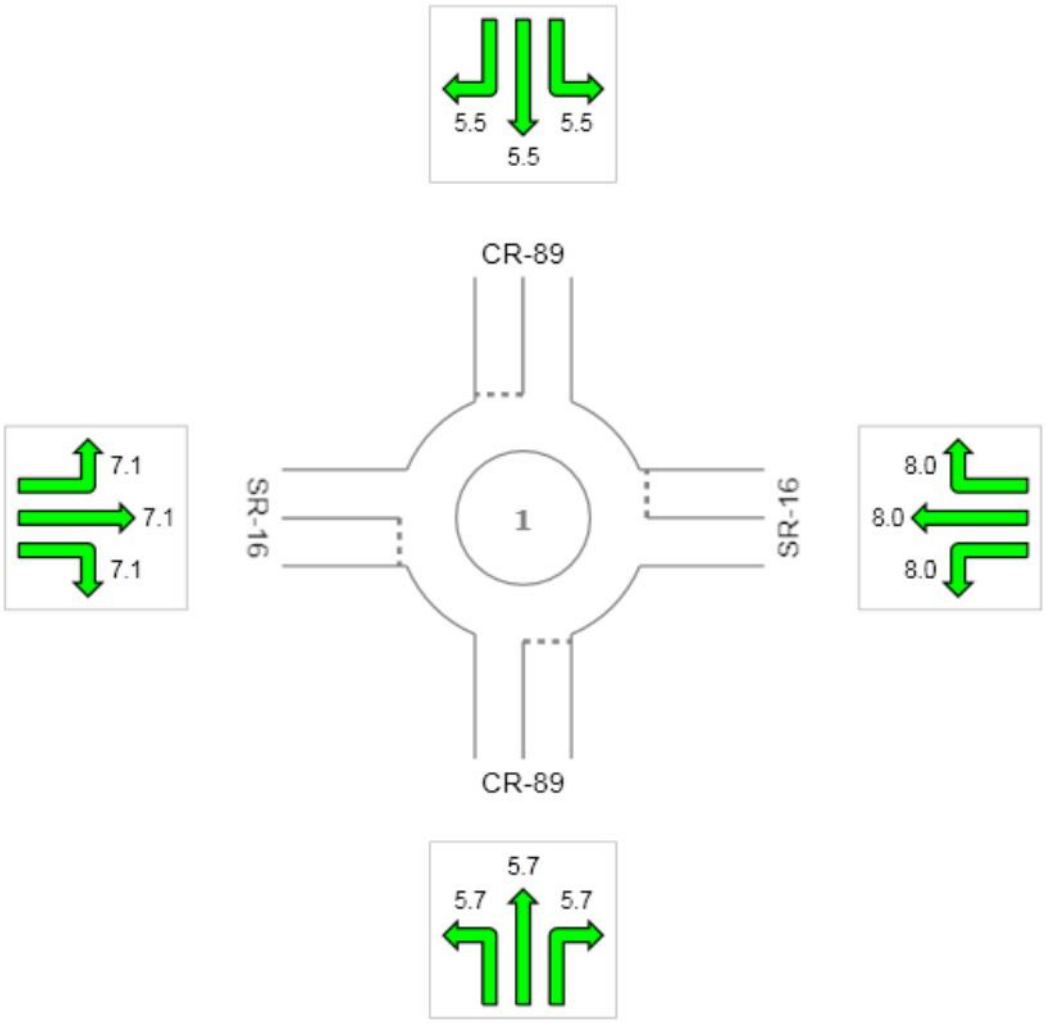
Average control delay per vehicle, or average pedestrian delay (seconds)

Site: SR-16/CR-89

Near-Term Plus Project Fri PM
Roundabout

All Movement Classes

	South	East	North	West	Intersection
Delay (Control)	5.7	8.0	5.5	7.1	7.5
LOS	A	A	A	A	A



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F | Continuous

Level of Service Method: Delay & v/c (HCM 2010)
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Roundabout Level of Service Method: Same as Sign Control
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #15 SR-16 and SB I-505

Average Delay (sec/veh): 0.3 Worst Case Level Of Service: C[16.3]

Street Name:	SB I-505								SR-16							
Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	0	0 0	0	1	0	0 1	0	0	0	1 0	0	0	1	0 1
Volume Module:																
Base Vol:	0	0	0		4	2	11		0	236	120		0	425	57	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	0	0	0		4	2	11		0	236	120		0	425	57	
Added Vol:	0	0	0		0	0	6		0	97	40		0	121	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	0	0	0		4	2	17		0	333	160		0	546	57	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.81	0.81	0.81		0.81	0.81	0.81		0.81	0.81	0.81		0.81	0.81	0.81	
PHF Volume:	0	0	0		5	2	21		0	410	197		0	672	70	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
FinalVolume:	0	0	0		5	2	21		0	410	197		0	672	70	
Critical Gap Module:																
Critical Gp:	xxxxx	xxxx	xxxxx		6.4	6.6	6.3		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
FollowUpTim:	xxxxx	xxxx	xxxxx		3.5	4.0	3.3		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Capacity Module:																
Cnflict Vol:	xxxx	xxxx	xxxxx		1180	1278	672		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Potent Cap.:	xxxx	xxxx	xxxxx		207	164	451		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Move Cap.:	xxxx	xxxx	xxxxx		207	164	451		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Volume/Cap:	xxxx	xxxx	xxxx		0.02	0.02	0.05		xxxx	xxxx	xxxx		xxxx	xxxx	xxxx	
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	xxxxx		xxxx	xxxx	3.6		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Control Del:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	13.4		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
LOS by Move:	*	*	*		*	*	B		*	*	*		*	*	*	
Movement:	LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT	
Shared Cap.:	xxxx	xxxx	xxxxx		191	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
SharedQueue:	xxxxx	xxxx	xxxxx		0.1	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shrd ConDel:	xxxxx	xxxx	xxxxx		24.6	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shared LOS:	*	*	*		C	*	*		*	*	*		*	*	*	
ApproachDel:	xxxxxx				16.3				xxxxxx				xxxxxx			
ApproachLOS:	*				C				*				*			

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #16 SR-16 and NB I-505

Cycle (sec):	50	Critical Vol./Cap.(X):	0.521
Loss Time (sec):	6	Average Delay (sec/veh):	10.2
Optimal Cycle:	47	Level Of Service:	B

Street Name:	NB I-505						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Ignore			Include		
Min. Green:	5	5	5	0	0	0	0	5	5	0	5	5
Y+R:	4.1	4.1	4.1	4.0	4.0	4.0	4.0	5.5	5.5	4.0	5.5	5.5
Lanes:	0 1	0	0 1	0	0	0 0	0	0	1 0 1	0	0	1 0 1
Volume Module:												
Base Vol:	178	0	82	0	0	0	0	240	3	0	303	4
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	178	0	82	0	0	0	0	240	3	0	303	4
Added Vol:	57	0	0	0	0	0	0	85	13	0	64	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	235	0	82	0	0	0	0	325	16	0	367	4
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Adj:	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.00	0.84	0.84	0.84
PHF Volume:	280	0	98	0	0	0	0	387	0	0	437	5
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	280	0	98	0	0	0	0	387	0	0	437	5
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
FinalVolume:	280	0	98	0	0	0	0	387	0	0	437	5
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.68	1.00	0.81	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.81
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00
Final Sat.:	1291	0	1537	0	0	0	0	1809	1900	0	1809	1537
Capacity Analysis Module:												
Vol/Sat:	0.22	0.00	0.06	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.24	0.00
Crit Moves:	****										****	
Green/Cycle:	0.42	0.00	0.42	0.00	0.00	0.00	0.00	0.46	0.00	0.00	0.46	0.46
Volume/Cap:	0.52	0.00	0.15	0.00	0.00	0.00	0.00	0.46	0.00	0.00	0.52	0.01
Uniform Del:	10.9	0.0	9.1	0.0	0.0	0.0	0.0	9.1	0.0	0.0	9.5	7.2
IncremntDel:	0.9	0.0	0.1	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.6	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00
Delay/Veh:	11.8	0.0	9.2	0.0	0.0	0.0	0.0	9.5	0.0	0.0	10.1	7.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	11.8	0.0	9.2	0.0	0.0	0.0	0.0	9.5	0.0	0.0	10.1	7.2
LOS by Move:	B	A	A	A	A	A	A	A	A	A	B	A
HCM2kAvgQ:	99	0	26	0	0	0	0	113	0	0	118	1

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #17 SR-16 and Wild Wings Dr

Average Delay (sec/veh): 1.3 Worst Case Level Of Service: C[18.6]

Street Name:	Wild Wings Dr						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			1 0 0 0 1			1 0 1 0 0			0 0 1 0 1		
Volume Module:												
Base Vol:	0	0	0	54	0	7	15	321	0	0	303	88
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	54	0	7	15	321	0	0	303	88
Added Vol:	0	0	0	0	0	0	0	85	0	0	64	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	54	0	7	15	406	0	0	367	88
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
PHF Volume:	0	0	0	60	0	8	17	454	0	0	411	98
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	60	0	8	17	454	0	0	411	98
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	898	xxxx	411	509	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	310	xxxx	641	1041	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	306	xxxx	641	1041	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.20	xxxx	0.01	0.02	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	18.0	xxxx	0.9	1.2	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	19.6	xxxx	10.7	8.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	C	*	B	A	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			18.6			xxxxxx			xxxxxx		
ApproachLOS:	*			C			*			*		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #18 SR-16 and County Rd 94B

Average Delay (sec/veh): 1.0 Worst Case Level Of Service: C[22.3]

Street Name:	County Rd 94B						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			0 1 0 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	6	0	14	8	5	5	2	358	0	17	391	1
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	6	0	14	8	5	5	2	358	0	17	391	1
Added Vol:	0	0	0	0	0	0	2	83	0	0	64	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	6	0	14	8	5	5	4	441	0	17	455	1
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
PHF Volume:	7	0	16	9	6	6	5	518	0	20	535	1
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	7	0	16	9	6	6	5	518	0	20	535	1
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1109	1103	518	1111	1103	535	536	xxxx	xxxxx	518	xxxx	xxxxx
Potent Cap.:	187	211	557	186	211	545	1017	xxxx	xxxxx	1033	xxxx	xxxxx
Move Cap.:	178	206	557	178	206	545	1017	xxxx	xxxxx	1033	xxxx	xxxxx
Volume/Cap:	0.04	0.00	0.03	0.05	0.03	0.01	0.00	xxxx	xxxx	0.02	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.3	xxxx	xxxxx	1.5	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.6	xxxx	xxxxx	8.6	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	340	xxxxx	xxxx	229	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.2	xxxxx	xxxxx	0.3	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	16.4	xxxxx	xxxxx	22.3	xxxxx	8.6	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	C	*	*	C	*	A	*	*	*	*	*
ApproachDel:		16.4			22.3		xxxxxx			xxxxxx		
ApproachLOS:		C			C		*			*		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #19 SR-16 and County Rd 95

Average Delay (sec/veh): 0.9 Worst Case Level Of Service: C[19.8]

Street Name:	County Rd 95						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0	0	0 0 0	1	0	0 0 0	1	0	0 1	0	0 0
Volume Module:												
Base Vol:	6	3	22	0	6	2	0	381	0	25	397	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	6	3	22	0	6	2	0	381	0	25	397	0
Added Vol:	1	0	0	0	0	0	0	80	3	0	63	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	7	3	22	0	6	2	0	461	3	25	460	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	8	3	24	0	7	2	0	511	3	28	509	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	8	3	24	0	7	2	0	511	3	28	509	0
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	xxxxx	6.5	6.2	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	4.0	3.3	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1081	1077	512	xxxx	1079	509	xxxx	xxxx	xxxxx	514	xxxx	xxxxx
Potent Cap.:	195	219	562	xxxx	218	564	xxxx	xxxx	xxxxx	1036	xxxx	xxxxx
Move Cap.:	186	213	562	xxxx	213	564	xxxx	xxxx	xxxxx	1036	xxxx	xxxxx
Volume/Cap:	0.04	0.02	0.04	xxxx	0.03	0.00	xxxx	xxxx	xxxx	0.03	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	2.1	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.6	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	352	xxxxx	xxxx	xxxx	252	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.3	xxxxx	xxxxx	xxxx	0.1	xxxxx	xxxx	xxxxx	0.1	xxxx	xxxxx
Shrd ConDel:	xxxxx	16.4	xxxxx	xxxxx	xxxx	19.8	xxxxx	xxxx	xxxxx	8.6	xxxx	xxxxx
Shared LOS:	*	C	*	*	*	C	*	*	*	A	*	*
ApproachDel:		16.4			19.8			xxxxxx			xxxxxx	
ApproachLOS:		C			C			*			*	

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #20 SR-16 and County Rd 98

Cycle (sec):	80	Critical Vol./Cap.(X):	0.447
Loss Time (sec):	12	Average Delay (sec/veh):	25.6
Optimal Cycle:	80	Level Of Service:	C

Street Name:	County Rd 98						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	5	5	5	5	6	6	5	5	5
Y+R:	4.0	6.0	6.0	4.0	6.0	6.0	4.0	5.3	5.3	4.0	5.3	5.3
Lanes:	1 0	0	1 0	1 0	1	0 1	1 0	1	0 1	1 0	1	0 1
Volume Module:												
Base Vol:	87	124	78	60	175	64	112	251	121	65	190	51
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	87	124	78	60	175	64	112	251	121	65	190	51
Added Vol:	7	0	0	0	0	40	50	17	13	0	15	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	94	124	78	60	175	104	162	268	134	65	205	51
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	100	132	83	64	186	111	173	285	143	69	218	54
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	100	132	83	64	186	111	173	285	143	69	218	54
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	100	132	83	64	186	111	173	285	143	69	218	54
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.92	0.92	0.93	0.98	0.83	0.90	0.86	0.86	0.90	0.95	0.81
Lanes:	1.00	0.61	0.39	1.00	1.00	1.00	1.00	1.33	0.67	1.00	1.00	1.00
Final Sat.:	1769	1077	677	1769	1862	1583	1718	2177	1088	1718	1809	1537
Capacity Analysis Module:												
Vol/Sat:	0.06	0.12	0.12	0.04	0.10	0.07	0.10	0.13	0.13	0.04	0.12	0.04
Crit Moves:		****		****			****				****	
Green/Cycle:	0.14	0.27	0.27	0.08	0.22	0.22	0.22	0.34	0.34	0.16	0.27	0.27
Volume/Cap:	0.41	0.45	0.45	0.45	0.46	0.32	0.45	0.39	0.39	0.25	0.45	0.13
Uniform Del:	31.6	24.0	24.0	35.1	27.1	26.3	26.7	20.4	20.4	29.4	24.2	22.1
IncremntDel:	1.2	0.7	0.7	2.2	0.8	0.5	0.8	0.2	0.2	0.5	0.7	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	32.8	24.7	24.7	37.3	28.0	26.8	27.6	20.6	20.6	29.9	24.9	22.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	32.8	24.7	24.7	37.3	28.0	26.8	27.6	20.6	20.6	29.9	24.9	22.2
LOS by Move:	C	C	C	D	C	C	C	C	C	C	C	C
HCM2kAvgQ:	68	119	119	38	97	55	89	102	102	42	120	27

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #21 SR-16 and W. Kentucky Ave

Cycle (sec):	80	Critical Vol./Cap.(X):	0.410
Loss Time (sec):	12	Average Delay (sec/veh):	19.2
Optimal Cycle:	80	Level Of Service:	B

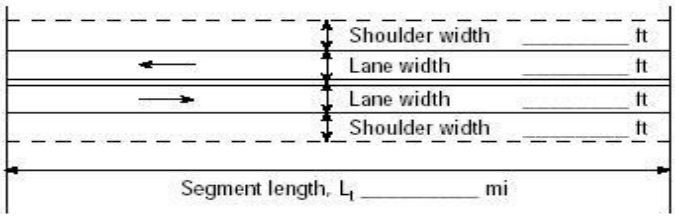
Street Name:	SR-16						W. Kentucky Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	5	5	5	5	5	5	5	5	5
Y+R:	4.0	6.0	6.0	4.0	6.0	6.0	4.0	5.3	5.3	4.0	5.3	5.3
Lanes:	1 0	0	1 0	1 0	0	1 0	1 0	0	1 0	1 0	0	1 0
Volume Module:												
Base Vol:	18	187	90	13	152	33	24	35	7	81	59	20
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	18	187	90	13	152	33	24	35	7	81	59	20
Added Vol:	0	37	13	0	33	0	0	0	0	7	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	18	224	103	13	185	33	24	35	7	88	59	20
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
PHF Volume:	23	289	133	17	239	43	31	45	9	114	76	26
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	23	289	133	17	239	43	31	45	9	114	76	26
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	23	289	133	17	239	43	31	45	9	114	76	26
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.90	0.91	0.91	0.90	0.93	0.93	0.93	0.96	0.96	0.93	0.94	0.94
Lanes:	1.00	0.69	0.31	1.00	0.85	0.15	1.00	0.83	0.17	1.00	0.75	0.25
Final Sat.:	1718	1181	543	1718	1500	268	1769	1513	303	1769	1338	453
Capacity Analysis Module:												
Vol/Sat:	0.01	0.24	0.24	0.01	0.16	0.16	0.02	0.03	0.03	0.06	0.06	0.06
Crit Moves:		****		****				****		****		
Green/Cycle:	0.18	0.57	0.57	0.06	0.45	0.45	0.11	0.07	0.07	0.15	0.11	0.11
Volume/Cap:	0.08	0.43	0.43	0.16	0.35	0.35	0.16	0.43	0.43	0.43	0.52	0.52
Uniform Del:	27.4	9.8	9.8	35.5	14.2	14.2	32.3	35.7	35.7	30.9	33.6	33.6
IncremntDel:	0.1	0.3	0.3	0.7	0.3	0.3	0.4	2.4	2.4	1.1	2.5	2.5
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	27.5	10.1	10.1	36.2	14.5	14.5	32.7	38.1	38.1	32.1	36.1	36.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	27.5	10.1	10.1	36.2	14.5	14.5	32.7	38.1	38.1	32.1	36.1	36.1
LOS by Move:	C	B	B	D	B	B	C	D	D	C	D	D
HCM2kAvgQ:	11	144	144	13	115	115	20	46	46	76	79	79

DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*CCCR to County Road 85*
Date Performed	*5/24/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *419*veh/h

Opposing direction vol., V_o *472*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *6.7*

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☐ Level ☑ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.88*

No-passing zone *75%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*2.0*	*1.9*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.1*	*1.1*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.949*	*0.953*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*0.94*	*0.96*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*534*	*586*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.3 mi/h*	Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*51.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*40.6 mi/h*
		Percent free flow speed, PFFS	*78.7 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.6*	*1.5*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.971*	*0.976*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*0.95*	*0.96*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*516*	*573*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*53.5*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*35.3*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*70.2*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.31*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1570*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1633*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*78.7*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*476.1*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.20*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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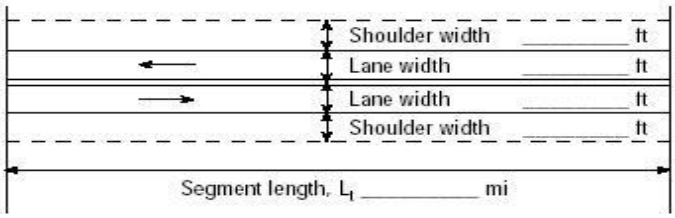
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*CCCR to County Road 85*
Date Performed	*5/24/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *472*veh/h

Opposing direction vol., V_o veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *6.7*

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☐ Level ☑ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.88*

No-passing zone *75%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.9*	*2.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.1*	*1.1*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.953*	*0.949*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*0.96*	*0.93*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*586*	*530*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.6 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*51.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*40.3 mi/h*
		Percent free flow speed, PFFS	*78.2 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.5*	*1.6*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.976*	*0.971*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*0.96*	*0.94*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*573*	*513*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*55.7*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*35.2*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*74.3*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.34*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1547*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1616*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*78.2*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*536.4*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.26*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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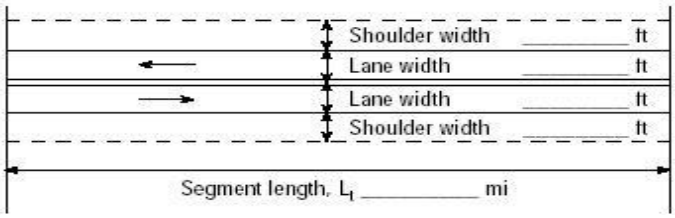
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*County Road 85 to Esparto Town*
Date Performed	*5/24/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *407*veh/h

Opposing direction vol., V_o *468*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *1.4*

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.95*

No-passing zone *85%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *5*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.3*	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.985*	*0.990*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*435*	*498*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.3 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.3 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*42.1 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*32.6 mi/h*
		Percent free flow speed, PFFS	*77.3 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*431*	*493*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*46.6*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*40.2*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*65.4*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*C*
Volume to capacity ratio, *v/c*	*0.25*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1683*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*77.3*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*428.4*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.14*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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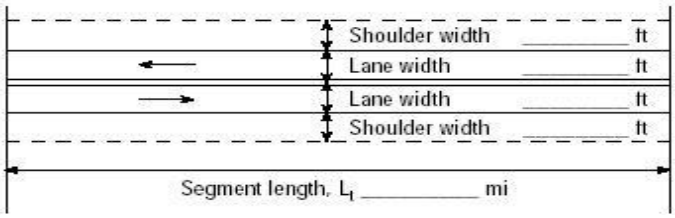
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*County Road 85 to Esparto Town*
Date Performed	*5/24/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *468*veh/h

Opposing direction vol., V_o *407*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *1.4*

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.95*

No-passing zone *85%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *5*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.2*	*1.3*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.990*	*0.985*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*498*	*435*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, v		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.3 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.6 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*42.1 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*32.3 mi/h*
		Percent free flow speed, PFFS	*76.6 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*493*	*431*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*50.3*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*40.2*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*71.7*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.29*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*76.6*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*492.6*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.22*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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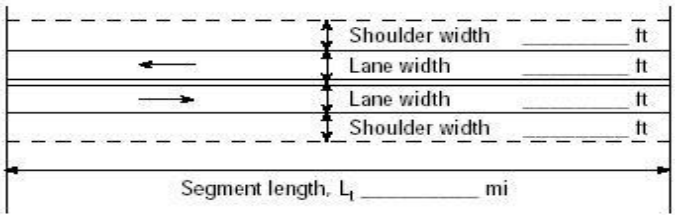
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*through Esparto Town*
Date Performed	*5/24/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *479*veh/h
Opposing direction vol., V_o *394*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *1.2*

☐ Class I highway ☑ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.93*
No-passing zone *95%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *14*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.2*	*1.3*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.990*	*0.985*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*520*	*430*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*3.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.7 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*38.9 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*28.8 mi/h*
		Percent free flow speed, PFFS	*74.1 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*515*	*426*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*50.4*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*39.9*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*72.2*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.30*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*74.1*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*515.1*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.24*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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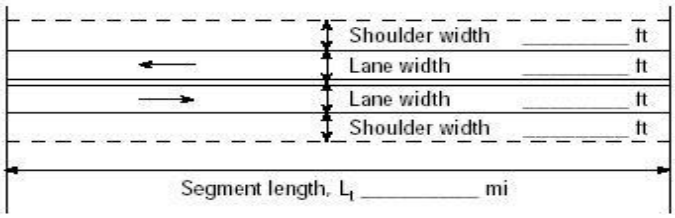
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*through Esparto Town*
Date Performed	*5/24/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.93*

No-passing zone *95%*

Show North Arrow

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *14*/mi

Analysis direction vol., V_d *394*veh/h

Opposing direction vol., V_o *479*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *1.2*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.3*	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.985*	*0.990*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*430*	*520*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*3.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.3 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*38.9 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*29.2 mi/h*
		Percent free flow speed, PFFS	*75.1 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*426*	*515*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*46.4*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*39.9*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*64.5*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*C*
Volume to capacity ratio, *v/c*	*0.25*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1683*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*75.1*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*423.7*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.14*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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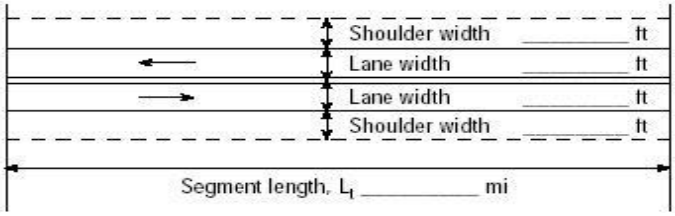
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*Esparto Town to County Rd 89*
Date Performed	*5/24/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *557*veh/h

Opposing direction vol., V_o *502*veh/h

Shoulder width ft *4.0*

Lane Width ft *12.0*

Segment Length mi *2.7*

Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.86*

No-passing zone *80%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.990*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*651*	*590*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.3 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*41.0 mi/h*
		Percent free flow speed, PFFS	*77.4 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*648*	*584*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*60.0*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*31.7*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*76.7*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.38*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*77.4*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*647.7*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.05*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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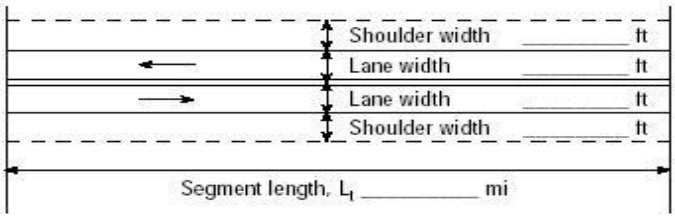
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*Esparto Town to County Rd 89*
Date Performed	*3/23/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.86*

No-passing zone *80%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *3*/mi

Analysis direction vol., V_d *502*veh/h

Opposing direction vol., V_o *557*veh/h

Shoulder width ft *4.0*

Lane Width ft *12.0*

Segment Length mi *2.7*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.2*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.990*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*590*	*651*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.0 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.9 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*41.3 mi/h*
		Percent free flow speed, PFFS	*78.0 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*584*	*648*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*58.0*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*31.7*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*73.0*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.35*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*78.0*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*583.7*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.00*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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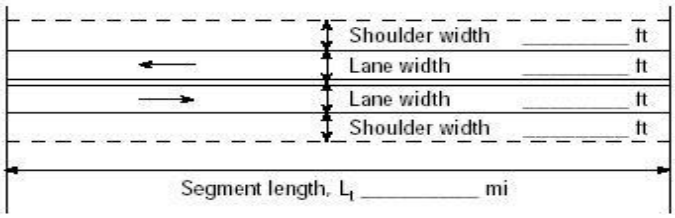
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*County Rd 89 to I-505*
Date Performed	*5/24/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *563*veh/h

Opposing direction vol., V_o *495*veh/h

Shoulder width ft *4.0*

Lane Width ft *12.0*

Segment Length mi *0.8*

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.81*

No-passing zone *100*%

% Trucks and Buses , P_T *5* %

% Recreational vehicles, P_R *4*%

Access points *mi* *4*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.990*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*699*	*617*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*1.0 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.4 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.7 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*40.1 mi/h*
		Percent free flow speed, PFFS	*76.1* %

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*695*	*611*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*63.1*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*30.8*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*79.5*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.41*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*76.1*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*695.1*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.09*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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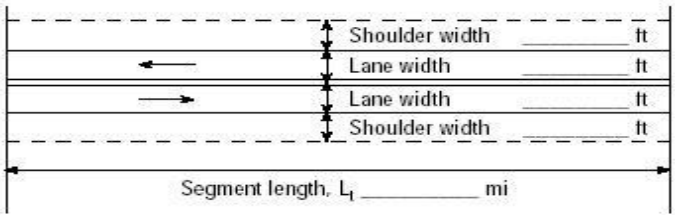
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*County Rd 89 to I-505*
Date Performed	*5/24/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *495*veh/h

Opposing direction vol., V_o *563*veh/h

Shoulder width ft *4.0*

Lane Width ft *12.0*

Segment Length mi *0.8*

Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.81*

No-passing zone *100*%

% Trucks and Buses , P_T *5* %

% Recreational vehicles, P_R *4*%

Access points *mi* *4*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.2*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.990*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*617*	*699*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*1.0 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.1 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.7 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*40.4 mi/h*
		Percent free flow speed, PFFS	*76.6* %

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*611*	*695*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*60.2*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*30.8*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*74.6*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.36*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*76.6*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*611.1*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.02*
Bicycle level of service (Exhibit 15-4)	*E*
Notes	
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain. 2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10. 6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.	

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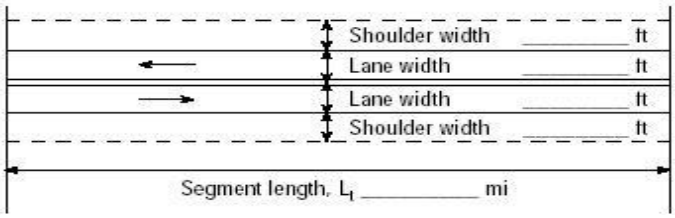
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*I-505 to County Rd 98*
Date Performed	*5/24/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.89*

No-passing zone *100%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *35*/mi

Analysis direction vol., V_d *404*veh/h

Opposing direction vol., V_o *564*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *8.3*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.3*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.985*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*461*	*637*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*8.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.1 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*43.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*33.0 mi/h*
		Percent free flow speed, PFFS	*75.6 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*456*	*634*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*50.0*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*35.1*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*64.7*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.27*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*75.6*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*453.9*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.17*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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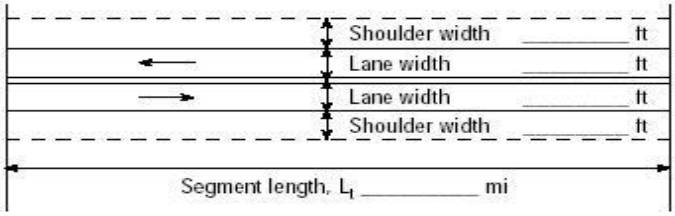
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*I-505 to County Rd 98*
Date Performed	*5/24/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.89*

No-passing zone *100%*

Analysis direction vol., V_d *564*veh/h

Opposing direction vol., V_o *404*veh/h

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *8.3*

Access points *mi* *35*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.3*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.985*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*637*	*461*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*8.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.8 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*43.6 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*32.3 mi/h*
		Percent free flow speed, PFFS	*74.0 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*634*	*456*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*58.3*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*35.1*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*78.7*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.37*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1683*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*74.0*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*633.7*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.34*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
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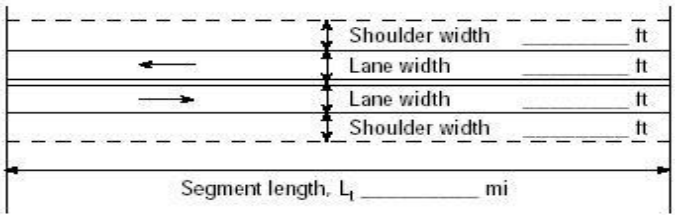
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 21A (WB)*
Agency or Company	*Yolo County*	From/To	*County Rd 85 to SR-16*
Date Performed	*5/24/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *94*veh/h

Opposing direction vol., V_o *124*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *1.2*

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.82*

No-passing zone *25%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* 7/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.9*	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.957*	*0.962*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*120*	*157*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*0.4 mi/h*	Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*40.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*38.1 mi/h*
		Percent free flow speed, PFFS	*93.7 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*115*	*152*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*13.2*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*35.4*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*28.4*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*A*
Volume to capacity ratio, *v/c*	*0.07*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1642*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*93.7*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*114.6*
Effective width, Wv (Eq. 15-29) ft	*21.42*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.16*
Bicycle level of service (Exhibit 15-4)	*C*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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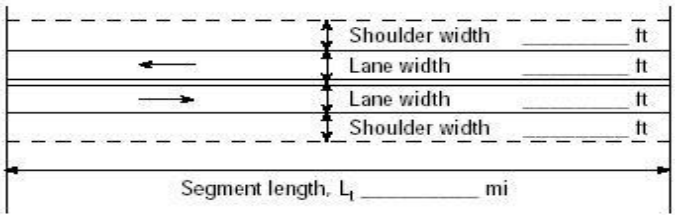
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 21A (EB)*
Agency or Company	*Yolo County*	From/To	*County Rd 85 to SR-16*
Date Performed	*5/24/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *124*veh/h
Opposing direction vol., V_o *94*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *1.2*

☐ Class I highway ☑ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.82*
No-passing zone *25%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* 7/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.8*	*1.9*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.962*	*0.957*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*157*	*120*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*0.2 mi/h*	Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*40.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*38.3 mi/h*
		Percent free flow speed, PFFS	*94.2 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*152*	*115*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*17.0*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*35.4*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*37.2*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*A*
Volume to capacity ratio, *v/c*	*0.09*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*94.2*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*151.2*
Effective width, Wv (Eq. 15-29) ft	*19.32*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.73*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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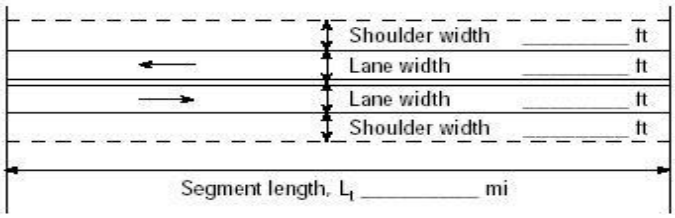
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 85B (NB)*
Agency or Company	*Yolo County*	From/To	*SR-16 to County Rd 21A*
Date Performed	*5/24/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.83*

No-passing zone *80%*

Analysis direction vol., V_d *85*veh/h

Opposing direction vol., V_o *139*veh/h

% Trucks and Buses , P_T *5* %

% Recreational vehicles, P_R *4%*

Access points *mi* *6*/mi

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *0.9*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.9*	*1.7*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.957*	*0.966*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*107*	*173*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.8 mi/h*	Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*40.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*35.9 mi/h*
		Percent free flow speed, PFFS	*87.8 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*103*	*168*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*11.9*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*52.2*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*31.7*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*A*
Volume to capacity ratio, *v/c*	*0.06*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1651*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*87.8*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*102.4*
Effective width, Wv (Eq. 15-29) ft	*22.05*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*2.97*
Bicycle level of service (Exhibit 15-4)	*C*
Notes	
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain. 2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10. 6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.	

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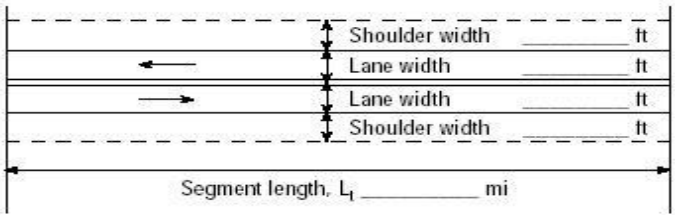
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 85B (SB)*
Agency or Company	*Yolo County*	From/To	*SR-16 to County Rd 21A*
Date Performed	*5/24/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *139*veh/h
Opposing direction vol., V_o *85*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *0.9*

Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.83*
No-passing zone *80%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *6*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.9*	*1.7*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.957*	*0.966*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*175*	*106*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.2 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*40.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*36.5 mi/h*
		Percent free flow speed, PFFS	*89.3 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*168*	*103*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*18.5*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*52.2*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*50.9*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*B*
Volume to capacity ratio, *v/c*	*0.10*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*89.3*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*167.5*
Effective width, Wv (Eq. 15-29) ft	*18.27*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.98*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 SR-16 and North Casino Entrance

Cycle (sec):	65	Critical Vol./Cap.(X):	0.264
Loss Time (sec):	6	Average Delay (sec/veh):	6.5
Optimal Cycle:	62	Level Of Service:	A

Street Name:	SR-16						North Casino Entrance					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:		Ovl			Include			Include			Include	
Min. Green:	0	8	8	5	8	0	0	0	0	5	5	5
Y+R:	4.0	5.5	5.5	4.0	5.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	1	0 1	1 0	1	0 0	0 0	0	0 0	1 0	0	0 1
Volume Module:												
Base Vol:	0	33	305	19	38	0	0	0	0	269	0	9
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	33	305	19	38	0	0	0	0	269	0	9
Added Vol:	0	31	69	5	28	0	0	0	0	38	0	2
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	64	374	24	66	0	0	0	0	307	0	11
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
PHF Volume:	0	69	402	26	71	0	0	0	0	330	0	12
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	69	402	26	71	0	0	0	0	330	0	12
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	69	402	26	71	0	0	0	0	330	0	12
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	0.81	0.90	0.95	1.00	1.00	1.00	1.00	0.93	1.00	0.83
Lanes:	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Final Sat.:	0	1809	1537	1718	1809	0	0	0	0	1769	0	1583
Capacity Analysis Module:												
Vol/Sat:	0.00	0.04	0.26	0.02	0.04	0.00	0.00	0.00	0.00	0.19	0.00	0.01
Crit Moves:		****		****						****		
Green/Cycle:	0.00	0.13	0.83	0.08	0.21	0.00	0.00	0.00	0.00	0.70	0.00	0.70
Volume/Cap:	0.00	0.29	0.32	0.19	0.19	0.00	0.00	0.00	0.00	0.27	0.00	0.01
Uniform Del:	0.0	25.6	1.3	27.9	21.1	0.0	0.0	0.0	0.0	3.6	0.0	2.9
IncremntDel:	0.0	0.7	0.1	0.7	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Delay/Veh:	0.0	26.3	1.4	28.6	21.4	0.0	0.0	0.0	0.0	3.7	0.0	3.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	26.3	1.4	28.6	21.4	0.0	0.0	0.0	0.0	3.7	0.0	3.0
LOS by Move:	A	C	A	C	C	A	A	A	A	A	A	A
HCM2kAvgQ:	0	38	53	17	32	0	0	0	0	64	0	2

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Level Of Service Computation Report
Unknown Method (Future Volume Alternative)

Intersection #2 SR-16 and Central Casino Entrance

Street Name:	SR-16						Central Casino Entrance					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0 0 1 0			0 0 1 0 0			0 0 0 0 0			0 0 0 0 0		
Volume Module:												
Base Vol:	0	329	89	0	304	0	0	0	0	0	0	0
Growth Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Bse:	0	0	0	0	0	0	0	0	0	0	0	0
Added Vol:	0	100	17	0	67	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	0	0	0	0	0	0	0	0	0
User Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Volume:	0	0	0	0	0	0	0	0	0	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PCE Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MLF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FinalVolume:	0	0	0	0	0	0	0	0	0	0	0	0
Critical Gap Module: >> Population:0 << >> Run Speed(N/S): 30 MPH <<												
Critical Gp:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capacity Module:												
Cnflict Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Potent Cap.:	0	0	0	0	0	0	0	0	0	0	0	0
Level Of Service Module:												
LOS by Move:												
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	0	0	0	0	0	0	0	0	0	0	0	0

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #3 SR-16 and South Casino Entrance

Average Delay (sec/veh): 2.1 Worst Case Level Of Service: D[25.7]

Street Name:	SR-16						South Casino Entrance					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 1 0			0 0 1 0 0			0 0 0 0 0			1 0 0 0 1		
Volume Module:												
Base Vol:	0	424	109	0	292	0	0	0	0	81	0	1
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	424	109	0	292	0	0	0	0	81	0	1
Added Vol:	0	117	22	0	67	0	0	0	0	8	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	541	131	0	359	0	0	0	0	89	0	1
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	568	138	0	377	0	0	0	0	93	0	1
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	568	138	0	377	0	0	0	0	93	0	1
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1014	xxxx	637
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	264	xxxx	477
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	264	xxxx	477
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.35	xxxx	0.00
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	38.3	xxxx	0.2
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	25.9	xxxx	12.6
LOS by Move:	*	*	*	*	*	*	*	*	*	D	*	B
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			25.7		
ApproachLOS:	*			*			*			D		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #4 SR-16 and County Rd 85

Average Delay (sec/veh): 0.4 Worst Case Level Of Service: C[17.5]

Street Name:	County Rd 85						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			0 0 1! 0 0			0 1 0 0 0			0 0 0 1 0		
Volume Module:												
Base Vol:	0	0	0	5	0	9	9	335	0	0	553	3
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	5	0	9	9	335	0	0	553	3
Added Vol:	0	0	0	0	0	3	2	73	0	0	136	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	5	0	12	11	408	0	0	689	3
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
PHF Volume:	0	0	0	6	0	13	12	450	0	0	760	3
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	6	0	13	12	450	0	0	760	3
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	1235	1235	761	763	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	195	176	405	836	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	193	174	405	836	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.03	0.00	0.03	0.01	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1.1	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	9.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	306	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.2	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	17.5	xxxxx	9.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	C	*	A	*	*	*	*	*
ApproachDel:	xxxxxx			17.5			xxxxxx			xxxxxx		
ApproachLOS:	*			C			*			*		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #5 SR-16 and County Rd 85B

Average Delay (sec/veh): 2.0 Worst Case Level Of Service: C[16.7]

Street Name:	County Rd 85B									SR-16									
Approach:	North Bound				South Bound					East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	1!	0	0	0	0	0	0	0	0	0	1	0	1	1	0	1	0	0
Volume Module:																				
Base Vol:	101	0	2	0	0	0	0	219	116		3	442	0							
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00							
Initial Bse:	101	0	2	0	0	0	0	219	116		3	442	0							
Added Vol:	27	0	0	0	0	0	0	57	16		0	110	0							
PasserByVol:	0	0	0	0	0	0	0	0	0		0	0	0							
Initial Fut:	128	0	2	0	0	0	0	276	132		3	552	0							
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00							
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92		0.92	0.92	0.92							
PHF Volume:	139	0	2	0	0	0	0	300	143		3	600	0							
Reduct Vol:	0	0	0	0	0	0	0	0	0		0	0	0							
FinalVolume:	139	0	2	0	0	0	0	300	143		3	600	0							
Critical Gap Module:																				
Critical Gp:	6.4	6.5	6.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		4.1	xxxx	xxxxx							
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		2.2	xxxx	xxxxx							
Capacity Module:																				
Cnflict Vol:	907	907	300	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		443	xxxx	xxxxx							
Potent Cap.:	306	276	740	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		1101	xxxx	xxxxx							
Move Cap.:	306	275	740	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		1101	xxxx	xxxxx							
Volume/Cap:	0.46	0.00	0.00	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx		0.00	xxxx	xxxx							
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		0.2	xxxx	xxxxx							
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		8.3	xxxx	xxxxx							
LOS by Move:	*	*	*	*	*	*	*	*	*		A	*	*							
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx		449	xxxxx		xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx		
SharedQueue:	xxxxx		1.3	xxxxx		xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx		
Shrd ConDel:	xxxxx		16.7	xxxxx		xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx		
Shared LOS:	*		C	*		*	*	*			*	*	*			*	*	*		
ApproachDel:			16.7			xxxxxx					xxxxxx					xxxxxx				
ApproachLOS:			C			*					*					*				

Note: Queue reported is the distance per lane in feet.

6: Yolo Ave & Woodland Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR	All
Denied Del/Veh (s)	0.2	0.1	0.2	0.1	0.1	0.1	0.5	0.4	2.8	0.1	0.2	0.4
Total Del/Veh (s)	17.6	15.4	6.8	19.9	11.4	2.7	1.9	2.5	0.6	14.8	9.8	4.5

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #7 SR-16 and Capay St

Average Delay (sec/veh): 0.9 Worst Case Level Of Service: C[19.4]

Street Name:	SR-16						Capay St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	30	467	11	3	239	7	5	2	23	3	1	3
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	30	467	11	3	239	7	5	2	23	3	1	3
Added Vol:	0	116	0	0	64	0	0	0	0	0	0	1
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	30	583	11	3	303	7	5	2	23	3	1	4
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
PHF Volume:	34	664	13	3	345	8	6	2	26	3	1	5
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	34	664	13	3	345	8	6	2	26	3	1	5
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx	7.1	6.5	6.2	7.1	6.5	6.2
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	3.5	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	353	xxxx	xxxxx	677	xxxx	xxxxx	1097	1101	349	1109	1099	670
Potent Cap.:	1189	xxxx	xxxxx	901	xxxx	xxxxx	190	212	694	187	213	457
Move Cap.:	1189	xxxx	xxxxx	901	xxxx	xxxxx	183	205	694	174	206	457
Volume/Cap:	0.03	xxxx	xxxx	0.00	xxxx	xxxx	0.03	0.01	0.04	0.02	0.01	0.01
Level Of Service Module:												
2Way95thQ:	2.2	xxxx	xxxxx	0.3	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	8.1	xxxx	xxxxx	9.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	427	xxxxx	xxxx	259	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.3	xxxxx	xxxxx	0.1	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	14.2	xxxxx	xxxxx	19.4	xxxxx
Shared LOS:	*	*	*	*	*	*	*	B	*	*	C	*
ApproachDel:	xxxxxx			xxxxxx			14.2			19.4		
ApproachLOS:	*			*			B			C		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #8 SR-16 and Madison St

Average Delay (sec/veh): 0.4 Worst Case Level Of Service: B[13.8]

Street Name:	SR-16								Madison St							
Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Lanes:	0	1	0	0 0	0	0	0	1 0	0	0	1!	0 0	0	0	0	0 1
Volume Module:																
Base Vol:	14	500	0	0	256	6			5	0	14		0	0	0	
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	14	500	0	0	256	6			5	0	14		0	0	0	
Added Vol:	0	114	0	0	63	0			0	0	0		0	0	1	
PasserByVol:	0	0	0	0	0	0			0	0	0		0	0	0	
Initial Fut:	14	614	0	0	319	6			5	0	14		0	0	1	
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.93	0.93	0.93	0.93	0.93	0.93			0.93	0.93	0.93		0.93	0.93	0.93	
PHF Volume:	15	658	0	0	342	6			5	0	15		0	0	1	
Reduct Vol:	0	0	0	0	0	0			0	0	0		0	0	0	
FinalVolume:	15	658	0	0	342	6			5	0	15		0	0	1	
Critical Gap Module:																
Critical Gp:	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx			7.1	6.5	6.2		xxxxx	xxxx	6.2	
FollowUpTim:	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx			3.5	4.0	3.3		xxxxx	xxxx	3.3	
Capacity Module:																
Cnflict Vol:	348	xxxx	xxxxx	xxxx	xxxx	xxxxx			1034	1033	345		xxxx	xxxx	658	
Potent Cap.:	1194	xxxx	xxxxx	xxxx	xxxx	xxxxx			210	232	698		xxxx	xxxx	464	
Move Cap.:	1194	xxxx	xxxxx	xxxx	xxxx	xxxxx			208	229	698		xxxx	xxxx	464	
Volume/Cap:	0.01	xxxx	xxxx	xxxx	xxxx	xxxx			0.03	0.00	0.02		xxxx	xxxx	0.00	
Level Of Service Module:																
2Way95thQ:	1.0	xxxx	xxxxx	xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx		xxxx	xxxx	0.2	
Control Del:	8.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx		xxxxx	xxxx	12.8	
LOS by Move:	A	*	*	*	*	*			*	*	*		*	*	B	
Movement:	LT	-	LTR	- RT	LT	-	LTR	- RT	LT	-	LTR	- RT	LT	-	LTR	- RT
Shared Cap.:	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	431	xxxxx		xxxx	xxxx	xxxxx	
SharedQueue:	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx		0.1	xxxxx	xxxxx		xxxx	xxxx	xxxxx	
Shrd ConDel:	8.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx		13.8	xxxxx	xxxxx		xxxx	xxxx	xxxxx	
Shared LOS:	A	*	*	*	*	*	*		B	*	*		*	*	*	
ApproachDel:	xxxxxx			xxxxxx					13.8				12.8			
ApproachLOS:	*			*					B				B			

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #9 SR-16 and Plainfield St

Average Delay (sec/veh): 1.2 Worst Case Level Of Service: C[22.6]

Street Name:	SR-16						Plainfield St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 1 0	1 0	0	1 0	0	0	0 0 1!	0	0	0 0 1!	0	0
Volume Module:												
Base Vol:	27 522	12		8 254	5		5	8	17	9	8	3
Growth Adj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00	
Initial Bse:	27 522	12		8 254	5		5	8	17	9	8	3
Added Vol:	0 113	0		1 62	0		0	0	0	0	0	1
PasserByVol:	0 0	0		0 0	0		0	0	0	0	0	0
Initial Fut:	27 635	12		9 316	5		5	8	17	9	8	4
User Adj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00	
PHF Adj:	0.97 0.97	0.97		0.97 0.97	0.97		0.97 0.97	0.97		0.97 0.97	0.97	
PHF Volume:	28 657	12		9 327	5		5	8	18	9	8	4
Reduct Vol:	0 0	0		0 0	0		0	0	0	0	0	0
FinalVolume:	28 657	12		9 327	5		5	8	18	9	8	4
Critical Gap Module:												
Critical Gp:	4.1 xxxx xxxxx			4.1 xxxx xxxxx			7.1	6.5	6.2	7.1	6.5	6.2
FollowUpTim:	2.2 xxxx xxxxx			2.2 xxxx xxxxx			3.5	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	332 xxxx xxxxx			669 xxxx xxxxx			736	1073	329	1080	1069	335
Potent Cap.:	1211 xxxx xxxxx			907 xxxx xxxxx			335	220	712	196	221	707
Move Cap.:	1211 xxxx xxxxx			907 xxxx xxxxx			315	213	712	181	214	707
Volume/Cap:	0.02 xxxx xxxx			0.01 xxxx xxxx			0.02	0.04	0.02	0.05	0.04	0.01
Level Of Service Module:												
2Way95thQ:	1.8 xxxx xxxxx			0.8 xxxx xxxxx			xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	8.0 xxxx xxxxx			9.0 xxxx xxxxx			xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx xxxx xxxxx			xxxx xxxx xxxxx			xxxx	388	xxxxx	xxxx	226	xxxxx
SharedQueue:	0.1 xxxx xxxxx			xxxxx xxxx xxxxx			xxxxx	0.3	xxxxx	xxxxx	0.3	xxxxx
Shrd ConDel:	8.0 xxxx xxxxx			xxxxx xxxx xxxxx			xxxxx	15.1	xxxxx	xxxxx	22.6	xxxxx
Shared LOS:	A	*	*	*	*	*	*	C	*	*	C	*
ApproachDel:	xxxxxx			xxxxxx			15.1			22.6		
ApproachLOS:	*			*			C			C		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #10 SR-16 and County Road 21A

Cycle (sec):	100	Critical Vol./Cap.(X):	0.552
Loss Time (sec):	0	Average Delay (sec/veh):	12.0
Optimal Cycle:	0	Level Of Service:	B

Street Name:	SR-16						County Road 21A					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Ignore		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	0 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	1 0	1
Volume Module:												
Base Vol:	0	0	0	276	0	7	4	120	0	0	105	558
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	276	0	7	4	120	0	0	105	558
Added Vol:	0	0	0	61	0	1	1	12	0	0	18	111
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	337	0	8	5	132	0	0	123	669
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
PHF Adj:	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.00
PHF Volume:	0	0	0	383	0	9	6	150	0	0	140	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	383	0	9	6	150	0	0	140	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
FinalVolume:	0	0	0	383	0	9	6	150	0	0	140	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	0.97	0.01	0.02	0.04	0.96	0.00	0.00	1.00	1.00
Final Sat.:	0	0	0	694	0	16	24	624	0	0	591	668
Capacity Analysis Module:												
Vol/Sat:	xxxx	xxxx	xxxx	0.55	0.00	0.55	0.24	0.24	xxxx	xxxx	0.24	0.00
Crit Moves:				****				****			****	
Delay/Veh:	0.0	0.0	0.0	13.5	13.5	13.5	9.8	9.8	0.0	0.0	10.1	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	13.5	13.5	13.5	9.8	9.8	0.0	0.0	10.1	0.0
LOS by Move:	*	*	*	B	B	B	A	A	*	*	B	*
ApproachDel:	xxxxxx			13.5			9.8			10.1		
Delay Adj:	xxxxx			1.00			1.00			1.00		
ApprAdjDel:	xxxxxx			13.5			9.8			10.1		
LOS by Appr:	*			B			A			B		
AllWayAvgQ:	0.0	0.0	0.0	27.6	27.6	27.6	6.9	6.9	6.9	0.0	6.8	0.0

Note: Queue reported is the distance per lane in feet.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #11 County Rd 85B and County Rd 21A

Average Delay (sec/veh): 6.1 Worst Case Level Of Service: A[9.1]

Street Name:	County Rd 85B									County Rd 21A								
Approach:	North Bound						South Bound						East Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Uncontrolled						Uncontrolled						Stop Sign					
Rights:	Include						Include						Include					
Lanes:	0	0	0	1	0		0	1	0	0	0		0	0	0	0	0	
Volume Module:																		
Base Vol:	0	32	0				87	24	0				0	0	0			
Growth Adj:	1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00			
Initial Bse:	0	32	0				87	24	0				0	0	0			
Added Vol:	0	8	1				12	4	0				0	0	0			
PasserByVol:	0	0	0				0	0	0				0	0	0			
Initial Fut:	0	40	1				99	28	0				0	0	0			
User Adj:	1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00			
PHF Adj:	0.79	0.79	0.79				0.79	0.79	0.79				0.79	0.79	0.79			
PHF Volume:	0	51	1				126	36	0				0	0	0			
Reduct Vol:	0	0	0				0	0	0				0	0	0			
FinalVolume:	0	51	1				126	36	0				0	0	0			
Critical Gap Module:																		
Critical Gp:	xxxxx	xxxx	xxxxx				4.1	xxxx	xxxxx				xxxx	xxxxx				
FollowUpTim:	xxxxx	xxxx	xxxxx				2.2	xxxx	xxxxx				xxxx	xxxxx				
Capacity Module:																		
Cnflict Vol:	xxxx	xxxx	xxxxx				52	xxxx	xxxxx				xxxx	xxxx	xxxxx			
Potent Cap.:	xxxx	xxxx	xxxxx				1554	xxxx	xxxxx				xxxx	xxxx	xxxxx			
Move Cap.:	xxxx	xxxx	xxxxx				1554	xxxx	xxxxx				xxxx	xxxx	xxxxx			
Volume/Cap:	xxxx	xxxx	xxxx				0.08	xxxx	xxxx				xxxx	xxxx	xxxx			
Level Of Service Module:																		
2Way95thQ:	xxxx	xxxx	xxxxx				6.6	xxxx	xxxxx				xxxx	xxxx	xxxxx			
Control Del:	xxxxx	xxxx	xxxxx				7.5	xxxx	xxxxx				xxxxx	xxxx	xxxxx			
LOS by Move:	*	*	*				A	*	*				*	*	*			
Movement:	LT	-	LTR	-	RT		LT	-	LTR	-	RT		LT	-	LTR	-	RT	
Shared Cap.:	xxxx	xxxx	xxxxx				xxxx	xxxx	xxxxx				xxxx	xxxx	xxxxx			
SharedQueue:	xxxxx	xxxx	xxxxx				0.3	xxxx	xxxxx				xxxxx	xxxx	xxxxx			
Shrd ConDel:	xxxxx	xxxx	xxxxx				7.5	xxxx	xxxxx				xxxxx	xxxx	xxxxx			
Shared LOS:	*	*	*				A	*	*				*	*	*			
ApproachDel:	xxxxxx						xxxxxx						xxxxxx					
ApproachLOS:	*						*						*					

Note: Queue reported is the distance per lane in feet.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #12 Country Villa Estates and County Rd 21A

Average Delay (sec/veh): 0.1 Worst Case Level Of Service: B[10.1]

Street Name:	Country Villa Estates									County Rd 21A								
Approach:	North Bound			South Bound			East Bound			West Bound								
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled								
Rights:	Include			Include			Include			Include								
Lanes:	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	1	0
Volume Module:																				
Base Vol:	0	0	0	3	0	0	0	105	0	0	82	9								
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
Initial Bse:	0	0	0	3	0	0	0	105	0	0	82	9								
Added Vol:	0	0	0	0	0	0	0	13	0	0	19	0								
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0								
Initial Fut:	0	0	0	3	0	0	0	118	0	0	101	9								
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
PHF Adj:	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79								
PHF Volume:	0	0	0	4	0	0	0	150	0	0	128	11								
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0								
FinalVolume:	0	0	0	4	0	0	0	150	0	0	128	11								
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx	xxxxx	283	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx								
Potent Cap.:	xxxx	xxxx	xxxxx	707	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx								
Move Cap.:	xxxx	xxxx	xxxxx	707	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx								
Volume/Cap:	xxxx	xxxx	xxxx	0.01	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx								
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	xxxxx	0.4	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx								
Control Del:	xxxxx	xxxx	xxxxx	10.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
LOS by Move:	*	*	*	B	*	*	*	*	*	*	*	*								
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx		
SharedQueue:	xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx		
Shrd ConDel:	xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx		
Shared LOS:	*	*	*			*	*	*			*	*	*			*	*	*		
ApproachDel:	xxxxxx					10.1					xxxxxx					xxxxxx				
ApproachLOS:	*					B					*					*				

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #13 Fremont St and County Rd 21A

Average Delay (sec/veh): 1.1 Worst Case Level Of Service: B[10.2]

Street Name:	Fremont St						County Rd 21A					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	0 1	0
Volume Module:												
Base Vol:	0	0	0	14	0	8	10	106	0	0	84	25
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	14	0	8	10	106	0	0	84	25
Added Vol:	0	0	0	0	0	0	0	13	0	0	19	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	14	0	8	10	119	0	0	103	25
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
PHF Volume:	0	0	0	19	0	11	13	158	0	0	137	33
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	19	0	11	13	158	0	0	137	33
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	338	338	153	170	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	658	583	893	1407	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	653	578	893	1407	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.03	0.00	0.01	0.01	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.7	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.6	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	724	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.1	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	10.2	xxxxx	7.6	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	B	*	A	*	*	*	*	*
ApproachDel:	xxxxxx			10.2			xxxxxx			xxxxxx		
ApproachLOS:	*			B			*			*		

Note: Queue reported is the distance per lane in feet.

DELAY (CONTROL)

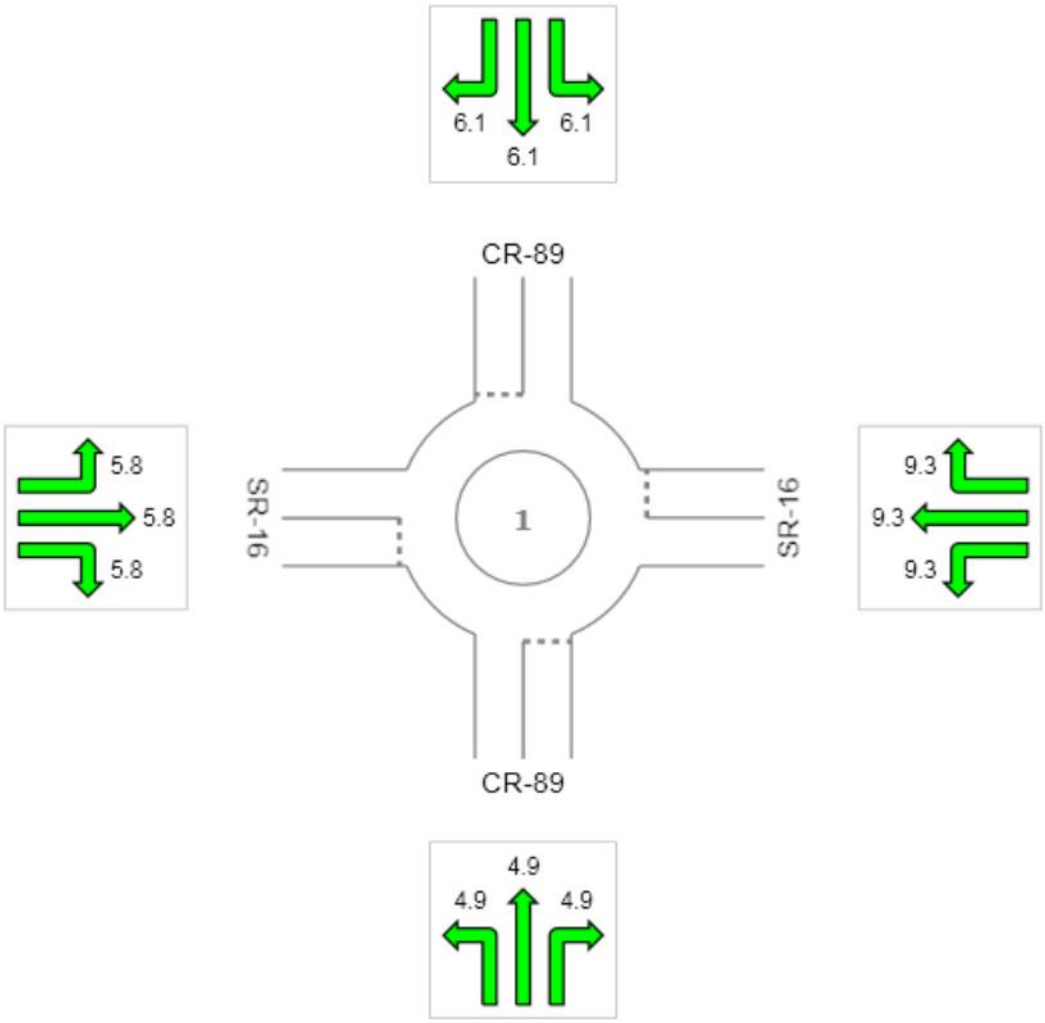
Average control delay per vehicle, or average pedestrian delay (seconds)

Site: SR-16/CR-89

Near-Term Plus Project Sat PM
Roundabout

All Movement Classes

	South	East	North	West	Intersection
Delay (Control)	4.9	9.3	6.1	5.8	7.8
LOS	A	A	A	A	A



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F | Continuous

Level of Service Method: Delay & v/c (HCM 2010)
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Roundabout Level of Service Method: Same as Sign Control
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #15 SR-16 and SB I-505

Average Delay (sec/veh): 0.3 Worst Case Level Of Service: C[19.0]

Street Name:	SB I-505								SR-16							
Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	0	0 0	0	1	0	0 1	0	0	0	1 0	0	0	1	0 1
Volume Module:																
Base Vol:	0	0	0		6	1	7		0	169	181		0	644	34	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	0	0	0		6	1	7		0	169	181		0	644	34	
Added Vol:	0	0	0		0	0	6		0	43	29		0	123	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	0	0	0		6	1	13		0	212	210		0	767	34	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.89	0.89	0.89		0.89	0.89	0.89		0.89	0.89	0.89		0.89	0.89	0.89	
PHF Volume:	0	0	0		7	1	15		0	239	237		0	866	38	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
FinalVolume:	0	0	0		7	1	15		0	239	237		0	866	38	
Critical Gap Module:																
Critical Gp:	xxxxx	xxxx	xxxxx		6.4	6.6	6.3		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
FollowUpTim:	xxxxx	xxxx	xxxxx		3.5	4.0	3.3		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Capacity Module:																
Cnflict Vol:	xxxx	xxxx	xxxxx		1223	1342	866		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Potent Cap.:	xxxx	xxxx	xxxxx		195	150	349		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Move Cap.:	xxxx	xxxx	xxxxx		195	150	349		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Volume/Cap:	xxxx	xxxx	xxxx		0.03	0.01	0.04		xxxx	xxxx	xxxx		xxxx	xxxx	xxxx	
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	xxxxx		xxxx	xxxx	3.3		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Control Del:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	15.8		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
LOS by Move:	*	*	*		*	*	C		*	*	*		*	*	*	
Movement:	LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT	
Shared Cap.:	xxxx	xxxx	xxxxx		187	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
SharedQueue:	xxxxx	xxxx	xxxxx		0.1	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shrd ConDel:	xxxxx	xxxx	xxxxx		25.1	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shared LOS:	*	*	*		D	*	*		*	*	*		*	*	*	
ApproachDel:	xxxxxx				19.0				xxxxxx				xxxxxx			
ApproachLOS:	*				C				*				*			

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #16 SR-16 and NB I-505

Cycle (sec):	50	Critical Vol./Cap.(X):	0.702
Loss Time (sec):	6	Average Delay (sec/veh):	13.9
Optimal Cycle:	47	Level Of Service:	B

Street Name:	NB I-505						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Ignore			Include		
Min. Green:	5	5	5	0	0	0	0	5	5	0	5	5
Y+R:	4.1	4.1	4.1	4.0	4.0	4.0	4.0	5.5	5.5	4.0	5.5	5.5
Lanes:	0 1	0	0 1	0	0	0 0	0	0	1 0 1	0	0	1 0 1
Volume Module:												
Base Vol:	353	0	46	0	0	0	0	171	5	0	334	6
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	353	0	46	0	0	0	0	171	5	0	334	6
Added Vol:	61	0	0	0	0	0	0	39	4	0	62	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	414	0	46	0	0	0	0	210	9	0	396	6
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Adj:	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.00	0.87	0.87	0.87
PHF Volume:	474	0	53	0	0	0	0	241	0	0	454	7
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	474	0	53	0	0	0	0	241	0	0	454	7
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
FinalVolume:	474	0	53	0	0	0	0	241	0	0	454	7
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.68	1.00	0.81	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.81
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00
Final Sat.:	1291	0	1537	0	0	0	0	1809	1900	0	1809	1537
Capacity Analysis Module:												
Vol/Sat:	0.37	0.00	0.03	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.25	0.00
Crit Moves:	****										****	
Green/Cycle:	0.52	0.00	0.52	0.00	0.00	0.00	0.00	0.36	0.00	0.00	0.36	0.36
Volume/Cap:	0.70	0.00	0.07	0.00	0.00	0.00	0.00	0.37	0.00	0.00	0.70	0.01
Uniform Del:	9.0	0.0	5.9	0.0	0.0	0.0	0.0	11.9	0.0	0.0	13.8	10.4
IncremntDel:	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	3.5	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00
Delay/Veh:	12.3	0.0	5.9	0.0	0.0	0.0	0.0	12.3	0.0	0.0	17.3	10.4
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	12.3	0.0	5.9	0.0	0.0	0.0	0.0	12.3	0.0	0.0	17.3	10.4
LOS by Move:	B	A	A	A	A	A	A	B	A	A	B	B
HCM2kAvgQ:	178	0	11	0	0	0	0	77	0	0	155	2

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #17 SR-16 and Wild Wings Dr

Average Delay (sec/veh): 1.7 Worst Case Level Of Service: C[16.1]

Street Name:	Wild Wings Dr						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			1 0 0 0 1			1 0 1 0 0			0 0 1 0 1		
Volume Module:												
Base Vol:	0	0	0	65	0	14	9	216	0	0	314	69
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	65	0	14	9	216	0	0	314	69
Added Vol:	0	0	0	0	0	0	0	39	0	0	62	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	65	0	14	9	255	0	0	376	69
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
PHF Volume:	0	0	0	76	0	16	11	298	0	0	439	81
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	76	0	16	11	298	0	0	439	81
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	758	xxxx	439	520	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	375	xxxx	618	1031	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	372	xxxx	618	1031	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.20	xxxx	0.03	0.01	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	18.9	xxxx	2.0	0.8	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	17.1	xxxx	11.0	8.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	C	*	B	A	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			16.1			xxxxxx			xxxxxx		
ApproachLOS:	*			C			*			*		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #18 SR-16 and County Rd 94B

Average Delay (sec/veh): 0.6 Worst Case Level Of Service: C[15.2]

Street Name:	County Rd 94B						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0	0	0 0 0	1	0	0 1 0	0	0	0 0 1!	0	0
Volume Module:												
Base Vol:	6	0	5	0	4	11	4	273	0	9	357	1
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	6	0	5	0	4	11	4	273	0	9	357	1
Added Vol:	0	0	0	0	0	0	0	39	0	0	62	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	6	0	5	0	4	11	4	312	0	9	419	1
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
PHF Volume:	7	0	6	0	5	12	5	352	0	10	473	1
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	7	0	6	0	5	12	5	352	0	10	473	1
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	xxxxx	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	863	856	352	xxxx	855	473	474	xxxx	xxxxx	352	xxxx	xxxxx
Potent Cap.:	275	295	691	xxxx	296	591	1072	xxxx	xxxxx	1190	xxxx	xxxxx
Move Cap.:	263	292	691	xxxx	292	591	1072	xxxx	xxxxx	1190	xxxx	xxxxx
Volume/Cap:	0.03	0.00	0.01	xxxx	0.02	0.02	0.00	xxxx	xxxx	0.01	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.3	xxxx	xxxxx	0.6	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.4	xxxx	xxxxx	8.1	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	366	xxxxx	xxxx	xxxx	464	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.1	xxxxx	xxxxx	xxxx	0.1	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	15.2	xxxxx	xxxxx	xxxx	13.1	8.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	C	*	*	*	B	A	*	*	*	*	*
ApproachDel:	15.2			13.1			xxxxxx			xxxxxx		
ApproachLOS:	C			B			*			*		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #19 SR-16 and County Rd 95

Average Delay (sec/veh): 0.9 Worst Case Level Of Service: C[17.3]

Street Name:	County Rd 95						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0	0	0 0 1	0	0	0 0 0 1		0	0 1	0	0 0
Volume Module:												
Base Vol:	10	3	22	0	4	0	0	276	0	19	358	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	10	3	22	0	4	0	0	276	0	19	358	0
Added Vol:	2	0	0	0	0	0	0	38	1	0	60	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	12	3	22	0	4	0	0	314	1	19	418	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	13	3	24	0	4	0	0	341	1	21	454	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	13	3	24	0	4	0	0	341	1	21	454	0
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	xxxxx	6.5	xxxxx	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	4.0	xxxxx	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	840	838	342	xxxx	838	xxxxx	xxxx	xxxx	xxxxx	342	xxxx	xxxxx
Potent Cap.:	285	303	701	xxxx	302	xxxxx	xxxx	xxxx	xxxxx	1200	xxxx	xxxxx
Move Cap.:	278	297	701	xxxx	297	xxxxx	xxxx	xxxx	xxxxx	1200	xxxx	xxxxx
Volume/Cap:	0.05	0.01	0.03	xxxx	0.01	xxxx	xxxx	xxxx	xxxx	0.02	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	1.1	xxxxx	xxxx	xxxx	xxxxx	1.3	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	17.3	xxxxx	xxxxx	xxxx	xxxxx	8.1	xxxx	xxxxx
LOS by Move:	*	*	*	*	C	*	*	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	437	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.3	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	0.1	xxxx	xxxxx
Shrd ConDel:	xxxxx	14.1	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.1	xxxx	xxxxx
Shared LOS:	*	B	*	*	*	*	*	*	*	A	*	*
ApproachDel:	14.1			17.3			xxxxxx			xxxxxx		
ApproachLOS:	B			C			*			*		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #20 SR-16 and County Rd 98

Cycle (sec):	80	Critical Vol./Cap.(X):	0.378
Loss Time (sec):	12	Average Delay (sec/veh):	24.9
Optimal Cycle:	80	Level Of Service:	C

Street Name:	County Rd 98						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	5	5	5	5	6	6	5	5	5
Y+R:	4.0	6.0	6.0	4.0	6.0	6.0	4.0	5.3	5.3	4.0	5.3	5.3
Lanes:	1 0	0	1 0	1 0	1	0 1	1 0	1	0	1 0	1	0 1
Volume Module:												
Base Vol:	97	114	81	47	107	57	56	199	80	43	214	45
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	97	114	81	47	107	57	56	199	80	43	214	45
Added Vol:	6	0	0	0	0	39	24	9	5	0	15	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	103	114	81	47	107	96	80	208	85	43	229	45
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
PHF Volume:	106	118	84	49	110	99	83	215	88	44	236	46
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	106	118	84	49	110	99	83	215	88	44	236	46
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	106	118	84	49	110	99	83	215	88	44	236	46
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.92	0.92	0.93	0.98	0.83	0.90	0.87	0.87	0.90	0.95	0.81
Lanes:	1.00	0.58	0.42	1.00	1.00	1.00	1.00	1.42	0.58	1.00	1.00	1.00
Final Sat.:	1769	1021	725	1769	1862	1583	1718	2335	954	1718	1809	1537
Capacity Analysis Module:												
Vol/Sat:	0.06	0.12	0.12	0.03	0.06	0.06	0.05	0.09	0.09	0.03	0.13	0.03
Crit Moves:		****		****			****				****	
Green/Cycle:	0.19	0.30	0.30	0.07	0.19	0.19	0.13	0.28	0.28	0.19	0.35	0.35
Volume/Cap:	0.32	0.38	0.38	0.38	0.31	0.33	0.38	0.33	0.33	0.13	0.38	0.09
Uniform Del:	28.0	21.9	21.9	35.4	28.0	28.1	32.0	22.7	22.7	26.9	19.7	17.7
IncremntDel:	0.6	0.5	0.5	1.9	0.5	0.7	1.1	0.2	0.2	0.2	0.4	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	28.6	22.3	22.3	37.2	28.5	28.7	33.1	23.0	23.0	27.0	20.1	17.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	28.6	22.3	22.3	37.2	28.5	28.7	33.1	23.0	23.0	27.0	20.1	17.7
LOS by Move:	C	C	C	D	C	C	C	C	C	C	C	B
HCM2kAvgQ:	62	103	103	28	57	51	46	75	75	24	114	20

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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #21 SR-16 and W. Kentucky Ave

Cycle (sec):	80	Critical Vol./Cap.(X):	0.238
Loss Time (sec):	12	Average Delay (sec/veh):	18.7
Optimal Cycle:	80	Level Of Service:	B

Street Name:	SR-16						W. Kentucky Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	5	5	5	5	5	5	5	5	5
Y+R:	4.0	6.0	6.0	4.0	6.0	6.0	4.0	5.3	5.3	4.0	5.3	5.3
Lanes:	1 0	0	1 0	1 0	0	1 0	1 0	0	1 0	1 0	0	1 0
Volume Module:												
Base Vol:	5	134	64	12	133	25	15	34	12	42	46	8
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	5	134	64	12	133	25	15	34	12	42	46	8
Added Vol:	0	19	5	0	33	0	0	0	0	6	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	5	153	69	12	166	25	15	34	12	48	46	8
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
PHF Volume:	5	164	74	13	178	27	16	36	13	51	49	9
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	5	164	74	13	178	27	16	36	13	51	49	9
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	5	164	74	13	178	27	16	36	13	51	49	9
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.90	0.91	0.91	0.90	0.93	0.93	0.93	0.94	0.94	0.93	0.96	0.96
Lanes:	1.00	0.69	0.31	1.00	0.87	0.13	1.00	0.74	0.26	1.00	0.85	0.15
Final Sat.:	1718	1188	536	1718	1541	232	1769	1323	467	1769	1551	270
Capacity Analysis Module:												
Vol/Sat:	0.00	0.14	0.14	0.01	0.12	0.12	0.01	0.03	0.03	0.03	0.03	0.03
Crit Moves:		****		****				****		****		
Green/Cycle:	0.22	0.56	0.56	0.06	0.40	0.40	0.11	0.11	0.11	0.12	0.11	0.11
Volume/Cap:	0.01	0.25	0.25	0.12	0.29	0.29	0.08	0.25	0.25	0.25	0.28	0.28
Uniform Del:	24.5	9.1	9.1	35.4	16.1	16.1	31.6	32.5	32.5	32.1	32.4	32.4
IncremntDel:	0.0	0.1	0.1	0.5	0.2	0.2	0.2	0.7	0.7	0.6	0.7	0.7
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	24.6	9.2	9.2	35.9	16.3	16.3	31.8	33.1	33.1	32.7	33.1	33.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	24.6	9.2	9.2	35.9	16.3	16.3	31.8	33.1	33.1	32.7	33.1	33.1
LOS by Move:	C	A	A	D	B	B	C	C	C	C	C	C
HCM2kAvgQ:	2	73	73	10	87	87	10	33	33	34	39	39

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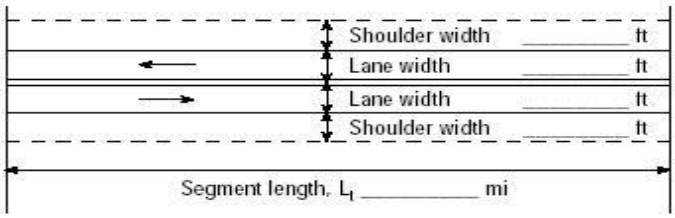
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*CCCR to County Road 85*
Date Performed	*5/26/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *700*veh/h

Opposing direction vol., V_o veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *6.7*

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☐ Level ☑ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.93*

No-passing zone *75%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.6*	*1.9*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.1*	*1.1*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.967*	*0.953*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*0.99*	*0.94*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*786*	*535*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.4 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*51.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*38.9 mi/h*
		Percent free flow speed, PFFS	*75.5 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.5*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*0.976*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*0.95*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*753*	*517*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*64.3*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*28.5*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*81.2*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.46*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1547*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1616*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*75.5*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*752.7*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.43*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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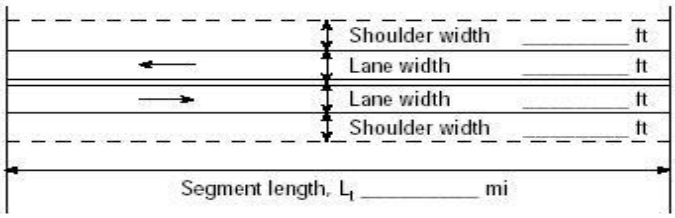
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*CCCR to County Road 85*
Date Performed	*5/26/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *447*veh/h

Opposing direction vol., V_o *700*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *6.7*

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☐ Level ☑ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.93*

No-passing zone *75%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.9*	*1.6*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.1*	*1.1*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.953*	*0.967*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*0.94*	*0.99*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*537*	*786*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.5 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*51.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*39.8 mi/h*
		Percent free flow speed, PFFS	*77.2 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.5*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.976*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*0.95*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*519*	*753*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*55.6*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*28.5*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*67.2*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.32*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1636*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*77.2*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*480.6*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.20*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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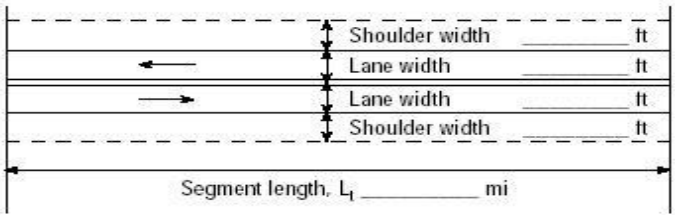
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*County Road 85 to Esparto Town*
Date Performed	*5/26/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.92*

No-passing zone *85%*

Show North Arrow

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *5*/mi

Analysis direction vol., V_d *692*veh/h

Opposing direction vol., V_o *412*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *1.4*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.3*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.985*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*756*	*455*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*0.3 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.5 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*42.1 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*30.2 mi/h*
		Percent free flow speed, PFFS	*71.7 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*752*	*450*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*64.5*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*29.8*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*83.1*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.44*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*71.7*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*752.2*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.43*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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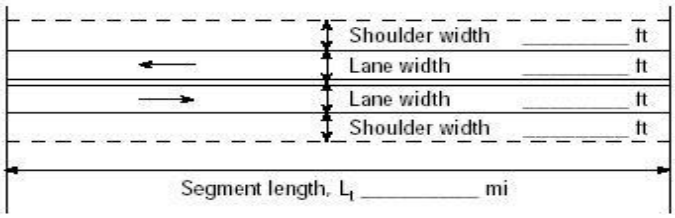
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*County Road 85 to Esparto Town*
Date Performed	*5/26/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *412*veh/h

Opposing direction vol., V_o veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *1.4*

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.92*

No-passing zone *85%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *5*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.3*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.985*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*450*	*763*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.3 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.4 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*42.1 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*31.3 mi/h*
		Percent free flow speed, PFFS	*74.3 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*450*	*751*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*51.3*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*29.8*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*62.5*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*C*
Volume to capacity ratio, *v/c*	*0.26*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*74.3*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*447.8*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.17*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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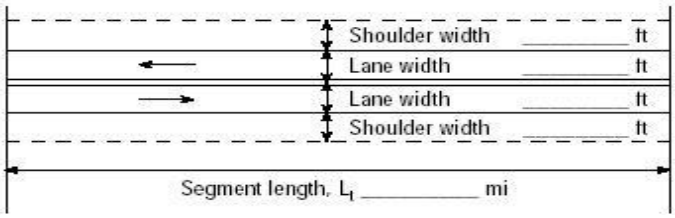
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*through Esparto Town*
Date Performed	*5/26/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.92*

No-passing zone *95%*

Analysis direction vol., V_d *674*veh/h

Opposing direction vol., V_o *345*veh/h

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *1.2*

Access points *mi* *14*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.4*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.980*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*736*	*383*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*3.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*3.0 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*38.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*27.2 mi/h*
		Percent free flow speed, PFFS	*70.0 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*733*	*377*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*61.8*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*30.5*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*81.9*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.43*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*70.0*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*732.6*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.42*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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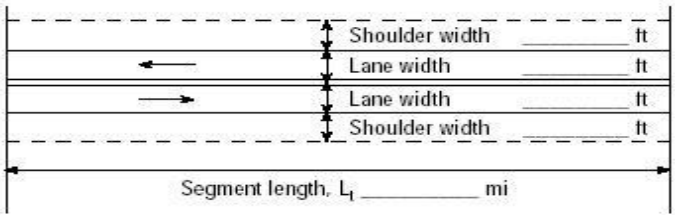
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*through Esparto Town*
Date Performed	*5/26/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *345*veh/h

Opposing direction vol., V_o *674*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *1.2*

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.92*

No-passing zone *95%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *14*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.4*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.980*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*383*	*736*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*3.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.6 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*38.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*28.6 mi/h*
		Percent free flow speed, PFFS	*73.6 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*377*	*733*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*46.0*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*30.5*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*56.4*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*C*
Volume to capacity ratio, *v/c*	*0.22*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*73.6*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*375.0*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.08*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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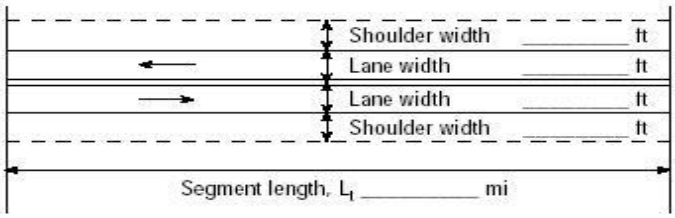
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*Esparto Town to County Rd 89*
Date Performed	*5/26/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2016) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *792*veh/h
Opposing direction vol., V_o *469*veh/h
Shoulder width ft *4.0*
Lane Width ft *12.0*
Segment Length mi *2.7*

☑ Class I highway ☐ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.92*
No-passing zone *80%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.990*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*865*	*515*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.4 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*39.8 mi/h*
		Percent free flow speed, PFFS	*75.2 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*861*	*510*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*69.2*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*25.7*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*85.3*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.51*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1683*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*75.2*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*860.9*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.20*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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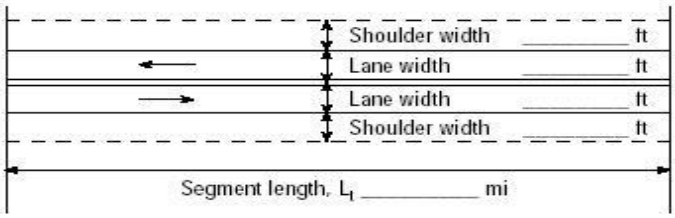
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*Esparto Town to County Rd 89*
Date Performed	*5/26/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2016) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *469*veh/h
Opposing direction vol., V_o *792*veh/h
Shoulder width ft *4.0*
Lane Width ft *12.0*
Segment Length mi *2.7*

☑ Class I highway ☐ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.92*
No-passing zone *80%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.2*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.990*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*515*	*865*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.1 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.9 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*41.1 mi/h*
		Percent free flow speed, PFFS	*77.7 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*510*	*861*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*56.1*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*25.7*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*65.7*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.30*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1700*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*77.7*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*509.8*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.93*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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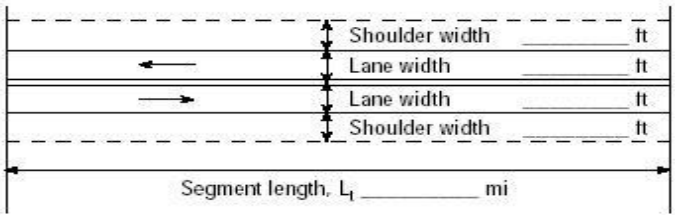
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*County Rd 89 to I-505*
Date Performed	*5/26/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *780*veh/h

Opposing direction vol., V_o *464*veh/h

Shoulder width ft *4.0*

Lane Width ft *12.0*

Segment Length mi *0.8*

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.93*

No-passing zone *100%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *4*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.0*	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*0.990*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*839*	*504*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.0 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.5 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.7 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*39.8 mi/h*
		Percent free flow speed, PFFS	*75.5 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*839*	*499*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*67.8*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*27.4*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*85.0*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.49*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1683*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*75.5*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*838.7*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.19*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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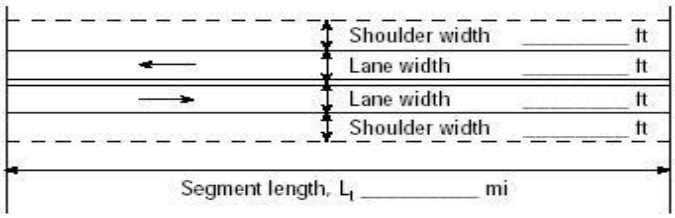
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*County Rd 89 to I-505*
Date Performed	*3/23/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.93*

No-passing zone *100%*

Show North Arrow

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *4*/mi

Analysis direction vol., V_d *464*veh/h

Opposing direction vol., V_o *750*veh/h

Shoulder width ft *4.0*

Lane Width ft *12.0*

Segment Length mi *0.8*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.2*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.990*	*1.000*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*504*	*806*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*1.0 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.5 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.7 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*41.0 mi/h*
		Percent free flow speed, PFFS	*77.9 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*499*	*806*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*54.9*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*28.6*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*65.8*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.30*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*77.9*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*498.9*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.92*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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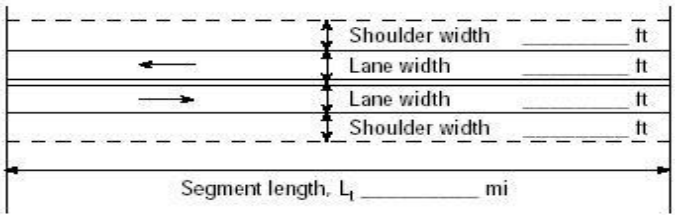
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*I-505 to County Rd 98*
Date Performed	*5/26/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *430*veh/h
Opposing direction vol., V_o *373*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *8.3*

Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.92*
No-passing zone *100*%
% Trucks and Buses , P_T *5* %
% Recreational vehicles, P_R *4*%
Access points *mi* *35*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.3*	*1.3*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.985*	*0.985*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*475*	*412*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*8.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*3.0 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*43.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*33.7 mi/h*
		Percent free flow speed, PFFS	*77.3* %

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*470*	*407*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*47.1*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*42.6*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*69.9*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.28*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1675*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*77.3*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*467.4*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.19*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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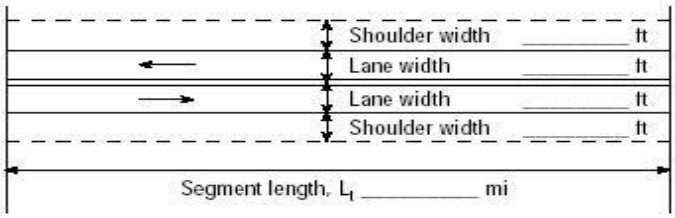
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*I-505 to County Rd 98*
Date Performed	*3/23/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *373*veh/h
Opposing direction vol., V_o *430*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *8.3*

☑ Class I highway ☐ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.92*
No-passing zone *100*%
% Trucks and Buses , P_T *5* %
% Recreational vehicles, P_R *4*%
Access points *mi* *35*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.3*	*1.3*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.985*	*0.985*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*412*	*475*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0* *mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6* *mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*8.8* *mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.7* *mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*43.6* *mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*34.0* *mi/h*
		Percent free flow speed, PFFS	*78.0* %

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*407*	*470*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*44.8*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*42.6*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*64.6*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.24*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1683*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*78.0*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*405.4*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.12*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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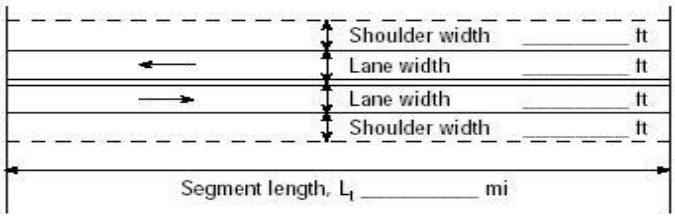
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 21A (WB)*
Agency or Company	*Yolo County*	From/To	*County Rd 85 to SR-16*
Date Performed	*5/26/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *131*veh/h

Opposing direction vol., V_o *137*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *1.2*

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.84*

No-passing zone *25%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* 7/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.8*	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.962*	*0.962*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*162*	*170*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*0.4 mi/h*	Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*40.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*37.6 mi/h*
		Percent free flow speed, PFFS	*92.7 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*157*	*164*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*17.4*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*39.3*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*36.6*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*A*
Volume to capacity ratio, *v/c*	*0.09*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1651*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*92.7*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*156.0*
Effective width, Wv (Eq. 15-29) ft	*18.83*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.84*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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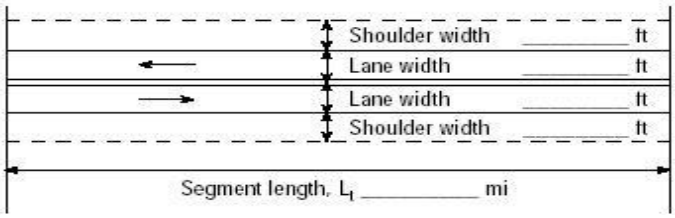
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 21A (EB)*
Agency or Company	*Yolo County*	From/To	*County Rd 85 to SR-16*
Date Performed	*5/26/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *137*veh/h

Opposing direction vol., V_o *131*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *1.2*

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.84*

No-passing zone *25%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* 7/mi

Show North Arrow

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.8*	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.962*	*0.962*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*170*	*162*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*0.4 mi/h*	Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*40.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*37.6 mi/h*
		Percent free flow speed, PFFS	*92.7 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*164*	*157*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*18.1*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*39.3*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*38.2*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*A*
Volume to capacity ratio, *v/c*	*0.10*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*92.7*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*163.1*
Effective width, Wv (Eq. 15-29) ft	*18.41*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.94*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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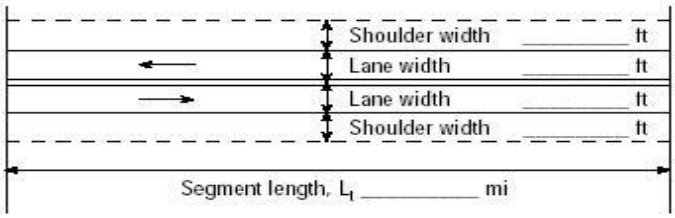
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 85B (NB)*
Agency or Company	*Yolo County*	From/To	*SR-16 to County Rd 21A*
Date Performed	*5/26/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *129*veh/h

Opposing direction vol., V_o *135*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *0.9*

Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.86*

No-passing zone *80%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *6*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.8*	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.962*	*0.962*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*156*	*163*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.7 mi/h*	Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*40.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*35.7 mi/h*
		Percent free flow speed, PFFS	*87.3 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*151*	*158*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*16.9*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*57.5*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*45.0*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*B*
Volume to capacity ratio, *v/c*	*0.09*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1642*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*87.3*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*150.0*
Effective width, Wv (Eq. 15-29) ft	*18.97*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.79*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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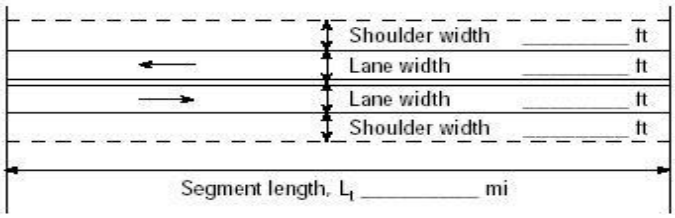
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 85B (SB)*
Agency or Company	*Yolo County*	From/To	*SR-16 to County Rd 21A*
Date Performed	*5/26/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *135*veh/h
Opposing direction vol., V_o *129*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *0.9*

☐ Class I highway ☑ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.86*
No-passing zone *80%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *6*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.8*	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.962*	*0.962*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*163*	*156*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.7 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*40.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*35.7 mi/h*
		Percent free flow speed, PFFS	*87.3 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*158*	*151*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*17.5*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*57.5*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*46.9*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*B*
Volume to capacity ratio, *v/c*	*0.09*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*87.3*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*157.0*
Effective width, Wv (Eq. 15-29) ft	*18.55*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.90*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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LONG-TERM PLUS PROJECT TRAFFIC CONDITIONS

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 SR-16 and North Casino Entrance

Cycle (sec):	65	Critical Vol./Cap.(X):	0.271
Loss Time (sec):	6	Average Delay (sec/veh):	10.8
Optimal Cycle:	62	Level Of Service:	B

Street Name:	SR-16						North Casino Entrance					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ovl			Include			Include			Include		
Min. Green:	0	8	8	5	8	0	0	0	0	5	5	5
Y+R:	4.0	5.5	5.5	4.0	5.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	1	0 1	1 0	1	0 0	0 0	0	0 0	1 0	0	0 1
Volume Module:												
Base Vol:	0	84	166	21	158	0	0	0	0	198	0	20
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	84	166	21	158	0	0	0	0	198	0	20
Added Vol:	0	0	62	4	0	0	0	0	0	34	0	2
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	84	228	25	158	0	0	0	0	232	0	22
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
PHF Volume:	0	108	292	32	202	0	0	0	0	297	0	28
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	108	292	32	202	0	0	0	0	297	0	28
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	108	292	32	202	0	0	0	0	297	0	28
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	0.81	0.90	0.95	1.00	1.00	1.00	1.00	0.93	1.00	0.83
Lanes:	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Final Sat.:	0	1809	1537	1718	1809	0	0	0	0	1769	0	1583
Capacity Analysis Module:												
Vol/Sat:	0.00	0.06	0.19	0.02	0.11	0.00	0.00	0.00	0.00	0.17	0.00	0.02
Crit Moves:		****		****						****		
Green/Cycle:	0.00	0.13	0.83	0.08	0.21	0.00	0.00	0.00	0.00	0.70	0.00	0.70
Volume/Cap:	0.00	0.46	0.23	0.23	0.53	0.00	0.00	0.00	0.00	0.24	0.00	0.03
Uniform Del:	0.0	26.2	1.2	28.0	22.8	0.0	0.0	0.0	0.0	3.5	0.0	3.0
IncremntDel:	0.0	1.4	0.1	0.9	1.5	0.0	0.0	0.0	0.0	0.1	0.0	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Delay/Veh:	0.0	27.6	1.3	28.9	24.3	0.0	0.0	0.0	0.0	3.6	0.0	3.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	27.6	1.3	28.9	24.3	0.0	0.0	0.0	0.0	3.6	0.0	3.0
LOS by Move:	A	C	A	C	C	A	A	A	A	A	A	A
HCM2kAvgQ:	0	65	35	21	108	0	0	0	0	56	0	5

Level Of Service Computation Report
Unknown Method (Future Volume Alternative)

Intersection #2 SR-16 and Central Casino Entrance

Street Name:	SR-16						Central Casino Entrance					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0 0 1 0			0 0 1 0 0			0 0 0 0 0			0 0 0 0 0		
Volume Module:												
Base Vol:	0	249	43	0	358	0	0	0	0	0	0	0
Growth Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Bse:	0	0	0	0	0	0	0	0	0	0	0	0
Added Vol:	0	62	16	0	34	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	0	0	0	0	0	0	0	0	0
User Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Volume:	0	0	0	0	0	0	0	0	0	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PCE Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MLF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FinalVolume:	0	0	0	0	0	0	0	0	0	0	0	0
Critical Gap Module: >> Population:0 << >> Run Speed(N/S): 30 MPH <<												
Critical Gp:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capacity Module:												
Cnflict Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Potent Cap.:	0	0	0	0	0	0	0	0	0	0	0	0
Level Of Service Module:												
LOS by Move:												
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	0	0	0	0	0	0	0	0	0	0	0	0

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #3 SR-16 and South Casino Entrance

Average Delay (sec/veh): 1.2 Worst Case Level Of Service: C[21.4]

Street Name:	SR-16						South Casino Entrance					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 1 0			0 0 1 0 0			0 0 0 0 0			1 0 0 0 1		
Volume Module:												
Base Vol:	0	290	42	0	361	0	0	0	0	39	0	2
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	290	42	0	361	0	0	0	0	39	0	2
Added Vol:	0	78	19	0	34	0	0	0	0	7	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	368	61	0	395	0	0	0	0	46	0	2
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Volume:	0	461	76	0	495	0	0	0	0	58	0	3
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	461	76	0	495	0	0	0	0	58	0	3
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	994	xxxx	499
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	272	xxxx	571
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	272	xxxx	571
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.21	xxxx	0.00
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	19.6	xxxx	0.3
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	21.8	xxxx	11.3
LOS by Move:	*	*	*	*	*	*	*	*	*	C	*	B
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			21.4		
ApproachLOS:	*			*			*			C		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #4 SR-16 and County Rd 85

Average Delay (sec/veh): 0.8 Worst Case Level Of Service: B[14.4]

Street Name:	County Rd 85						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	0 1	0
Volume Module:												
Base Vol:	0	0	0	13	0	18	27	425	0	0	315	5
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	13	0	18	27	425	0	0	315	5
Added Vol:	0	0	0	0	0	2	1	40	0	0	95	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	13	0	20	28	465	0	0	410	5
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
PHF Volume:	0	0	0	14	0	21	29	484	0	0	427	5
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	14	0	21	29	484	0	0	427	5
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	971	971	429	432	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	280	253	626	1112	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	275	246	626	1112	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.05	0.00	0.03	0.03	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	2.0	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	416	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.3	xxxxx	0.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	14.4	xxxxx	8.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	B	*	A	*	*	*	*	*
ApproachDel:	xxxxxx			14.4			xxxxxx			xxxxxx		
ApproachLOS:	*			B			*			*		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #5 SR-16 and County Rd 85B

Average Delay (sec/veh): 1.1 Worst Case Level Of Service: B[10.3]

Street Name:	County Rd 85B						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0	0	0 0 0	0	0	0 0 1	0	1	1 0 1	0	0
Volume Module:												
Base Vol:	66	0	5	0	0	0	0	315	123	5	251	0
Growth Adj:	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00
Initial Bse:	66	0	5	0	0	0	0	315	123	5	251	0
Added Vol:	22	0	0	0	0	0	0	27	13	0	73	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	88	0	5	0	0	0	0	342	136	5	324	0
User Adj:	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00
PHF Adj:	0.93 0.93	0.93	0.93	0.93 0.93	0.93	0.93	0.93 0.93	0.93	0.93	0.93 0.93	0.93	0.93
PHF Volume:	95	0	5	0	0	0	0	369	147	5	350	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	95	0	5	0	0	0	0	369	147	5	350	0
Critical Gap Module:												
Critical Gp:	6.4 6.5		6.2	xxxxx xxxx		xxxxx	xxxxx xxxx		xxxxx	4.1 xxxx		xxxxx
FollowUpTim:	3.5 4.0		3.3	xxxxx xxxx		xxxxx	xxxxx xxxx		xxxxx	2.2 xxxx		xxxxx
Capacity Module:												
Cnflict Vol:	730 730		369	xxxx xxxx		xxxxx	xxxx xxxx		xxxxx	516 xxxx		xxxxx
Potent Cap.:	389 349		676	xxxx xxxx		xxxxx	xxxx xxxx		xxxxx	1034 xxxx		xxxxx
Move Cap.:	388 347		676	xxxx xxxx		xxxxx	xxxx xxxx		xxxxx	1034 xxxx		xxxxx
Volume/Cap:	0.25 0.00		0.01	xxxx xxxx		xxxx	xxxx xxxx		xxxx	0.01 xxxx		xxxx
Level Of Service Module:												
2Way95thQ:	xxxx xxxx		xxxxx	xxxx xxxx		xxxxx	xxxx xxxx		xxxxx	0.4 xxxx		xxxxx
Control Del:	xxxxx xxxx		xxxxx	xxxxx xxxx		xxxxx	xxxxx xxxx		xxxxx	8.5 xxxx		xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx 777		xxxxx	xxxx xxxx		xxxxx	xxxx xxxx		xxxxx	xxxx xxxx		xxxxx
SharedQueue:	xxxxx 0.4		xxxxx	xxxxx xxxx		xxxxx	xxxxx xxxx		xxxxx	xxxxx xxxx		xxxxx
Shrd ConDel:	xxxxx 10.3		xxxxx	xxxxx xxxx		xxxxx	xxxxx xxxx		xxxxx	xxxxx xxxx		xxxxx
Shared LOS:	* B		*	*	*	*	*	*	*	*	*	*
ApproachDel:	10.3			xxxxxx			xxxxxx			xxxxxx		
ApproachLOS:	B			*			*			*		

Note: Queue reported is the distance per lane in feet.

6: Yolo Ave & Woodland Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.3	0.5	0.3	0.1	0.1	0.1	0.4	0.3	3.3	0.1	0.1	0.1
Total Del/Veh (s)	13.5	14.7	6.9	7.3	8.9	5.8	1.3	1.9	0.7	6.3	11.9	5.2

6: Yolo Ave & Woodland Ave Performance by movement

Movement	All
Denied Del/Veh (s)	0.5
Total Del/Veh (s)	4.6

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #7 SR-16 and Capay St

Average Delay (sec/veh): 1.6 Worst Case Level Of Service: C[19.3]

Street Name:	SR-16						Capay St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	32	335	20	9	297	15	5	7	14	12	17	5
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	32	335	20	9	297	15	5	7	14	12	17	5
Added Vol:	0	67	0	0	25	0	0	0	0	0	0	1
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	32	402	20	9	322	15	5	7	14	12	17	6
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	34	429	21	10	344	16	5	7	15	13	18	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	34	429	21	10	344	16	5	7	15	13	18	6
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx	7.1	6.5	6.2	7.1	6.5	6.2
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	3.5	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	360	xxxx	xxxxx	451	xxxx	xxxxx	892	890	352	891	888	440
Potent Cap.:	1182	xxxx	xxxxx	1094	xxxx	xxxxx	263	282	692	263	283	617
Move Cap.:	1182	xxxx	xxxxx	1094	xxxx	xxxxx	240	271	692	245	272	617
Volume/Cap:	0.03	xxxx	xxxx	0.01	xxxx	xxxx	0.02	0.03	0.02	0.05	0.07	0.01
Level Of Service Module:												
2Way95thQ:	2.2	xxxx	xxxxx	0.7	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	8.1	xxxx	xxxxx	8.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	388	xxxxx	xxxx	289	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.2	xxxxx	xxxxx	0.4	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	15.0	xxxxx	xxxxx	19.3	xxxxx
Shared LOS:	*	*	*	*	*	*	*	B	*	*	C	*
ApproachDel:	xxxxxx			xxxxxx			15.0			19.3		
ApproachLOS:	*			*			B			C		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #8 SR-16 and Madison St

Average Delay (sec/veh): 1.1 Worst Case Level Of Service: C[18.6]

Street Name:	SR-16						Madison St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	16	391	5	5	352	16	6	5	9	7	14	5
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	16	391	5	5	352	16	6	5	9	7	14	5
Added Vol:	0	66	0	0	25	0	0	0	0	0	0	1
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	16	457	5	5	377	16	6	5	9	7	14	6
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
PHF Volume:	17	472	5	5	389	17	6	5	9	7	14	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	17	472	5	5	389	17	6	5	9	7	14	6
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx	7.1	6.5	6.2	7.1	6.5	6.2
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	3.5	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	406	xxxx	xxxxx	477	xxxx	xxxxx	926	918	398	923	924	475
Potent Cap.:	1137	xxxx	xxxxx	1069	xxxx	xxxxx	249	271	652	250	269	590
Move Cap.:	1137	xxxx	xxxxx	1069	xxxx	xxxxx	233	266	652	239	264	590
Volume/Cap:	0.01	xxxx	xxxx	0.00	xxxx	xxxx	0.03	0.02	0.01	0.03	0.05	0.01
Level Of Service Module:												
2Way95thQ:	1.1	xxxx	xxxxx	0.4	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	8.2	xxxx	xxxxx	8.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	343	xxxxx	xxxx	292	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.2	xxxxx	xxxxx	0.3	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	16.2	xxxxx	xxxxx	18.6	xxxxx
Shared LOS:	*	*	*	*	*	*	*	C	*	*	C	*
ApproachDel:	xxxxxx			xxxxxx			16.2			18.6		
ApproachLOS:	*			*			C			C		

Note: Queue reported is the distance per lane in feet.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #9 SR-16 and Plainfield St

Average Delay (sec/veh): 2.0 Worst Case Level Of Service: C[22.7]

Street Name:	SR-16						Plainfield St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 1 0	1	0	1 0	0	0	1! 0	0	0	0	1! 0	0
Volume Module:												
Base Vol:	57 383	27	15	341	10	5	6	32	15	9	10	
Growth Adj:	1.00 1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Initial Bse:	57 383	27	15	341	10	5	6	32	15	9	10	
Added Vol:	0 65	0	0	24	0	0	0	0	0	0	1	
PasserByVol:	0 0	0	0	0	0	0	0	0	0	0	0	
Initial Fut:	57 448	27	15	365	10	5	6	32	15	9	11	
User Adj:	1.00 1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PHF Adj:	0.92 0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
PHF Volume:	62 486	29	16	396	11	5	7	35	16	10	12	
Reduct Vol:	0 0	0	0	0	0	0	0	0	0	0	0	
FinalVolume:	62 486	29	16	396	11	5	7	35	16	10	12	
Critical Gap Module:												
Critical Gp:	4.1 xxxx xxxxx		4.1 xxxx xxxxx			7.1	6.5	6.2	7.1	6.5	6.2	
FollowUpTim:	2.2 xxxx xxxxx		2.2 xxxx xxxxx			3.5	4.0	3.3	3.5	4.0	3.3	
Capacity Module:												
Cnflict Vol:	407 xxxx xxxxx		515 xxxx xxxxx			805	1073	401	1079	1063	258	
Potent Cap.:	1136 xxxx xxxxx		1035 xxxx xxxxx			301	220	649	196	223	781	
Move Cap.:	1136 xxxx xxxxx		1035 xxxx xxxxx			270	204	649	171	207	781	
Volume/Cap:	0.05 xxxx xxxx		0.02 xxxx xxxx			0.02	0.03	0.05	0.10	0.05	0.02	
Level Of Service Module:												
2Way95thQ:	4.3 xxxx xxxxx		1.2 xxxx xxxxx			xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	
Control Del:	8.4 xxxx xxxxx		8.5 xxxx xxxxx			xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	
LOS by Move:	A *	*	A	*	*	*	*	*	*	*	*	
Movement:	LT - LTR - RT		LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			
Shared Cap.:	xxxx xxxx xxxxx		xxxx xxxx xxxxx			xxxx	442	xxxxx	xxxx	241	xxxxx	
SharedQueue:	0.2 xxxx xxxxx		xxxxx xxxx xxxxx			xxxxx	0.4	xxxxx	xxxxx	0.5	xxxxx	
Shrd ConDel:	8.4 xxxx xxxxx		xxxxx xxxx xxxxx			xxxxx	14.1	xxxxx	xxxxx	22.7	xxxxx	
Shared LOS:	A *	*	*	*	*	*	B	*	*	C	*	
ApproachDel:	xxxxxx		xxxxxx			14.1			22.7			
ApproachLOS:	*		*			B			C			

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #10 SR-16 and County Road 21A

Cycle (sec):	100	Critical Vol./Cap.(X):	0.787
Loss Time (sec):	0	Average Delay (sec/veh):	19.0
Optimal Cycle:	0	Level Of Service:	C

Street Name:	SR-16						County Road 21A					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Ignore		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	0 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	1 0	1
Volume Module:												
Base Vol:	0	0	0	486	0	9	7	128	0	0	84	595
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	486	0	9	7	128	0	0	84	595
Added Vol:	0	0	0	24	0	0	0	10	0	0	16	65
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	510	0	9	7	138	0	0	100	660
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
PHF Adj:	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.00
PHF Volume:	0	0	0	559	0	10	8	151	0	0	110	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	559	0	10	8	151	0	0	110	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
FinalVolume:	0	0	0	559	0	10	8	151	0	0	110	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	0.98	0.01	0.01	0.05	0.95	0.00	0.00	1.00	1.00
Final Sat.:	0	0	0	710	0	13	28	561	0	0	533	594
Capacity Analysis Module:												
Vol/Sat:	xxxx	xxxx	xxxx	0.79	0.00	0.79	0.27	0.27	xxxx	xxxx	0.21	0.00
Crit Moves:				****			****				****	
Delay/Veh:	0.0	0.0	0.0	23.0	23.0	23.0	10.6	10.6	0.0	0.0	10.4	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	23.0	23.0	23.0	10.6	10.6	0.0	0.0	10.4	0.0
LOS by Move:	*	*	*	C	C	C	B	B	*	*	B	*
ApproachDel:	xxxxxx			23.0			10.6			10.4		
Delay Adj:	xxxxx			1.00			1.00			1.00		
ApprAdjDel:	xxxxxx			23.0			10.6			10.4		
LOS by Appr:	*			C			B			B		
AllWayAvgQ:	0.0	0.0	0.0	75.5	75.5	75.5	7.7	7.7	7.7	0.0	5.4	0.0

Note: Queue reported is the distance per lane in feet.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #11 County Rd 85B and County Rd 21A

Average Delay (sec/veh): 5.6 Worst Case Level Of Service: A[9.3]

Street Name:	County Rd 85B									County Rd 21A								
Approach:	North Bound						South Bound			East Bound					West Bound			
Movement:	L	-	T	-	R		L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled						Uncontrolled			Stop Sign					Stop Sign			
Rights:	Include						Include			Include					Include			
Lanes:	0	0	0	1	0		0	1	0	0	0	0	0	0	0	0	0	0	1!	0	0
Volume Module:																					
Base Vol:	0	26		6			93	34		0		0	0		0		9	0		32	
Growth Adj:	1.00	1.00		1.00			1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
Initial Bse:	0	26		6			93	34		0		0	0		0		9	0		32	
Added Vol:	0	6		0			10	3		0		0	0		0		0	0		16	
PasserByVol:	0	0		0			0	0		0		0	0		0		0	0		0	
Initial Fut:	0	32		6			103	37		0		0	0		0		9	0		48	
User Adj:	1.00	1.00		1.00			1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
PHF Adj:	0.73	0.73		0.73			0.73	0.73		0.73		0.73	0.73		0.73		0.73	0.73		0.73	
PHF Volume:	0	44		8			142	51		0		0	0		0		12	0		66	
Reduct Vol:	0	0		0			0	0		0		0	0		0		0	0		0	
FinalVolume:	0	44		8			142	51		0		0	0		0		12	0		66	
Critical Gap Module:																					
Critical Gp:	xxxxx	xxxx		xxxxx			4.1	xxxx		xxxxx		xxxxx	xxxx		xxxxx		6.4	6.5		6.2	
FollowUpTim:	xxxxx	xxxx		xxxxx			2.2	xxxx		xxxxx		xxxxx	xxxx		xxxxx		3.5	4.0		3.3	
Capacity Module:																					
Cnflict Vol:	xxxx	xxxx		xxxxx			52	xxxx		xxxxx		xxxx	xxxx		xxxxx		383	383		48	
Potent Cap.:	xxxx	xxxx		xxxxx			1553	xxxx		xxxxx		xxxx	xxxx		xxxxx		620	550		1021	
Move Cap.:	xxxx	xxxx		xxxxx			1553	xxxx		xxxxx		xxxx	xxxx		xxxxx		573	496		1021	
Volume/Cap:	xxxx	xxxx		xxxx			0.09	xxxx		xxxx		xxxx	xxxx		xxxx		0.02	0.00		0.06	
Level Of Service Module:																					
2Way95thQ:	xxxx	xxxx		xxxxx			7.5	xxxx		xxxxx		xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx	
Control Del:	xxxxx	xxxx		xxxxx			7.6	xxxx		xxxxx		xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx	
LOS by Move:	*	*		*			A	*		*		*	*		*		*	*		*	
Movement:	LT	-	LTR	-	RT		LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx		xxxxx			xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx		xxxx	908		xxxxx	
SharedQueue:	xxxxx	xxxx		xxxxx			0.3	xxxx		xxxxx		xxxxx	xxxx		xxxxx		xxxxx	0.3		xxxxx	
Shrd ConDel:	xxxxx	xxxx		xxxxx			7.6	xxxx		xxxxx		xxxxx	xxxx		xxxxx		xxxxx	9.3		xxxxx	
Shared LOS:	*	*		*			A	*		*		*	*		*		*	A		*	
ApproachDel:	xxxxxx						xxxxxx					xxxxxx					9.3				
ApproachLOS:	*						*					*					A				

Note: Queue reported is the distance per lane in feet.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #12 Country Villa Estates and County Rd 21A

Average Delay (sec/veh): 0.4 Worst Case Level Of Service: B[10.1]

Street Name:	Country Villa Estates									County Rd 21A								
Approach:	North Bound			South Bound			East Bound			West Bound								
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled								
Rights:	Include			Include			Include			Include								
Lanes:	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1!	0	0
Volume Module:																				
Base Vol:	0	0	0	5	0	0	3	105	0	1	44	12								
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
Initial Bse:	0	0	0	5	0	0	3	105	0	1	44	12								
Added Vol:	0	0	0	0	0	0	0	10	0	0	16	0								
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0								
Initial Fut:	0	0	0	5	0	0	3	115	0	1	60	12								
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
PHF Adj:	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69								
PHF Volume:	0	0	0	7	0	0	4	168	0	1	87	17								
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0								
FinalVolume:	0	0	0	7	0	0	4	168	0	1	87	17								
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	xxxxx	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx								
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	xxxxx	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx								
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx	xxxxx	276	xxxx	xxxxx	105	xxxx	xxxxx	168	xxxx	xxxxx								
Potent Cap.:	xxxx	xxxx	xxxxx	714	xxxx	xxxxx	1486	xxxx	xxxxx	1410	xxxx	xxxxx								
Move Cap.:	xxxx	xxxx	xxxxx	712	xxxx	xxxxx	1486	xxxx	xxxxx	1410	xxxx	xxxxx								
Volume/Cap:	xxxx	xxxx	xxxx	0.01	xxxx	xxxx	0.00	xxxx	xxxx	0.00	xxxx	xxxx								
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	xxxxx	0.8	xxxx	xxxxx	0.2	xxxx	xxxxx	0.1	xxxx	xxxxx								
Control Del:	xxxxx	xxxx	xxxxx	10.1	xxxx	xxxxx	7.4	xxxx	xxxxx	7.6	xxxx	xxxxx								
LOS by Move:	*	*	*	B	*	*	A	*	*	A	*	*								
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx								
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Shared LOS:	*	*	*	*	*	*	A	*	*	*	*	*								
ApproachDel:	xxxxxx			10.1			xxxxxx			xxxxxx										
ApproachLOS:	*			B			*			*										

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #13 Fremont St and County Rd 21A

Average Delay (sec/veh): 1.7 Worst Case Level Of Service: A[10.0]

Street Name:	Fremont St						County Rd 21A					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	0 1	0
Volume Module:												
Base Vol:	0	0	0	20	0	10	17	103	0	0	57	21
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	20	0	10	17	103	0	0	57	21
Added Vol:	0	0	0	0	0	0	0	10	0	0	16	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	20	0	10	17	113	0	0	73	21
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
PHF Volume:	0	0	0	25	0	13	22	143	0	0	92	27
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	25	0	13	22	143	0	0	92	27
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	292	292	106	119	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	699	619	949	1469	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	691	610	949	1469	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.04	0.00	0.01	0.01	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1.1	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	760	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.2	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	10.0	xxxxx	7.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	A	*	A	*	*	*	*	*
ApproachDel:	xxxxxx			10.0			xxxxxx			xxxxxx		
ApproachLOS:	*			A			*			*		

Note: Queue reported is the distance per lane in feet.

DELAY (CONTROL)

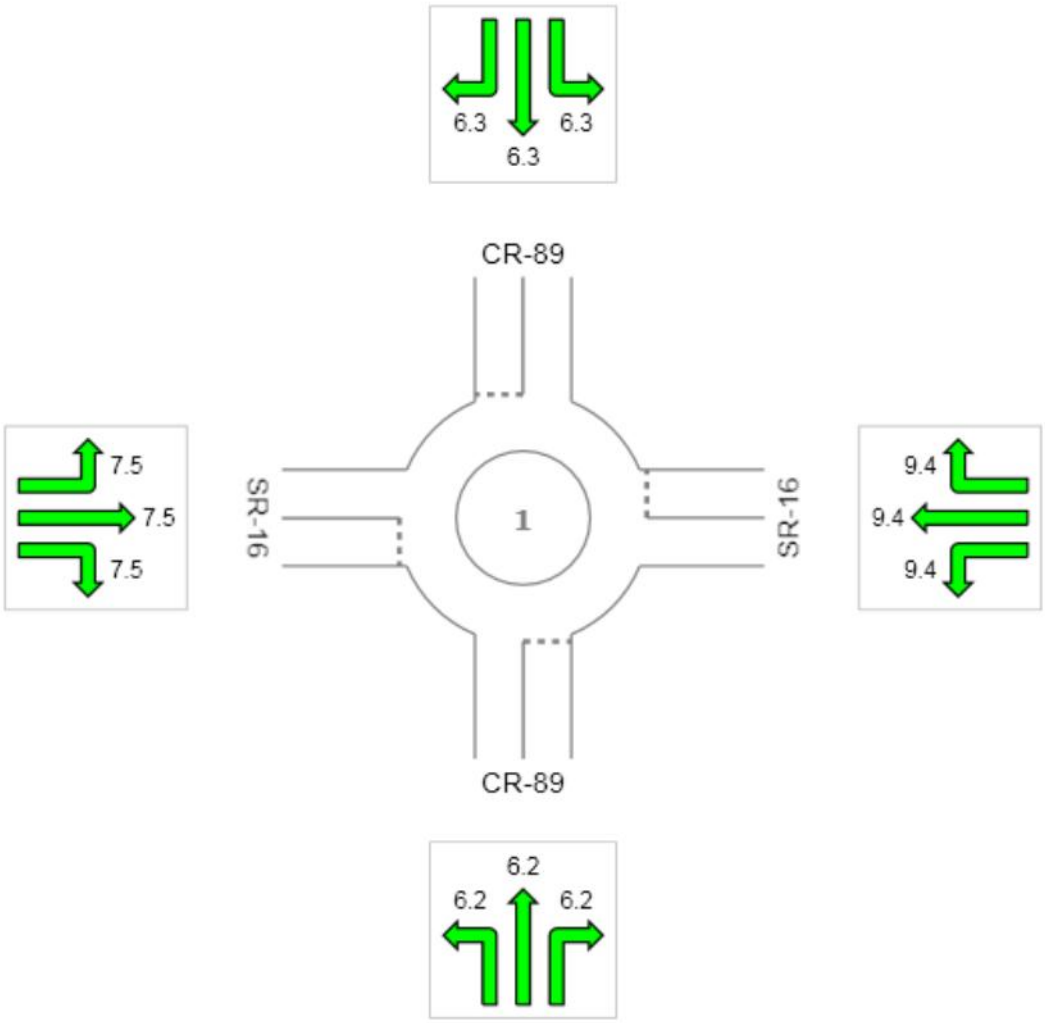
Average control delay per vehicle, or average pedestrian delay (seconds)

Site: SR-16/CR-89

Long-Term Plus Project Fri PM
Roundabout

All Movement Classes

	South	East	North	West	Intersection
Delay (Control)	6.2	9.4	6.3	7.5	8.3
LOS	A	A	A	A	A



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F | Continuous

Level of Service Method: Delay & v/c (HCM 2010)
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Roundabout Level of Service Method: Same as Sign Control
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #15 SR-16 and SB I-505

Average Delay (sec/veh): 0.6 Worst Case Level Of Service: C[22.6]

Street Name:	SB I-505						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0 0	0	0 1	0 0	1	0 0	0 1	0	0 0	1 0	1
Volume Module:												
Base Vol:	0	0	0	7	7	19	0	328	294	0	517	62
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	7	7	19	0	328	294	0	517	62
Added Vol:	0	0	0	0	0	3	0	15	20	0	79	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	7	7	22	0	343	314	0	596	62
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
PHF Volume:	0	0	0	9	9	27	0	422	386	0	733	76
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	9	9	27	0	422	386	0	733	76
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.6	6.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	1348	1541	733	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	164	113	416	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	164	113	416	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.05	0.08	0.07	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	5.2	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	14.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	B	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	134	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	0.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	35.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	E	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			22.6			xxxxxx			xxxxxx		
ApproachLOS:	*			C			*			*		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #16 SR-16 and NB I-505

Cycle (sec):	50	Critical Vol./Cap.(X):	0.669
Loss Time (sec):	6	Average Delay (sec/veh):	11.3
Optimal Cycle:	47	Level Of Service:	B

Street Name:	NB I-505						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Ignore			Include		
Min. Green:	5	5	5	0	0	0	0	5	5	0	5	5
Y+R:	4.1	4.1	4.1	4.0	4.0	4.0	4.0	5.5	5.5	4.0	5.5	5.5
Lanes:	0 1	0	0 1	0	0	0 0	0	0	1 0 1	0	0	1 0 1
Volume Module:												
Base Vol:	198	0	210	0	0	0	0	312	19	0	520	9
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	198	0	210	0	0	0	0	312	19	0	520	9
Added Vol:	47	0	0	0	0	0	0	13	1	0	31	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	245	0	210	0	0	0	0	325	20	0	551	9
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Adj:	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.00	0.84	0.84	0.84
PHF Volume:	292	0	250	0	0	0	0	387	0	0	656	11
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	292	0	250	0	0	0	0	387	0	0	656	11
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
FinalVolume:	292	0	250	0	0	0	0	387	0	0	656	11
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.68	1.00	0.81	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.81
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00
Final Sat.:	1291	0	1537	0	0	0	0	1809	1900	0	1809	1537
Capacity Analysis Module:												
Vol/Sat:	0.23	0.00	0.16	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.36	0.01
Crit Moves:	****										****	
Green/Cycle:	0.34	0.00	0.34	0.00	0.00	0.00	0.00	0.54	0.00	0.00	0.54	0.54
Volume/Cap:	0.67	0.00	0.48	0.00	0.00	0.00	0.00	0.39	0.00	0.00	0.67	0.01
Uniform Del:	14.2	0.0	13.1	0.0	0.0	0.0	0.0	6.7	0.0	0.0	8.2	5.3
IncremntDel:	4.0	0.0	0.7	0.0	0.0	0.0	0.0	0.3	0.0	0.0	1.8	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00
Delay/Veh:	18.1	0.0	13.8	0.0	0.0	0.0	0.0	6.9	0.0	0.0	10.0	5.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	18.1	0.0	13.8	0.0	0.0	0.0	0.0	6.9	0.0	0.0	10.0	5.3
LOS by Move:	B	A	B	A	A	A	A	A	A	A	B	A
HCM2kAvgQ:	132	0	91	0	0	0	0	94	0	0	184	2

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #17 SR-16 and Wild Wings Dr

Average Delay (sec/veh): 1.6 Worst Case Level Of Service: D[30.2]

Street Name:	Wild Wings Dr						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			1 0 0 0 1			1 0 1 0 0			0 0 1 0 1		
Volume Module:												
Base Vol:	0	0	0	54	0	7	15	492	0	0	543	88
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	54	0	7	15	492	0	0	543	88
Added Vol:	0	0	0	0	0	0	0	13	0	0	31	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	54	0	7	15	505	0	0	574	88
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
PHF Volume:	0	0	0	60	0	8	17	565	0	0	642	98
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	60	0	8	17	565	0	0	642	98
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	1240	xxxx	642	740	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	193	xxxx	474	853	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	190	xxxx	474	853	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.32	xxxx	0.02	0.02	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	32.3	xxxx	1.3	1.5	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	32.5	xxxx	12.7	9.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	D	*	B	A	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			30.2			xxxxxx			xxxxxx		
ApproachLOS:	*			D			*			*		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #18 SR-16 and County Rd 94B

Average Delay (sec/veh): 29.7 Worst Case Level Of Service: F[309.3]

Street Name:	County Rd 94B						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0	0	0 0 1!	0	0	0 1	0	0 0	0 0 1!	0	0
Volume Module:												
Base Vol:	99	0	15	10	14	7	8	454	0	98	516	1
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	99	0	15	10	14	7	8	454	0	98	516	1
Added Vol:	0	0	0	0	0	0	0	13	0	0	31	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	99	0	15	10	14	7	8	467	0	98	547	1
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
PHF Volume:	116	0	18	12	16	8	9	549	0	115	643	1
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	116	0	18	12	16	8	9	549	0	115	643	1
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1454	1442	549	1450	1441	643	644	xxxx	xxxxx	549	xxxx	xxxxx
Potent Cap.:	108	132	536	109	132	473	927	xxxx	xxxxx	1006	xxxx	xxxxx
Move Cap.:	85	115	536	95	115	473	927	xxxx	xxxxx	1006	xxxx	xxxxx
Volume/Cap:	1.36	0.00	0.03	0.12	0.14	0.02	0.01	xxxx	xxxx	0.11	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.8	xxxx	xxxxx	9.7	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.9	xxxx	xxxxx	9.0	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	96	xxxxx	xxxx	128	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	9.9	xxxxx	xxxxx	1.1	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	309	xxxxx	xxxxx	43.9	xxxxx	8.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	F	*	*	E	*	A	*	*	*	*	*
ApproachDel:	309.3			43.9			xxxxxx			xxxxxx		
ApproachLOS:	F			E			*			*		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #19 SR-16 and County Rd 95

Average Delay (sec/veh): 0.9 Worst Case Level Of Service: D[25.7]

Street Name:	County Rd 95						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0	0	0 0 0	1	0	0 0 0	1	0	0 1 0	0	0
Volume Module:												
Base Vol:	6	3	22	0	6	2	0	538	2	28	553	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	6	3	22	0	6	2	0	538	2	28	553	0
Added Vol:	1	0	0	0	0	0	0	13	0	0	30	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	7	3	22	0	6	2	0	551	2	28	583	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	8	3	24	0	7	2	0	610	2	31	646	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	8	3	24	0	7	2	0	610	2	31	646	0
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	xxxxx	6.5	6.2	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	4.0	3.3	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1323	1319	611	xxxx	1320	646	xxxx	xxxx	xxxxx	612	xxxx	xxxxx
Potent Cap.:	133	157	494	xxxx	157	472	xxxx	xxxx	xxxxx	952	xxxx	xxxxx
Move Cap.:	125	152	494	xxxx	152	472	xxxx	xxxx	xxxxx	952	xxxx	xxxxx
Volume/Cap:	0.06	0.02	0.05	xxxx	0.04	0.00	xxxx	xxxx	xxxx	0.03	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	2.5	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.9	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	266	xxxxx	xxxx	xxxx	183	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.5	xxxxx	xxxxx	xxxx	0.2	xxxxx	xxxx	xxxxx	0.1	xxxx	xxxxx
Shrd ConDel:	xxxxx	20.6	xxxxx	xxxxx	xxxx	25.7	xxxxx	xxxx	xxxxx	8.9	xxxx	xxxxx
Shared LOS:	*	C	*	*	*	D	*	*	*	A	*	*
ApproachDel:		20.6			25.7			xxxxxx			xxxxxx	
ApproachLOS:		C			D			*			*	

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #20 SR-16 and County Rd 98

Cycle (sec):	80	Critical Vol./Cap.(X):	0.508
Loss Time (sec):	12	Average Delay (sec/veh):	25.9
Optimal Cycle:	80	Level Of Service:	C

Street Name:	County Rd 98						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	5	5	5	5	6	6	5	5	5
Y+R:	4.0	6.0	6.0	4.0	6.0	6.0	4.0	5.3	5.3	4.0	5.3	5.3
Lanes:	1 0	0	1 0	1 0	1	0 1	1 0	1	0	1 0	1	0 1
Volume Module:												
Base Vol:	100	127	80	67	188	108	166	279	133	67	260	62
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	100	127	80	67	188	108	166	279	133	67	260	62
Added Vol:	2	0	0	0	0	21	9	3	1	0	7	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	102	127	80	67	188	129	175	282	134	67	267	62
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	109	135	85	71	200	137	186	300	143	71	284	66
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	109	135	85	71	200	137	186	300	143	71	284	66
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	109	135	85	71	200	137	186	300	143	71	284	66
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.92	0.92	0.93	0.98	0.83	0.90	0.86	0.86	0.90	0.95	0.81
Lanes:	1.00	0.61	0.39	1.00	1.00	1.00	1.00	1.36	0.64	1.00	1.00	1.00
Final Sat.:	1769	1076	678	1769	1862	1583	1718	2218	1054	1718	1809	1537
Capacity Analysis Module:												
Vol/Sat:	0.06	0.13	0.13	0.04	0.11	0.09	0.11	0.14	0.14	0.04	0.16	0.04
Crit Moves:		****		****			****				****	
Green/Cycle:	0.12	0.25	0.25	0.08	0.21	0.21	0.21	0.36	0.36	0.17	0.31	0.31
Volume/Cap:	0.51	0.51	0.51	0.51	0.52	0.42	0.51	0.38	0.38	0.25	0.51	0.14
Uniform Del:	33.0	25.9	25.9	35.3	28.2	27.6	27.7	19.1	19.1	29.1	22.6	19.9
IncremntDel:	2.1	1.0	1.0	3.0	1.3	0.9	1.2	0.2	0.2	0.5	0.8	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	35.1	26.9	26.9	38.4	29.5	28.4	28.9	19.3	19.3	29.6	23.4	20.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	35.1	26.9	26.9	38.4	29.5	28.4	28.9	19.3	19.3	29.6	23.4	20.1
LOS by Move:	D	C	C	D	C	C	C	B	B	C	C	C
HCM2kAvgQ:	81	130	130	43	108	72	100	103	103	43	154	30

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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #21 SR-16 and W. Kentucky Ave

Cycle (sec):	80	Critical Vol./Cap.(X):	0.457
Loss Time (sec):	12	Average Delay (sec/veh):	20.0
Optimal Cycle:	80	Level Of Service:	C

Street Name:	SR-16						W. Kentucky Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	5	5	5	5	5	5	5	5	5
Y+R:	4.0	6.0	6.0	4.0	6.0	6.0	4.0	5.3	5.3	4.0	5.3	5.3
Lanes:	1 0	0	1 0	1 0	0	1 0	1 0	0	1 0	1 0	0	1 0
Volume Module:												
Base Vol:	20	225	120	17	175	35	24	38	7	106	64	28
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	20	225	120	17	175	35	24	38	7	106	64	28
Added Vol:	0	9	0	0	20	0	0	0	0	1	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	20	234	120	17	195	35	24	38	7	107	64	28
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
PHF Volume:	26	302	155	22	252	45	31	49	9	138	83	36
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	26	302	155	22	252	45	31	49	9	138	83	36
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	26	302	155	22	252	45	31	49	9	138	83	36
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.90	0.90	0.90	0.90	0.93	0.93	0.93	0.96	0.96	0.93	0.93	0.93
Lanes:	1.00	0.66	0.34	1.00	0.85	0.15	1.00	0.84	0.16	1.00	0.70	0.30
Final Sat.:	1718	1135	582	1718	1498	269	1769	1536	283	1769	1236	541
Capacity Analysis Module:												
Vol/Sat:	0.02	0.27	0.27	0.01	0.17	0.17	0.02	0.03	0.03	0.08	0.07	0.07
Crit Moves:		****		****				****		****		
Green/Cycle:	0.17	0.56	0.56	0.06	0.45	0.45	0.11	0.07	0.07	0.16	0.12	0.12
Volume/Cap:	0.09	0.48	0.48	0.20	0.37	0.37	0.16	0.48	0.48	0.48	0.56	0.56
Uniform Del:	28.1	10.7	10.7	35.6	14.5	14.5	32.2	36.0	36.0	30.4	33.3	33.3
IncremntDel:	0.1	0.4	0.4	0.9	0.3	0.3	0.4	2.9	2.9	1.2	3.4	3.4
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	28.2	11.1	11.1	36.6	14.7	14.7	32.5	38.9	38.9	31.6	36.7	36.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	28.2	11.1	11.1	36.6	14.7	14.7	32.5	38.9	38.9	31.6	36.7	36.7
LOS by Move:	C	B	B	D	B	B	C	D	D	C	D	D
HCM2kAvgQ:	13	165	165	18	123	123	20	52	52	91	91	91

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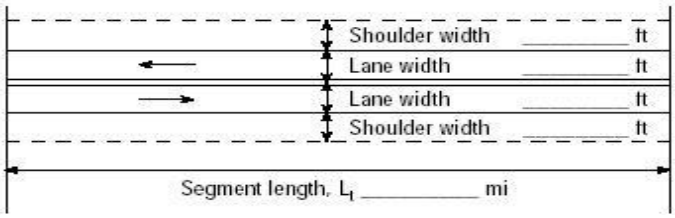
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*CCCR to County Road 85*
Date Performed	*5/27/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☐ Level ☑ Rolling

Analysis direction vol., V_d	*429*veh/h	Grade Length	mi Up/down
Opposing direction vol., V_o	*493*veh/h	Peak-hour factor, PHF	*0.88*
Shoulder width ft	*2.0*	No-passing zone	*75%*
Lane Width ft	*12.0*	% Trucks and Buses , P_T	*5 %*
Segment Length mi	*6.7*	% Recreational vehicles, P_R	*4%*
		Access points *mi*	*3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*2.0*	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.1*	*1.1*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.949*	*0.958*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*0.94*	*0.96*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*546*	*609*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.2 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*51.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*40.4 mi/h*
		Percent free flow speed, PFFS	*78.4 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.6*	*1.4*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.971*	*0.980*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*0.95*	*0.97*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*529*	*589*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*53.4*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*34.3*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*69.6*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.32*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1586*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1633*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*78.4*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*487.5*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.21*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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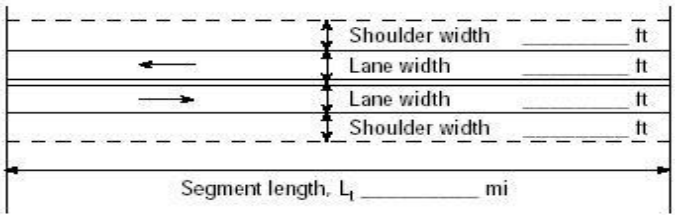
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*CCCR to County Road 85*
Date Performed	*5/27/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *493*veh/h
Opposing direction vol., V_o *429*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *6.7*

☑ Class I highway ☐ Class II highway ☐ Class III highway
Terrain ☐ Level ☑ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.88*
No-passing zone *75%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.8*	*2.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.1*	*1.1*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.958*	*0.949*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*0.96*	*0.94*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*609*	*546*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.5 mi/h*	Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*51.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*40.1 mi/h*
		Percent free flow speed, PFFS	*77.8 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.4*	*1.6*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.980*	*0.971*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*0.97*	*0.95*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*589*	*529*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*56.9*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*34.3*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*75.0*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.36*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1563*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1616*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*77.8*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*560.2*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.28*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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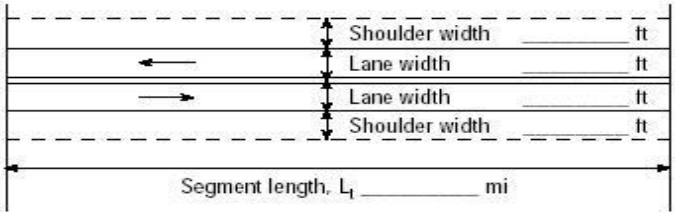
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*County Road 85 to Esparto Town*
Date Performed	*5/27/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *415*veh/h
Opposing direction vol., V_o *478*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *1.4*

☐ Class I highway ☑ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.95*
No-passing zone *85%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *5*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.3*	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.985*	*0.990*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*443*	*508*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.3 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.2 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*42.1 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*32.5 mi/h*
		Percent free flow speed, PFFS	*77.2 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*439*	*503*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*47.9*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*39.7*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*66.4*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*C*
Volume to capacity ratio, *v/c*	*0.26*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1683*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*77.2*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*436.8*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.15*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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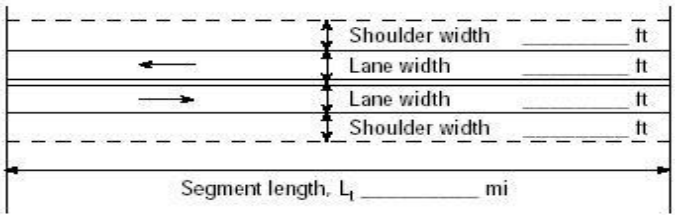
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*County Road 85 to Esparto Town*
Date Performed	*5/27/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *478*veh/h
Opposing direction vol., V_o *415*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *1.4*

☐ Class I highway ☑ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.95*
No-passing zone *85%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *5*/mi

Show North Arrow

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.2*	*1.3*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.990*	*0.985*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*508*	*443*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, v		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.3 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.5 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*42.1 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*32.2 mi/h*
		Percent free flow speed, PFFS	*76.5 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*503*	*439*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*50.5*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*39.7*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*71.7*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.30*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*76.5*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*503.2*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.23*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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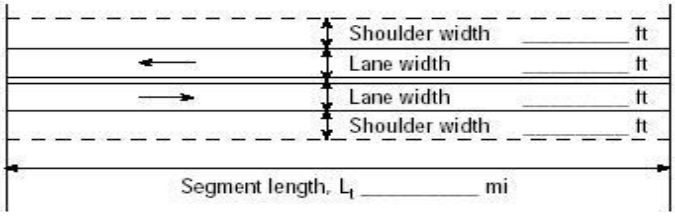
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*through Esparto Town*
Date Performed	*5/27/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Analysis direction vol., V_d	*667*veh/h	Grade Length	mi Up/down
Opposing direction vol., V_o	*519*veh/h	Peak-hour factor, PHF	*0.93*
Shoulder width ft	*2.0*	No-passing zone	*95%*
Lane Width ft	*12.0*	% Trucks and Buses , P_T	*5 %*
Segment Length mi	*1.2*	% Recreational vehicles, P_R	*4%*
		Access points *mi*	*14*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.990*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*721*	*564*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*3.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.3 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*38.9 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*26.6 mi/h*
		Percent free flow speed, PFFS	*68.5 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*717*	*558*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*63.8*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*30.7*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*81.1*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.42*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*68.5*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*717.2*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.41*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
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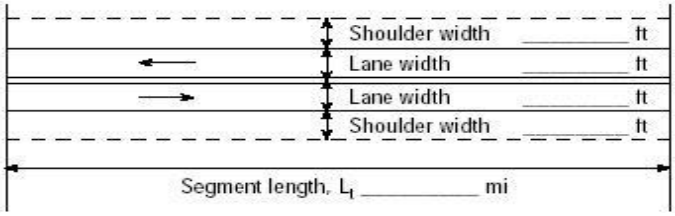
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*through Esparto Town*
Date Performed	*5/27/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Analysis direction vol., V_d	*519*veh/h	Grade Length	mi Up/down
Opposing direction vol., V_o	*667*veh/h	Peak-hour factor, PHF	*0.93*
Shoulder width ft	*2.0*	No-passing zone	*95%*
Lane Width ft	*12.0*	% Trucks and Buses , P_T	*5 %*
Segment Length mi	*1.2*	% Recreational vehicles, P_R	*4%*
		Access points *mi*	*14*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.2*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.990*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*564*	*721*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*3.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.6 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*38.9 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*27.3 mi/h*
		Percent free flow speed, PFFS	*70.3 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*558*	*717*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*57.4*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*30.7*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*70.8*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.33*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*70.3*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*558.1*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.28*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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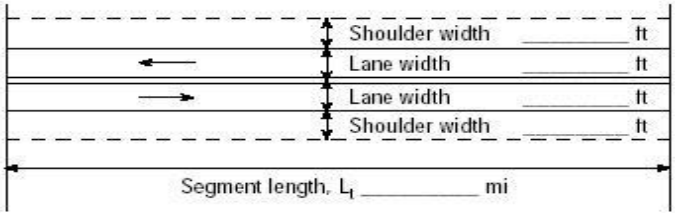
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*Esparto Town to County Rd 89*
Date Performed	*5/27/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *760*veh/h

Opposing direction vol., V_o *648*veh/h

Shoulder width ft *4.0*

Lane Width ft *12.0*

Segment Length mi *2.7*

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.86*

No-passing zone *80%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*888*	*757*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.7 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*38.4 mi/h*
		Percent free flow speed, PFFS	*72.7 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*884*	*753*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*71.9*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*23.3*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*84.5*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.52*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*72.7*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*883.7*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.21*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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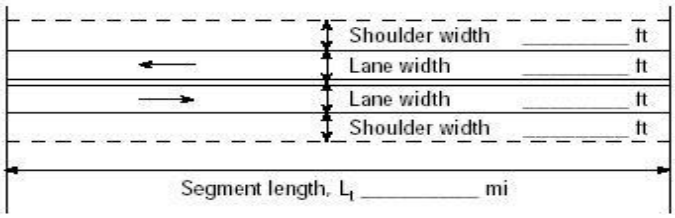
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*Esparto Town to County Rd 89*
Date Performed	*5/27/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *648*veh/h
Opposing direction vol., V_o *760*veh/h
Shoulder width ft *4.0*
Lane Width ft *12.0*
Segment Length mi *2.7*

Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.86*
No-passing zone *80%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*757*	*888*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.1 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*39.1 mi/h*
		Percent free flow speed, PFFS	*73.9 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*753*	*884*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*68.5*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*23.3*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*79.2*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.45*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1700*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*73.9*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*753.5*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.13*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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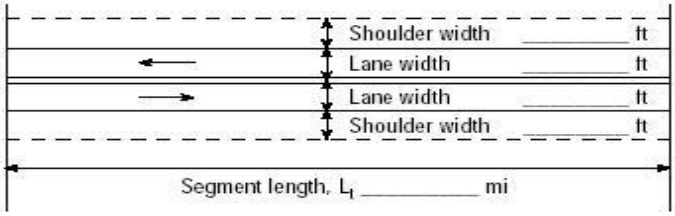
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*County Rd 89 to I-505*
Date Performed	*5/27/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *618*veh/h

Opposing direction vol., V_o *657*veh/h

Shoulder width ft *4.0*

Lane Width ft *12.0*

Segment Length mi *0.8*

Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.81*

No-passing zone *100*%

% Trucks and Buses , P_T *5* %

% Recreational vehicles, P_R *4*%

Access points *mi* *4*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*767*	*815*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*1.0 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.8 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.7 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*38.6 mi/h*
		Percent free flow speed, PFFS	*73.3* %

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*763*	*811*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*67.8*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*25.6*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*80.2*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.45*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*73.3*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*763.0*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.14*
Bicycle level of service (Exhibit 15-4)	*E*
Notes	
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain. 2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10. 6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.	

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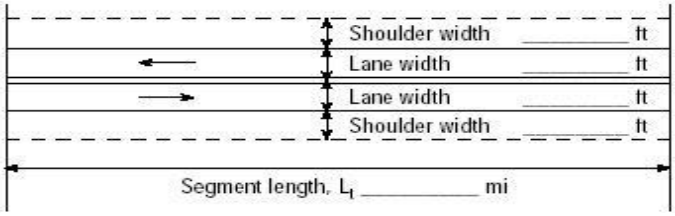
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*County Rd 89 to I-505*
Date Performed	*5/27/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *657*veh/h

Opposing direction vol., V_o *618*veh/h

Shoulder width ft *4.0*

Lane Width ft *12.0*

Segment Length mi *0.8*

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.81*

No-passing zone *100*%

% Trucks and Buses , P_T *5* %

% Recreational vehicles, P_R *4*%

Access points *mi* *4*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*815*	*767*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*1.0 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.9 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.7 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*38.5 mi/h*
		Percent free flow speed, PFFS	*73.1* %

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*811*	*763*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*69.7*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*25.6*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*82.9*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.48*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*73.1*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*811.1*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.17*
Bicycle level of service (Exhibit 15-4)	*E*
Notes	
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain. 2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10. 6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.	

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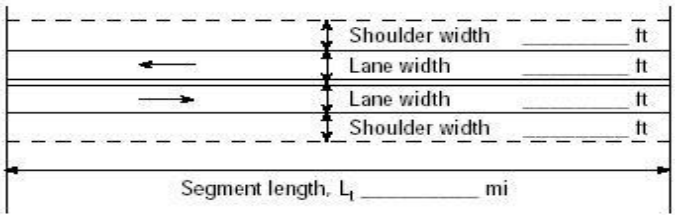
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*I-505 to County Rd 98*
Date Performed	*5/27/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *560*veh/h

Opposing direction vol., V_o *591*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *8.3*

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.89*

No-passing zone *100*%

% Trucks and Buses , P_T *5* %

% Recreational vehicles, P_R *4*%

Access points *mi* *35*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*632*	*667*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*8.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.9 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*43.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*31.6 mi/h*
		Percent free flow speed, PFFS	*72.5 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*629*	*664*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*60.6*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*31.5*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*75.9*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.37*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*72.5*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*629.2*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.34*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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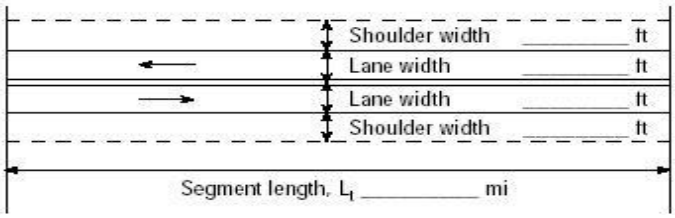
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*I-505 to County Rd 98*
Date Performed	*5/27/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.89*

No-passing zone *100%*

Analysis direction vol., V_d *591*veh/h

Opposing direction vol., V_o *560*veh/h

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Shoulder width ft *2.0*

Lane Width ft *12.0*

Access points *mi* *35*/mi

Segment Length mi *8.3*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*667*	*632*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*8.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.5 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*43.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*31.0 mi/h*
		Percent free flow speed, PFFS	*71.1 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*664*	*629*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*62.0*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*31.5*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*78.2*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.39*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*71.1*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*664.0*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.37*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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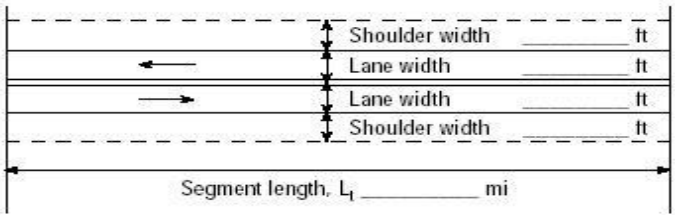
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 21A (WB)*
Agency or Company	*Yolo County*	From/To	*County Rd 85 to SR-16*
Date Performed	*5/27/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *109*veh/h

Opposing direction vol., V_o *145*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *1.2*

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.82*

No-passing zone *25%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* 7/mi

Show North Arrow

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.7*	*1.9*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.966*	*0.957*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*138*	*185*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=$S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*0.6 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*40.6 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*37.5 mi/h*
		Percent free flow speed, PFFS	*92.3 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*134*	*178*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*15.2*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*37.0*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*31.1*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*A*
Volume to capacity ratio, *v/c*	*0.08*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1651*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*92.3*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*132.9*
Effective width, Wv (Eq. 15-29) ft	*20.37*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.46*
Bicycle level of service (Exhibit 15-4)	*C*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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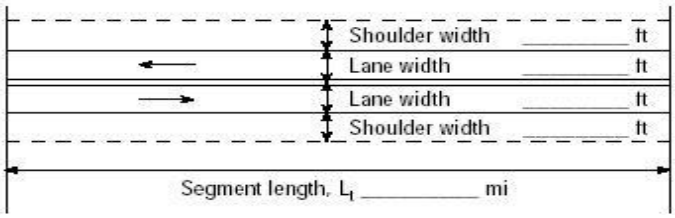
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 21A (EB)*
Agency or Company	*Yolo County*	From/To	*County Rd 85 to SR-16*
Date Performed	*5/27/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *145*veh/h

Opposing direction vol., V_o *109*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *1.2*

Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.82*

No-passing zone *25%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* 7/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.7*	*1.9*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.966*	*0.957*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*183*	*139*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*0.3 mi/h*	Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*40.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*37.8 mi/h*
		Percent free flow speed, PFFS	*93.1 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*178*	*134*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*19.5*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*37.0*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*40.6*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*B*
Volume to capacity ratio, *v/c*	*0.10*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*93.1*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*176.8*
Effective width, Wv (Eq. 15-29) ft	*17.85*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.08*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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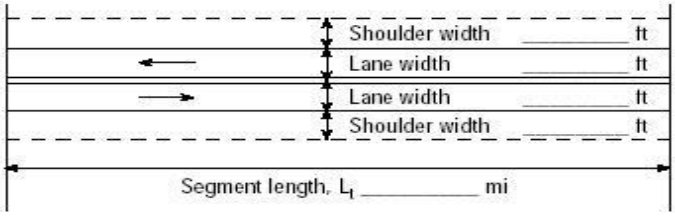
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 85B (NB)*
Agency or Company	*Yolo County*	From/To	*SR-16 to County Rd 21A*
Date Performed	*5/27/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *94*veh/h
Opposing direction vol., V_o *141*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *0.9*

Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.83*
No-passing zone *80%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *6*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.9*	*1.7*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.957*	*0.966*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*118*	*176*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.8 mi/h*	Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*40.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*35.8 mi/h*
		Percent free flow speed, PFFS	*87.6 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*114*	*171*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*13.1*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*53.4*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*34.5*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*A*
Volume to capacity ratio, *v/c*	*0.07*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1651*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*87.6*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*113.3*
Effective width, Wv (Eq. 15-29) ft	*21.42*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.16*
Bicycle level of service (Exhibit 15-4)	*C*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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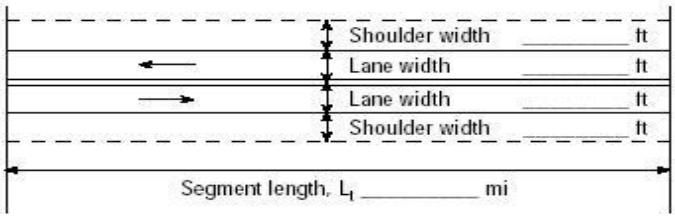
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 85B (SB)*
Agency or Company	*Yolo County*	From/To	*SR-16 to County Rd 21A*
Date Performed	*5/27/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *141*veh/h
Opposing direction vol., V_o *94*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *0.9*

Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.83*
No-passing zone *80%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *6*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.7*	*1.9*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.966*	*0.957*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*176*	*118*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*1.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.2 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*40.9 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*36.4 mi/h*
		Percent free flow speed, PFFS	*89.0 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*171*	*114*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*18.8*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*53.4*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*50.8*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*B*
Volume to capacity ratio, *v/c*	*0.10*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*89.0*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*169.9*
Effective width, Wv (Eq. 15-29) ft	*18.13*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.01*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 SR-16 and North Casino Entrance

Cycle (sec):	65	Critical Vol./Cap.(X):	0.270
Loss Time (sec):	6	Average Delay (sec/veh):	8.4
Optimal Cycle:	62	Level Of Service:	A

Street Name:	SR-16						North Casino Entrance					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ovl			Include			Include			Include		
Min. Green:	0	8	8	5	8	0	0	0	0	5	5	5
Y+R:	4.0	5.5	5.5	4.0	5.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	1 0	1	1 0	1 0	0	0 0	0 0	0 0	1 0	0 0	1
Volume Module:												
Base Vol:	0	73	305	19	158	0	0	0	0	269	0	9
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	73	305	19	158	0	0	0	0	269	0	9
Added Vol:	0	0	69	5	0	0	0	0	0	38	0	2
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	73	374	24	158	0	0	0	0	307	0	11
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
PHF Volume:	0	78	402	26	170	0	0	0	0	330	0	12
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	78	402	26	170	0	0	0	0	330	0	12
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	78	402	26	170	0	0	0	0	330	0	12
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	0.81	0.90	0.95	1.00	1.00	1.00	1.00	0.93	1.00	0.83
Lanes:	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Final Sat.:	0	1809	1537	1718	1809	0	0	0	0	1769	0	1583
Capacity Analysis Module:												
Vol/Sat:	0.00	0.04	0.26	0.02	0.09	0.00	0.00	0.00	0.00	0.19	0.00	0.01
Crit Moves:		****		****						****		
Green/Cycle:	0.00	0.13	0.83	0.08	0.21	0.00	0.00	0.00	0.00	0.70	0.00	0.70
Volume/Cap:	0.00	0.33	0.32	0.19	0.45	0.00	0.00	0.00	0.00	0.27	0.00	0.01
Uniform Del:	0.0	25.7	1.3	27.9	22.4	0.0	0.0	0.0	0.0	3.6	0.0	2.9
IncremntDel:	0.0	0.8	0.1	0.7	0.8	0.0	0.0	0.0	0.0	0.1	0.0	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Delay/Veh:	0.0	26.6	1.4	28.6	23.2	0.0	0.0	0.0	0.0	3.7	0.0	3.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	26.6	1.4	28.6	23.2	0.0	0.0	0.0	0.0	3.7	0.0	3.0
LOS by Move:	A	C	A	C	C	A	A	A	A	A	A	A
HCM2kAvgQ:	0	44	53	17	87	0	0	0	0	64	0	2

Level Of Service Computation Report
Unknown Method (Future Volume Alternative)

Intersection #2 SR-16 and Central Casino Entrance

Street Name:	SR-16						Central Casino Entrance					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0 0 1 0			0 0 1 0 0			0 0 0 0 0			0 0 0 0 0		
Volume Module:												
Base Vol:	0	404	89	0	457	0	0	0	0	0	0	0
Growth Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Bse:	0	0	0	0	0	0	0	0	0	0	0	0
Added Vol:	0	69	17	0	38	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	0	0	0	0	0	0	0	0	0
User Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Volume:	0	0	0	0	0	0	0	0	0	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PCE Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MLF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FinalVolume:	0	0	0	0	0	0	0	0	0	0	0	0
Critical Gap Module: >> Population:0 << >> Run Speed(N/S): 30 MPH <<												
Critical Gp:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capacity Module:												
Cnflict Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Potent Cap.:	0	0	0	0	0	0	0	0	0	0	0	0
Level Of Service Module:												
LOS by Move:												
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	0	0	0	0	0	0	0	0	0	0	0	0

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #3 SR-16 and South Casino Entrance

Average Delay (sec/veh): 2.5 Worst Case Level Of Service: E[35.5]

Street Name:	SR-16						South Casino Entrance					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 1 0			0 0 1 0 0			0 0 0 0 0			1 0 0 0 1		
Volume Module:												
Base Vol:	0	504	109	0	437	0	0	0	0	81	0	1
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	504	109	0	437	0	0	0	0	81	0	1
Added Vol:	0	87	22	0	38	0	0	0	0	8	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	591	131	0	475	0	0	0	0	89	0	1
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	621	138	0	499	0	0	0	0	93	0	1
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	621	138	0	499	0	0	0	0	93	0	1
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1189	xxxx	690
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	208	xxxx	445
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	208	xxxx	445
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.45	xxxx	0.00
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	53.4	xxxx	0.2
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	35.8	xxxx	13.1
LOS by Move:	*	*	*	*	*	*	*	*	*	E	*	B
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			35.5		
ApproachLOS:	*			*			*			E		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #4 SR-16 and County Rd 85

Average Delay (sec/veh): 0.6 Worst Case Level Of Service: D[25.3]

Street Name:	County Rd 85						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			0 0 1! 0 0			0 1 0 0 0			0 0 0 1 0		
Volume Module:												
Base Vol:	0	0	0	13	0	10	17	464	0	0	645	5
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	13	0	10	17	464	0	0	645	5
Added Vol:	0	0	0	0	0	2	1	45	0	0	106	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	13	0	12	18	509	0	0	751	5
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
PHF Volume:	0	0	0	14	0	13	20	561	0	0	828	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	14	0	13	20	561	0	0	828	6
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	1432	1432	831	834	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	148	134	370	787	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	145	131	370	787	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.10	0.00	0.04	0.03	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1.9	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	9.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	205	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.5	xxxxx	0.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	25.3	xxxxx	9.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	D	*	A	*	*	*	*	*
ApproachDel:	xxxxxx			25.3			xxxxxx			xxxxxx		
ApproachLOS:	*			D			*			*		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #5 SR-16 and County Rd 85B

Average Delay (sec/veh): 2.9 Worst Case Level Of Service: D[25.2]

Street Name:	County Rd 85B									SR-16								
Approach:	North Bound				South Bound				East Bound				West Bound					
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled					
Rights:	Include				Include				Include				Include					
Lanes:	0	0	1!	0	0	0	0	0	0	0	0	0	1	0	1	1	0	1	0	0
Volume Module:																				
Base Vol:	113	0	5	0	0	0	0	343	121	5	511	0								
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
Initial Bse:	113	0	5	0	0	0	0	343	121	5	511	0								
Added Vol:	25	0	0	0	0	0	0	31	15	0	81	0								
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0								
Initial Fut:	138	0	5	0	0	0	0	374	136	5	592	0								
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92								
PHF Volume:	150	0	5	0	0	0	0	407	148	5	643	0								
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0								
FinalVolume:	150	0	5	0	0	0	0	407	148	5	643	0								
Critical Gap Module:																				
Critical Gp:	6.4	6.5	6.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx								
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx								
Capacity Module:																				
Cnflict Vol:	1061	1061	407	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	554	xxxx	xxxxx								
Potent Cap.:	248	224	644	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1001	xxxx	xxxxx								
Move Cap.:	247	223	644	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1001	xxxx	xxxxx								
Volume/Cap:	0.61	0.00	0.01	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.01	xxxx	xxxx								
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.4	xxxx	xxxxx								
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.6	xxxx	xxxxx								
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*								
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	330	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx								
SharedQueue:	xxxxx	2.4	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Shrd ConDel:	xxxxx	25.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Shared LOS:	*	D	*	*	*	*	*	*	*	*	*	*								
ApproachDel:	25.2			xxxxxx			xxxxxx			xxxxxx										
ApproachLOS:	D			*			*			*										

Note: Queue reported is the distance per lane in feet.

6: Yolo Ave & Woodland Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.2	0.2	0.3	0.2	0.1	0.1	0.6	0.8	3.6	0.1	0.1	0.2
Total Del/Veh (s)	27.7	29.4	14.7	17.7	14.9	2.9	2.3	3.7	1.3	8.1	17.9	15.5

6: Yolo Ave & Woodland Ave Performance by movement

Movement	All
Denied Del/Veh (s)	0.5
Total Del/Veh (s)	8.0

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #7 SR-16 and Capay St

Average Delay (sec/veh): 1.3 Worst Case Level Of Service: D[29.1]

Street Name:	SR-16						Capay St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	42	614	22	9	397	15	5	4	23	6	3	8
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	42	614	22	9	397	15	5	4	23	6	3	8
Added Vol:	0	75	0	0	28	0	0	0	0	0	0	1
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	42	689	22	9	425	15	5	4	23	6	3	9
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
PHF Volume:	48	785	25	10	484	17	6	5	26	7	3	10
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	48	785	25	10	484	17	6	5	26	7	3	10
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx	7.1	6.5	6.2	7.1	6.5	6.2
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	3.5	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	501	xxxx	xxxxx	810	xxxx	xxxxx	1413	1419	493	1421	1415	797
Potent Cap.:	1048	xxxx	xxxxx	803	xxxx	xxxxx	115	137	576	114	137	386
Move Cap.:	1048	xxxx	xxxxx	803	xxxx	xxxxx	105	129	576	101	129	386
Volume/Cap:	0.05	xxxx	xxxx	0.01	xxxx	xxxx	0.05	0.04	0.05	0.07	0.03	0.03
Level Of Service Module:												
2Way95thQ:	3.6	xxxx	xxxxx	1.0	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	8.6	xxxx	xxxxx	9.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	270	xxxxx	xxxx	170	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.5	xxxxx	xxxxx	0.4	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	20.4	xxxxx	xxxxx	29.1	xxxxx
Shared LOS:	*	*	*	*	*	*	*	C	*	*	D	*
ApproachDel:	xxxxxx			xxxxxx			20.4			29.1		
ApproachLOS:	*			*			C			D		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #8 SR-16 and Madison St

Average Delay (sec/veh): 0.9 Worst Case Level Of Service: D[25.5]

Street Name:	SR-16						Madison St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	22	633	5	5	383	16	5	5	14	5	5	5
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	22	633	5	5	383	16	5	5	14	5	5	5
Added Vol:	0	74	0	0	27	0	0	0	0	0	0	1
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	22	707	5	5	410	16	5	5	14	5	5	6
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
PHF Volume:	24	758	5	5	439	17	5	5	15	5	5	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	24	758	5	5	439	17	5	5	15	5	5	6
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx	7.1	6.5	6.2	7.1	6.5	6.2
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	3.5	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	457	xxxx	xxxxx	763	xxxx	xxxxx	1272	1269	448	1277	1275	760
Potent Cap.:	1089	xxxx	xxxxx	836	xxxx	xxxxx	144	168	611	143	167	406
Move Cap.:	1089	xxxx	xxxxx	836	xxxx	xxxxx	136	164	611	133	162	406
Volume/Cap:	0.02	xxxx	xxxx	0.01	xxxx	xxxx	0.04	0.03	0.02	0.04	0.03	0.02
Level Of Service Module:												
2Way95thQ:	1.7	xxxx	xxxxx	0.5	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	8.4	xxxx	xxxxx	9.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	266	xxxxx	xxxx	193	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.3	xxxxx	xxxxx	0.3	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	20.0	xxxxx	xxxxx	25.5	xxxxx
Shared LOS:	*	*	*	*	*	*	*	C	*	*	D	*
ApproachDel:	xxxxxx			xxxxxx			20.0			25.5		
ApproachLOS:	*			*			C			D		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #9 SR-16 and Plainfield St

Average Delay (sec/veh): 2.4 Worst Case Level Of Service: E[37.8]

Street Name:	SR-16						Plainfield St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 1 0 1 0			1 0 0 1 0			0 0 1! 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	38	647	17	20	383	13	6	12	17	15	24	8
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	38	647	17	20	383	13	6	12	17	15	24	8
Added Vol:	0	73	0	0	27	0	0	0	0	0	0	1
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	38	720	17	20	410	13	6	12	17	15	24	9
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
PHF Volume:	39	745	18	21	424	13	6	12	18	16	25	9
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	39	745	18	21	424	13	6	12	18	16	25	9
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx	7.1	6.5	6.2	7.1	6.5	6.2
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	3.5	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	437	xxxx	xxxxx	762	xxxx	xxxxx	935	1313	431	1319	1311	381
Potent Cap.:	1107	xxxx	xxxxx	837	xxxx	xxxxx	246	158	625	134	159	666
Move Cap.:	1107	xxxx	xxxxx	837	xxxx	xxxxx	202	149	625	116	149	666
Volume/Cap:	0.04	xxxx	xxxx	0.02	xxxx	xxxx	0.03	0.08	0.03	0.13	0.17	0.01
Level Of Service Module:												
2Way95thQ:	2.8	xxxx	xxxxx	1.9	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	8.4	xxxx	xxxxx	9.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	254	xxxxx	xxxx	158	xxxxx
SharedQueue:	0.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.5	xxxxx	xxxxx	1.3	xxxxx
Shrd ConDel:	8.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	21.5	xxxxx	xxxxx	37.8	xxxxx
Shared LOS:	A	*	*	*	*	*	*	C	*	*	E	*
ApproachDel:	xxxxxx			xxxxxx			21.5			37.8		
ApproachLOS:	*			*			C			E		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #10 SR-16 and County Road 21A

Cycle (sec):	100	Critical Vol./Cap.(X):	0.921
Loss Time (sec):	0	Average Delay (sec/veh):	29.6
Optimal Cycle:	0	Level Of Service:	D

Street Name:	SR-16						County Road 21A					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Ignore		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	0 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	1 0	1
Volume Module:												
Base Vol:	0	0	0	522	0	8	6	144	0	0	128	920
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	522	0	8	6	144	0	0	128	920
Added Vol:	0	0	0	27	0	0	0	12	0	0	18	73
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	549	0	8	6	156	0	0	146	993
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
PHF Adj:	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.00
PHF Volume:	0	0	0	624	0	9	7	177	0	0	166	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	624	0	9	7	177	0	0	166	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
FinalVolume:	0	0	0	624	0	9	7	177	0	0	166	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	0.99	0.00	0.01	0.04	0.96	0.00	0.00	1.00	1.00
Final Sat.:	0	0	0	678	0	10	21	553	0	0	528	588
Capacity Analysis Module:												
Vol/Sat:	xxxx	xxxx	xxxx	0.92	xxxx	0.92	0.32	0.32	xxxx	xxxx	0.31	0.00
Crit Moves:						****		****			****	
Delay/Veh:	0.0	0.0	0.0	39.3	0.0	39.3	11.8	11.8	0.0	0.0	12.2	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	39.3	0.0	39.3	11.8	11.8	0.0	0.0	12.2	0.0
LOS by Move:	*	*	*	E	*	E	B	B	*	*	B	*
ApproachDel:	xxxxxx			39.3			11.8			12.2		
Delay Adj:	xxxxx			1.00			1.00			1.00		
ApprAdjDel:	xxxxxx			39.3			11.8			12.2		
LOS by Appr:	*			E			B			B		
AllWayAvgQ:	0.0	0.0	0.0	148	148	148.5	10.8	10.8	10.8	0.0	10.5	0.0

Note: Queue reported is the distance per lane in feet.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #11 County Rd 85B and County Rd 21A

Average Delay (sec/veh): 6.1 Worst Case Level Of Service: A[9.2]

Street Name:	County Rd 85B									County Rd 21A								
Approach:	North Bound						South Bound						East Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Uncontrolled						Uncontrolled						Stop Sign					
Rights:	Include						Include						Include					
Lanes:	0	0	0	1	0		0	1	0	0	0		0	0	0	0	0	
Volume Module:																		
Base Vol:	0	35	5				92	28	0				0	0	0			
Growth Adj:	1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00			
Initial Bse:	0	35	5				92	28	0				0	0	0			
Added Vol:	0	7	0				12	3	0				0	0	0			
PasserByVol:	0	0	0				0	0	0				0	0	0			
Initial Fut:	0	42	5				104	31	0				0	0	0			
User Adj:	1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00			
PHF Adj:	0.79	0.79	0.79				0.79	0.79	0.79				0.79	0.79	0.79			
PHF Volume:	0	53	6				132	39	0				0	0	0			
Reduct Vol:	0	0	0				0	0	0				0	0	0			
FinalVolume:	0	53	6				132	39	0				0	0	0			
Critical Gap Module:																		
Critical Gp:	xxxxx	xxxx	xxxxx				4.1	xxxx	xxxxx				xxxx	xxxxx				
FollowUpTim:	xxxxx	xxxx	xxxxx				2.2	xxxx	xxxxx				xxxx	xxxxx				
Capacity Module:																		
Cnflict Vol:	xxxx	xxxx	xxxxx				60	xxxx	xxxxx				xxxx	xxxx	xxxxx			
Potent Cap.:	xxxx	xxxx	xxxxx				1544	xxxx	xxxxx				xxxx	xxxx	xxxxx			
Move Cap.:	xxxx	xxxx	xxxxx				1544	xxxx	xxxxx				xxxx	xxxx	xxxxx			
Volume/Cap:	xxxx	xxxx	xxxx				0.09	xxxx	xxxx				xxxx	xxxx	xxxx			
Level Of Service Module:																		
2Way95thQ:	xxxx	xxxx	xxxxx				7.0	xxxx	xxxxx				xxxx	xxxx	xxxxx			
Control Del:	xxxxx	xxxx	xxxxx				7.6	xxxx	xxxxx				xxxxx	xxxx	xxxxx			
LOS by Move:	*	*	*				A	*	*				*	*	*			
Movement:	LT	-	LTR	-	RT		LT	-	LTR	-	RT		LT	-	LTR	-	RT	
Shared Cap.:	xxxx	xxxx	xxxxx				xxxx	xxxx	xxxxx				xxxx	xxxx	xxxxx			
SharedQueue:	xxxxx	xxxx	xxxxx				0.3	xxxx	xxxxx				xxxxx	xxxx	xxxxx			
Shrd ConDel:	xxxxx	xxxx	xxxxx				7.6	xxxx	xxxxx				xxxxx	xxxx	xxxxx			
Shared LOS:	*	*	*				A	*	*				*	*	*			
ApproachDel:	xxxxxx						xxxxxx						xxxxxx					
ApproachLOS:	*						*						*					

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #12 Country Villa Estates and County Rd 21A

Average Delay (sec/veh): 0.2 Worst Case Level Of Service: B[10.2]

Street Name:	Country Villa Estates									County Rd 21A								
Approach:	North Bound			South Bound			East Bound			West Bound								
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled								
Rights:	Include			Include			Include			Include								
Lanes:	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1!	0	0
Volume Module:																				
Base Vol:	0	0	0	3	0	0	1	113	0	1	84	9								
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
Initial Bse:	0	0	0	3	0	0	1	113	0	1	84	9								
Added Vol:	0	0	0	0	0	0	0	12	0	0	18	0								
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0								
Initial Fut:	0	0	0	3	0	0	1	125	0	1	102	9								
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
PHF Adj:	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79								
PHF Volume:	0	0	0	4	0	0	1	158	0	1	129	11								
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0								
FinalVolume:	0	0	0	4	0	0	1	158	0	1	129	11								
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	xxxxx	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx								
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	xxxxx	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx								
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx	xxxxx	298	xxxx	xxxxx	141	xxxx	xxxxx	158	xxxx	xxxxx								
Potent Cap.:	xxxx	xxxx	xxxxx	693	xxxx	xxxxx	1442	xxxx	xxxxx	1421	xxxx	xxxxx								
Move Cap.:	xxxx	xxxx	xxxxx	692	xxxx	xxxxx	1442	xxxx	xxxxx	1421	xxxx	xxxxx								
Volume/Cap:	xxxx	xxxx	xxxx	0.01	xxxx	xxxx	0.00	xxxx	xxxx	0.00	xxxx	xxxx								
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	xxxxx	0.4	xxxx	xxxxx	0.1	xxxx	xxxxx	0.1	xxxx	xxxxx								
Control Del:	xxxxx	xxxx	xxxxx	10.2	xxxx	xxxxx	7.5	xxxx	xxxxx	7.5	xxxx	xxxxx								
LOS by Move:	*	*	*	B	*	*	A	*	*	A	*	*								
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx	xxxxx				xxxx	xxxx	xxxxx				xxxx	xxxx	xxxxx					
SharedQueue:	xxxxx	xxxx	xxxxx				xxxxx	xxxx	xxxxx				0.0	xxxx	xxxxx					
Shrd ConDel:	xxxxx	xxxx	xxxxx				xxxxx	xxxx	xxxxx				7.5	xxxx	xxxxx					
Shared LOS:	*	*	*				*	*	*				A	*	*					
ApproachDel:	xxxxxx						10.2						xxxxxx							
ApproachLOS:	*						B						*							

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #13 Fremont St and County Rd 21A

Average Delay (sec/veh): 1.0 Worst Case Level Of Service: B[10.3]

Street Name:	Fremont St						County Rd 21A					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0 0		0 0 1!	0 0		0 1 0	0 0		0 0 0	1 0	
Volume Module:												
Base Vol:	0	0	0	14	0	8	10	114	0	0	94	25
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	14	0	8	10	114	0	0	94	25
Added Vol:	0	0	0	0	0	0	0	12	0	0	18	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	14	0	8	10	126	0	0	112	25
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
PHF Volume:	0	0	0	19	0	11	13	167	0	0	149	33
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	19	0	11	13	167	0	0	149	33
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	359	359	165	182	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	639	567	879	1393	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	635	562	879	1393	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.03	0.00	0.01	0.01	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.7	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.6	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	706	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.1	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	10.3	xxxxx	7.6	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	B	*	A	*	*	*	*	*
ApproachDel:	xxxxxx			10.3			xxxxxx			xxxxxx		
ApproachLOS:	*			B			*			*		

Note: Queue reported is the distance per lane in feet.

DELAY (CONTROL)

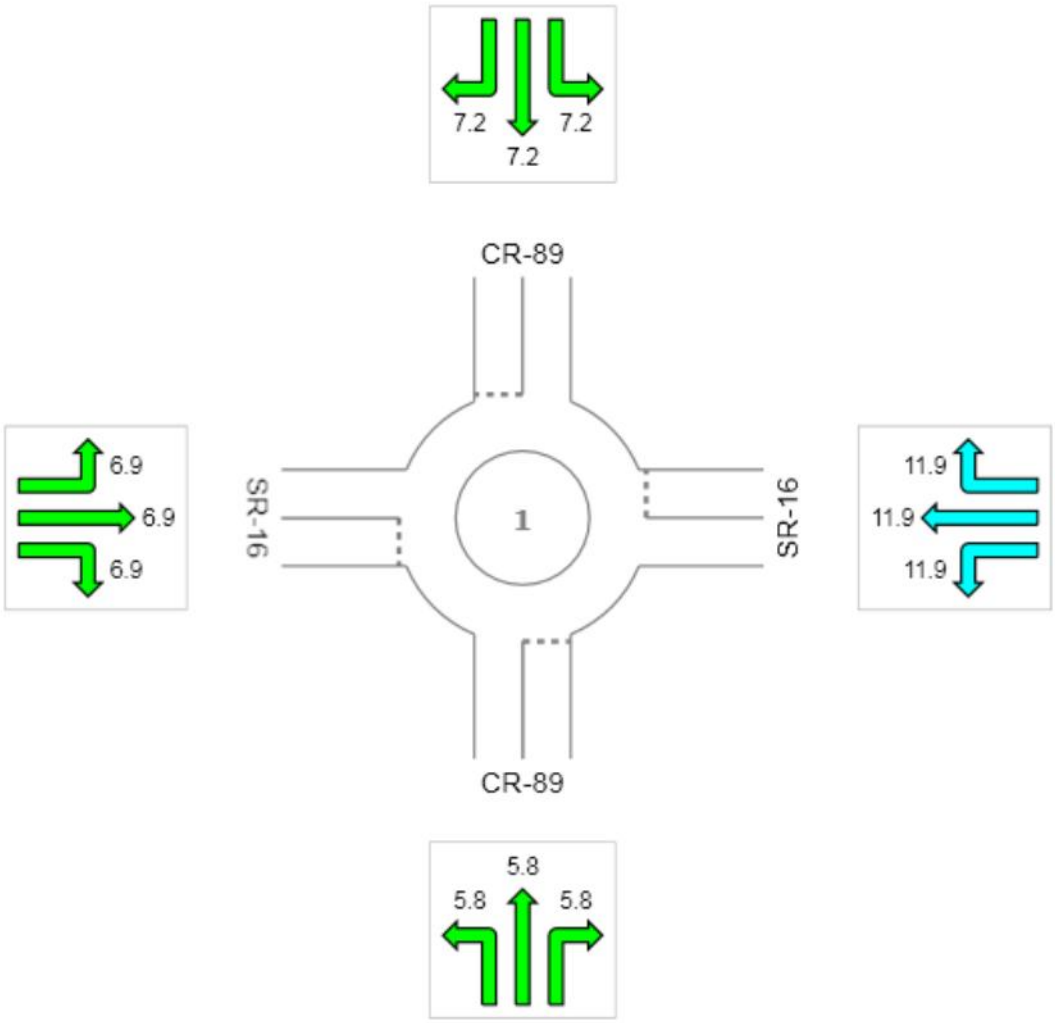
Average control delay per vehicle, or average pedestrian delay (seconds)

Site: SR-16/CR-89

Long-Term Plus Project Sat PM
Roundabout

All Movement Classes

	South	East	North	West	Intersection
Delay (Control)	5.8	11.9	7.2	6.9	9.7
LOS	A	B	A	A	A



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F | Continuous

Level of Service Method: Delay & v/c (HCM 2010)
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Roundabout Level of Service Method: Same as Sign Control
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #15 SR-16 and SB I-505

Average Delay (sec/veh): 0.6 Worst Case Level Of Service: D[30.8]

Street Name:	SB I-505						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			0 1 0 0 1			0 0 0 1 0			0 0 1 0 1		
Volume Module:												
Base Vol:	0	0	0	11	4	12	0	235	443	0	783	37
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	11	4	12	0	235	443	0	783	37
Added Vol:	0	0	0	0	0	3	0	16	23	0	88	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	11	4	15	0	251	466	0	871	37
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
PHF Volume:	0	0	0	12	5	17	0	283	526	0	983	42
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	12	5	17	0	283	526	0	983	42
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.6	6.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	1529	1792	983	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	127	79	298	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	127	79	298	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.10	0.06	0.06	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	4.5	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	17.8	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	C	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	109	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	0.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	43.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	E	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			30.8			xxxxxx			xxxxxx		
ApproachLOS:	*			D			*			*		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #16 SR-16 and NB I-505

Cycle (sec):	50	Critical Vol./Cap.(X):	0.887
Loss Time (sec):	6	Average Delay (sec/veh):	21.9
Optimal Cycle:	66	Level Of Service:	C

Street Name:	NB I-505						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Ignore			Include		
Min. Green:	5	5	5	0	0	0	0	5	5	0	5	5
Y+R:	4.1	4.1	4.1	4.0	4.0	4.0	4.0	5.5	5.5	4.0	5.5	5.5
Lanes:	0 1	0	0 1	0	0	0 0	0	0	1 0 1	0	0	1 0 1
Volume Module:												
Base Vol:	393	0	118	0	0	0	0	222	32	0	573	14
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	393	0	118	0	0	0	0	222	32	0	573	14
Added Vol:	53	0	0	0	0	0	0	15	1	0	35	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	446	0	118	0	0	0	0	237	33	0	608	14
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Adj:	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.00	0.87	0.87	0.87
PHF Volume:	511	0	135	0	0	0	0	271	0	0	696	16
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	511	0	135	0	0	0	0	271	0	0	696	16
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
FinalVolume:	511	0	135	0	0	0	0	271	0	0	696	16
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.68	1.00	0.81	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.81
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00
Final Sat.:	1291	0	1537	0	0	0	0	1809	1900	0	1809	1537
Capacity Analysis Module:												
Vol/Sat:	0.40	0.00	0.09	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.39	0.01
Crit Moves:	****										****	
Green/Cycle:	0.45	0.00	0.45	0.00	0.00	0.00	0.00	0.43	0.00	0.00	0.43	0.43
Volume/Cap:	0.89	0.00	0.20	0.00	0.00	0.00	0.00	0.35	0.00	0.00	0.89	0.02
Uniform Del:	12.7	0.0	8.4	0.0	0.0	0.0	0.0	9.4	0.0	0.0	13.0	8.1
IncremntDel:	15.4	0.0	0.1	0.0	0.0	0.0	0.0	0.3	0.0	0.0	11.9	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00
Delay/Veh:	28.1	0.0	8.6	0.0	0.0	0.0	0.0	9.7	0.0	0.0	25.0	8.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	28.1	0.0	8.6	0.0	0.0	0.0	0.0	9.7	0.0	0.0	25.0	8.1
LOS by Move:	C	A	A	A	A	A	A	A	A	A	C	A
HCM2kAvgQ:	285	0	35	0	0	0	0	76	0	0	283	3

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #17 SR-16 and Wild Wings Dr

Average Delay (sec/veh): 2.0 Worst Case Level Of Service: D[26.2]

Street Name:	Wild Wings Dr						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			1 0 0 0 1			1 0 1 0 0			0 0 1 0 1		
Volume Module:												
Base Vol:	0	0	0	65	0	14	9	331	0	0	563	69
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	65	0	14	9	331	0	0	563	69
Added Vol:	0	0	0	0	0	0	0	15	0	0	35	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	65	0	14	9	346	0	0	598	69
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
PHF Volume:	0	0	0	76	0	16	11	404	0	0	699	81
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	76	0	16	11	404	0	0	699	81
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	1124	xxxx	699	779	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	227	xxxx	440	825	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	225	xxxx	440	825	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.34	xxxx	0.04	0.01	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	35.5	xxxx	2.9	1.0	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	28.9	xxxx	13.5	9.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	D	*	B	A	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			26.2			xxxxxx			xxxxxx		
ApproachLOS:	*			D			*			*		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #18 SR-16 and County Rd 94B

Average Delay (sec/veh): 8.2 Worst Case Level Of Service: F[73.8]

Street Name:	County Rd 94B									SR-16								
Approach:	North Bound			South Bound			East Bound			West Bound								
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled								
Rights:	Include			Include			Include			Include								
Lanes:	0	0	1!	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1!	0	0
Volume Module:																				
Base Vol:	99	0	5	0	11	15	16	346	0	52	471	1								
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
Initial Bse:	99	0	5	0	11	15	16	346	0	52	471	1								
Added Vol:	0	0	0	0	0	0	0	15	0	0	35	0								
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0								
Initial Fut:	99	0	5	0	11	15	16	361	0	52	506	1								
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
PHF Adj:	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89								
PHF Volume:	112	0	6	0	12	17	18	407	0	59	571	1								
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0								
FinalVolume:	112	0	6	0	12	17	18	407	0	59	571	1								
Critical Gap Module:																				
Critical Gp:	7.1	6.5	6.2	xxxxx	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx								
FollowUpTim:	3.5	4.0	3.3	xxxxx	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx								
Capacity Module:																				
Cnflict Vol:	1147	1133	407	xxxx	1133	572	572	xxxx	xxxxx	407	xxxx	xxxxx								
Potent Cap.:	176	203	644	xxxx	203	520	986	xxxx	xxxxx	1135	xxxx	xxxxx								
Move Cap.:	153	188	644	xxxx	189	520	986	xxxx	xxxxx	1135	xxxx	xxxxx								
Volume/Cap:	0.73	0.00	0.01	xxxx	0.07	0.03	0.02	xxxx	xxxx	0.05	xxxx	xxxx								
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1.4	xxxx	xxxxx	4.1	xxxx	xxxxx								
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.7	xxxx	xxxxx	8.3	xxxx	xxxxx								
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*								
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	159	xxxxx	xxxx	xxxx	298	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx								
SharedQueue:	xxxxx	4.5	xxxxx	xxxxx	xxxx	0.3	0.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Shrd ConDel:	xxxxx	73.8	xxxxx	xxxxx	xxxx	18.4	8.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Shared LOS:	*	F	*	*	*	C	A	*	*	*	*	*								
ApproachDel:	73.8			18.4			xxxxxx			xxxxxx										
ApproachLOS:	F			C			*			*										

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #19 SR-16 and County Rd 95

Average Delay (sec/veh): 0.9 Worst Case Level Of Service: C[21.8]

Street Name:	County Rd 95						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0	0	0 0 1	0	0	0 0 1	0	0	0 1	0	0 0
Volume Module:												
Base Vol:	10	3	22	0	4	0	0	390	0	21	499	0
Growth Adj:	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00
Initial Bse:	10	3	22	0	4	0	0	390	0	21	499	0
Added Vol:	1	0	0	0	0	0	0	14	0	0	34	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	11	3	22	0	4	0	0	404	0	21	533	0
User Adj:	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00
PHF Adj:	0.92 0.92	0.92	0.92	0.92 0.92	0.92	0.92	0.92 0.92	0.92	0.92	0.92 0.92	0.92	0.92
PHF Volume:	12	3	24	0	4	0	0	439	0	23	579	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	12	3	24	0	4	0	0	439	0	23	579	0
Critical Gap Module:												
Critical Gp:	7.1 6.5		6.2 xxxxx	6.5 xxxxx		xxxxx	xxxx	xxxxx		4.1 xxxx	xxxxx	
FollowUpTim:	3.5 4.0		3.3 xxxxx	4.0 xxxxx		xxxxx	xxxx	xxxxx		2.2 xxxx	xxxxx	
Capacity Module:												
Cnflict Vol:	1066 1064		439 xxxx	1064 xxxxx		xxxx	xxxx	xxxxx		439 xxxx	xxxxx	
Potent Cap.:	200 223		618 xxxx	223 xxxxx		xxxx	xxxx	xxxxx		1105 xxxx	xxxxx	
Move Cap.:	194 218		618 xxxx	218 xxxxx		xxxx	xxxx	xxxxx		1105 xxxx	xxxxx	
Volume/Cap:	0.06 0.01		0.04 xxxx	0.02 xxxx		xxxx	xxxx	xxxx		0.02 xxxx	xxxx	
Level Of Service Module:												
2Way95thQ:	xxxx xxxx		xxxxx xxxx	1.5 xxxxx		xxxx	xxxx	xxxxx		1.6 xxxx	xxxxx	
Control Del:	xxxxx xxxx		xxxxx xxxxx	21.8 xxxxx		xxxxx	xxxx	xxxxx		8.3 xxxx	xxxxx	
LOS by Move:	* *		* *	C		*	*	*		A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx 339		xxxxx xxxx	xxxx xxxxx		xxxx	xxxx	xxxxx		xxxx xxxx	xxxxx	
SharedQueue:	xxxxx 0.4		xxxxx xxxxx	xxxx xxxxx		xxxxx	xxxx	xxxxx		0.1 xxxx	xxxxx	
Shrd ConDel:	xxxxx 17.0		xxxxx xxxxx	xxxx xxxxx		xxxxx	xxxx	xxxxx		8.3 xxxx	xxxxx	
Shared LOS:	* C		* *	*		*	*	*		A	*	*
ApproachDel:	17.0			21.8			xxxxxx			xxxxxx		
ApproachLOS:	C			C			*			*		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #20 SR-16 and County Rd 98

Cycle (sec):	80	Critical Vol./Cap.(X):	0.442
Loss Time (sec):	12	Average Delay (sec/veh):	24.8
Optimal Cycle:	80	Level Of Service:	C

Street Name:	County Rd 98						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	5	5	5	5	6	6	5	5	5
Y+R:	4.0	6.0	6.0	4.0	6.0	6.0	4.0	5.3	5.3	4.0	5.3	5.3
Lanes:	1 0	0	1 0	1 0	1	0 1	1 0	1	0	1 0	1	0 1
Volume Module:												
Base Vol:	111	117	83	52	115	96	83	221	88	44	293	55
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	111	117	83	52	115	96	83	221	88	44	293	55
Added Vol:	2	0	0	0	0	24	10	3	1	0	8	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	113	117	83	52	115	120	93	224	89	44	301	55
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
PHF Volume:	117	121	86	54	119	124	96	231	92	45	311	57
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	117	121	86	54	119	124	96	231	92	45	311	57
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	117	121	86	54	119	124	96	231	92	45	311	57
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.92	0.92	0.93	0.98	0.83	0.90	0.87	0.87	0.90	0.95	0.81
Lanes:	1.00	0.59	0.41	1.00	1.00	1.00	1.00	1.43	0.57	1.00	1.00	1.00
Final Sat.:	1769	1022	725	1769	1862	1583	1718	2354	935	1718	1809	1537
Capacity Analysis Module:												
Vol/Sat:	0.07	0.12	0.12	0.03	0.06	0.08	0.06	0.10	0.10	0.03	0.17	0.04
Crit Moves:		****		****			****				****	
Green/Cycle:	0.15	0.27	0.27	0.07	0.18	0.18	0.13	0.31	0.31	0.20	0.39	0.39
Volume/Cap:	0.43	0.44	0.44	0.44	0.35	0.43	0.44	0.31	0.31	0.13	0.44	0.10
Uniform Del:	30.7	24.4	24.4	35.8	28.6	29.0	32.3	20.9	20.9	26.3	18.1	15.5
IncremntDel:	1.1	0.7	0.7	2.6	0.6	1.0	1.4	0.2	0.2	0.2	0.4	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	31.8	25.0	25.0	38.4	29.2	30.1	33.8	21.0	21.0	26.5	18.5	15.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	31.8	25.0	25.0	38.4	29.2	30.1	33.8	21.0	21.0	26.5	18.5	15.6
LOS by Move:	C	C	C	D	C	C	C	C	C	C	B	B
HCM2kAvgQ:	77	115	115	32	62	67	54	77	77	25	147	23

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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #21 SR-16 and W. Kentucky Ave

Cycle (sec):	80	Critical Vol./Cap.(X):	0.271
Loss Time (sec):	12	Average Delay (sec/veh):	18.6
Optimal Cycle:	80	Level Of Service:	B

Street Name:	SR-16						W. Kentucky Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	5	5	5	5	5	5	5	5	5
Y+R:	4.0	6.0	6.0	4.0	6.0	6.0	4.0	5.3	5.3	4.0	5.3	5.3
Lanes:	1 0	0	1 0	1 0	0	1 0	1 0	0	1 0	1 0	0	1 0
Volume Module:												
Base Vol:	6	161	85	16	153	27	24	38	7	55	50	11
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	6	161	85	16	153	27	24	38	7	55	50	11
Added Vol:	0	10	0	0	23	0	0	0	0	1	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	6	171	85	16	176	27	24	38	7	56	50	11
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
PHF Volume:	6	183	91	17	189	29	26	41	8	60	54	12
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	6	183	91	17	189	29	26	41	8	60	54	12
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	6	183	91	17	189	29	26	41	8	60	54	12
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.90	0.90	0.90	0.90	0.93	0.93	0.93	0.96	0.96	0.93	0.95	0.95
Lanes:	1.00	0.67	0.33	1.00	0.87	0.13	1.00	0.84	0.16	1.00	0.82	0.18
Final Sat.:	1718	1148	571	1718	1537	236	1769	1536	283	1769	1485	327
Capacity Analysis Module:												
Vol/Sat:	0.00	0.16	0.16	0.01	0.12	0.12	0.01	0.03	0.03	0.03	0.04	0.04
Crit Moves:		****		****				****		****		
Green/Cycle:	0.21	0.57	0.57	0.06	0.42	0.42	0.11	0.09	0.09	0.12	0.11	0.11
Volume/Cap:	0.02	0.28	0.28	0.16	0.29	0.29	0.13	0.28	0.28	0.28	0.33	0.33
Uniform Del:	24.8	8.8	8.8	35.5	15.3	15.3	32.3	33.7	33.7	32.0	33.0	33.0
IncremntDel:	0.0	0.2	0.2	0.7	0.2	0.2	0.3	0.9	0.9	0.7	1.0	1.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	24.8	8.9	8.9	36.2	15.6	15.6	32.6	34.6	34.6	32.7	34.0	34.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	24.8	8.9	8.9	36.2	15.6	15.6	32.6	34.6	34.6	32.7	34.0	34.0
LOS by Move:	C	A	A	D	B	B	C	C	C	C	C	C
HCM2kAvgQ:	3	83	83	14	90	90	17	34	34	40	46	46

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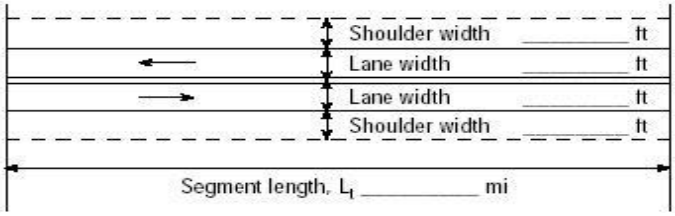
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*CCCR to County Road 85*
Date Performed	*5/27/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *762*veh/h
Opposing direction vol., V_o *564*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *6.7*

☑ Class I highway ☐ Class II highway ☐ Class III highway
Terrain ☐ Level ☑ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.93*
No-passing zone *75%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.5*	*1.7*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.1*	*1.1*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.972*	*0.962*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*0.99*	*0.97*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*851*	*650*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.9 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*51.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*38.1 mi/h*
		Percent free flow speed, PFFS	*73.7 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*0.990*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*0.97*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*819*	*631*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*68.4*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*25.6*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*82.9*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.50*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1586*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1666*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*73.7*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*819.4*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.47*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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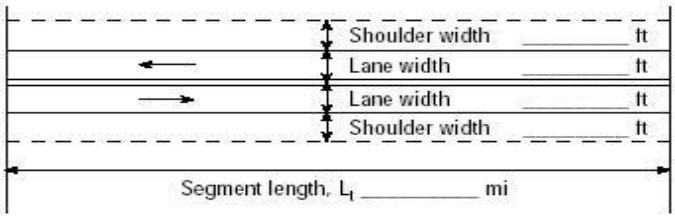
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*CCCR to County Road 85*
Date Performed	*5/27/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *564*veh/h

Opposing direction vol., V_o *762*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *6.7*

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☐ Level ☑ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.93*

No-passing zone *75%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.7*	*1.5*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.1*	*1.1*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.962*	*0.972*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*0.97*	*0.99*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*650*	*851*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.3 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*51.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*38.7 mi/h*
		Percent free flow speed, PFFS	*74.9 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.2*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.990*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*0.97*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*631*	*819*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*62.0*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*25.6*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*73.1*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.38*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1644*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*74.9*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*606.5*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.32*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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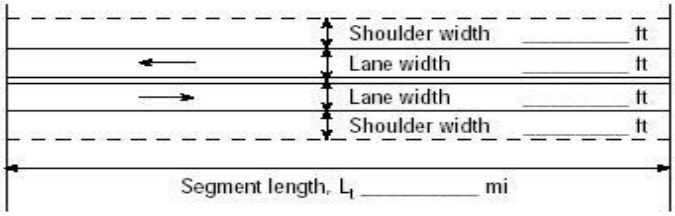
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*County Road 85 to Esparto Town*
Date Performed	*5/27/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *756*veh/h

Opposing direction vol., V_o *522*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *1.4*

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.92*

No-passing zone *85%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *5*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.990*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*826*	*573*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, v		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.3 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.0 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*42.1 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*29.2 mi/h*
		Percent free flow speed, PFFS	*69.5 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*822*	*567*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*67.7*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*27.0*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*83.7*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.48*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*69.5*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*821.7*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.48*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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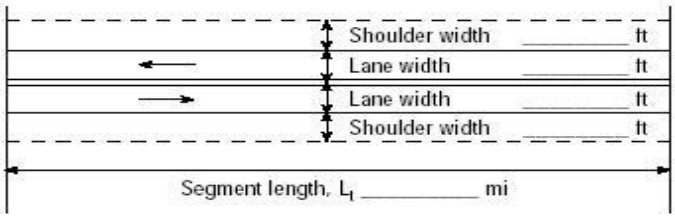
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*County Road 85 to Esparto Town*
Date Performed	*5/27/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *522*veh/h

Opposing direction vol., V_o *756*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *1.4*

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.92*

No-passing zone *85%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *5*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.2*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.990*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*573*	*826*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.3 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.3 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*42.1 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*29.9 mi/h*
		Percent free flow speed, PFFS	*71.1 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*567*	*822*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*58.7*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*27.0*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*69.7*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*C*
Volume to capacity ratio, *v/c*	*0.33*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*71.1*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*567.4*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.29*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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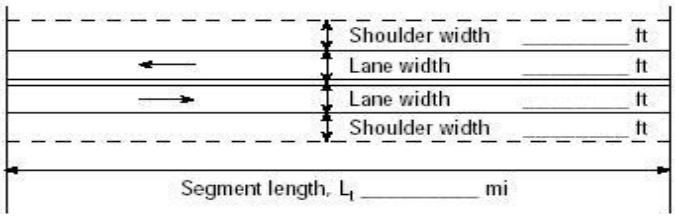
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*through Esparto Town*
Date Performed	*5/27/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *999*veh/h
Opposing direction vol., V_o *557*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *1.2*

Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.92*
No-passing zone *95%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *14*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.0*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*1086*	*608*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*3.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.0 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*38.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*23.8 mi/h*
		Percent free flow speed, PFFS	*61.1 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*1086*	*605*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*76.2*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*20.6*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*89.4*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.64*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*61.1*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*1085.9*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.62*
Bicycle level of service (Exhibit 15-4)	*F*
Notes	

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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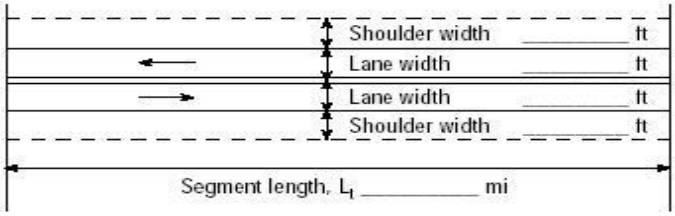
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*through Esparto Town*
Date Performed	*5/27/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *557*veh/h

Opposing direction vol., V_o *999*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *1.2*

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.92*

No-passing zone *95%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *14*/mi

Show North Arrow

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*1.000*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*608*	*1086*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*3.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.1 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*38.9 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*24.7 mi/h*
		Percent free flow speed, PFFS	*63.4 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*605*	*1086*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*63.9*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*20.6*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*71.3*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.36*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1700*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*63.4*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*605.4*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.32*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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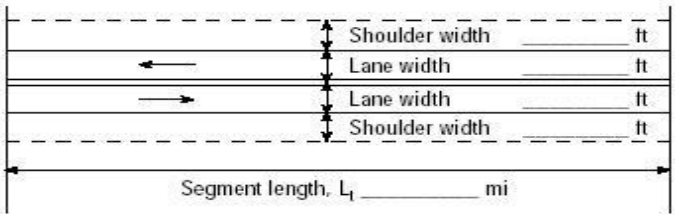
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*Esparto Town to County Rd 89*
Date Performed	*5/27/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *1139*veh/h
Opposing direction vol., V_o *705*veh/h
Shoulder width ft *4.0*
Lane Width ft *12.0*
Segment Length mi *2.7*

Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.92*
No-passing zone *80%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.0*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*1238*	*770*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.5 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.9 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*35.8 mi/h*
		Percent free flow speed, PFFS	*67.7 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*1238*	*766*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*81.6*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*16.3*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*91.7*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.73*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*67.7*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*1238.0*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.38*
Bicycle level of service (Exhibit 15-4)	*E*
Notes	
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain. 2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10. 6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.	

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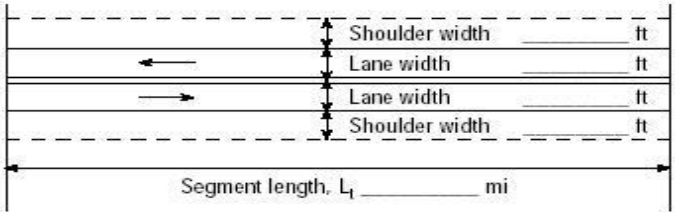
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*Esparto Town to County Rd 89*
Date Performed	*5/27/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *705*veh/h
Opposing direction vol., V_o *1139*veh/h
Shoulder width ft *4.0*
Lane Width ft *12.0*
Segment Length mi *2.7*

☑ Class I highway ☐ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.92*
No-passing zone *80%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*1.000*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*770*	*1238*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*0.9 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*36.4 mi/h*
		Percent free flow speed, PFFS	*68.8 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*766*	*1238*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*73.0*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*16.3*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*79.2*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.45*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1700*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*68.8*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*766.3*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.14*
Bicycle level of service (Exhibit 15-4)	*E*
Notes	
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain. 2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10. 6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.	

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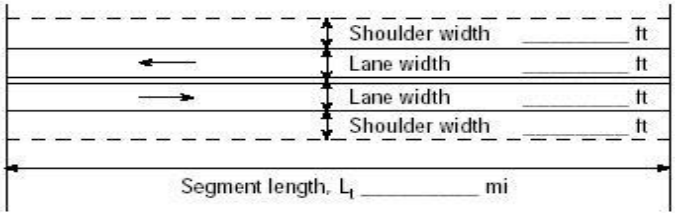
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*County Rd 89 to I-505*
Date Performed	*5/27/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d veh/h

Opposing direction vol., V_o *717*veh/h

Shoulder width ft *4.0*

Lane Width ft *12.0*

Segment Length mi *0.8*

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.93*

No-passing zone *100%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *4*/mi

Show North Arrow

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*956*	*775*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.0 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.6 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.7 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*37.7 mi/h*
		Percent free flow speed, PFFS	*71.5 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*952*	*771*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*74.0*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*22.6*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*86.5*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.56*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*71.5*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*951.6*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.25*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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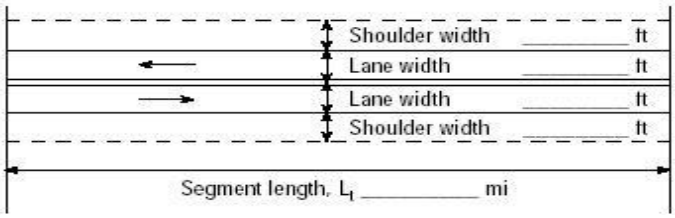
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*County Rd 89 to I-505*
Date Performed	*5/27/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *717*veh/h
Opposing direction vol., V_o *886*veh/h
Shoulder width ft *4.0*
Lane Width ft *12.0*
Segment Length mi *0.8*

☑ Class I highway ☐ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.93*
No-passing zone *100*%
% Trucks and Buses , P_T *5* %
% Recreational vehicles, P_R *4*%
Access points *mi* *4*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*775*	*957*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*1.0 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.3 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.7 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*38.0 mi/h*
		Percent free flow speed, PFFS	*72.0* %

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*771*	*953*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*69.7*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*22.6*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*79.8*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.46*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1700*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*72.0*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*771.0*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.14*
Bicycle level of service (Exhibit 15-4)	*E*
Notes	
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain. 2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10. 6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.	

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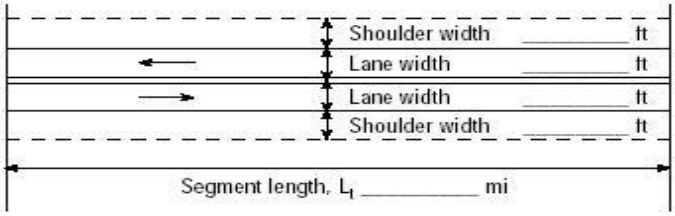
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*I-505 to County Rd 98*
Date Performed	*5/27/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *622*veh/h
Opposing direction vol., V_o *406*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *8.3*

☑ Class I highway ☐ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.92*
No-passing zone *100*%
% Trucks and Buses , P_T *5* %
% Recreational vehicles, P_R *4*%
Access points *mi* *35*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.3*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.985*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*679*	*448*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0* *mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6* *mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*8.8* *mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.7* *mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*43.6* *mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*32.2* *mi/h*
		Percent free flow speed, PFFS	*73.7* %

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*676*	*444*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*59.7*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*33.6*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*80.0*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.40*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1675*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*73.7*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*676.1*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.38*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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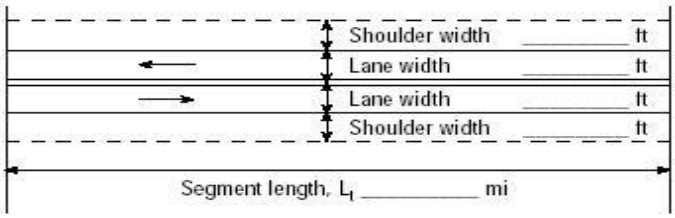
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*I-505 to County Rd 98*
Date Performed	*5/27/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *406*veh/h
Opposing direction vol., V_o *622*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *8.3*

☑ Class I highway ☐ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.92*
No-passing zone *100*%
% Trucks and Buses , P_T *5* %
% Recreational vehicles, P_R *4*%
Access points *mi* *35*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.3*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.985*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*448*	*679*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*8.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.9 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*43.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*33.0 mi/h*
		Percent free flow speed, PFFS	*75.6 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*444*	*676*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*50.4*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*33.6*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*63.7*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.26*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*75.6*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*441.3*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.16*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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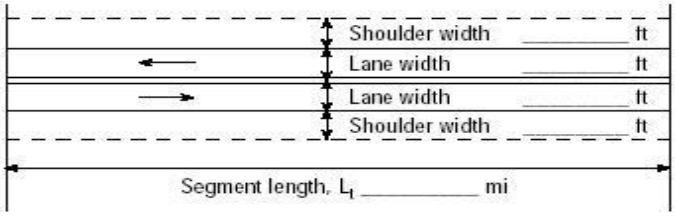
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 21A (WB)*
Agency or Company	*Yolo County*	From/To	*County Rd 85 to SR-16*
Date Performed	*5/27/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *154* veh/h

Opposing direction vol., V_o *162* veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *1.2*

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.84*

No-passing zone *25%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* 7/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.7*	*1.7*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.966*	*0.966*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*190*	*200*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS} (Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*0.6 mi/h*	Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*40.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*37.0 mi/h*
		Percent free flow speed, PFFS	*91.1 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*184*	*194*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*20.0*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*42.4*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*40.6*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*B*
Volume to capacity ratio, *v/c*	*0.11*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1659*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*91.1*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*183.3*
Effective width, Wv (Eq. 15-29) ft	*17.22*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.21*
Bicycle level of service (Exhibit 15-4)	*D*
Notes	
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain. 2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10. 6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.	

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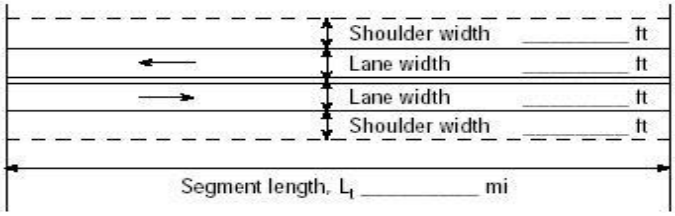
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 21A (EB)*
Agency or Company	*Yolo County*	From/To	*County Rd 85 to SR-16*
Date Performed	*5/27/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *162*veh/h

Opposing direction vol., V_o *154*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *1.2*

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.84*

No-passing zone *25%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* 7/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.7*	*1.7*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.966*	*0.966*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*200*	*190*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*1.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*0.5 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*40.6 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*37.1 mi/h*
		Percent free flow speed, PFFS	*91.3 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*194*	*184*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*21.0*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*42.4*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*42.8*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*B*
Volume to capacity ratio, *v/c*	*0.11*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*91.3*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*192.9*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.74*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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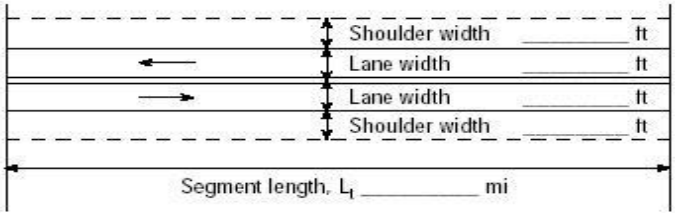
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 85B (SB)*
Agency or Company	*Yolo County*	From/To	*SR-16 to County Rd 21A*
Date Performed	*5/27/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035) Plus Project*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *144*veh/h
Opposing direction vol., V_o *141*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *0.9*

Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.86*
No-passing zone *80%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *6*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.7*	*1.7*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.966*	*0.966*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*173*	*170*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, v		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.8 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*40.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*35.4 mi/h*
		Percent free flow speed, PFFS	*86.6 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*168*	*165*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*18.5*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*59.2*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*48.4*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*B*
Volume to capacity ratio, *v/c*	*0.10*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*86.6*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*167.4*
Effective width, Wv (Eq. 15-29) ft	*17.92*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.04*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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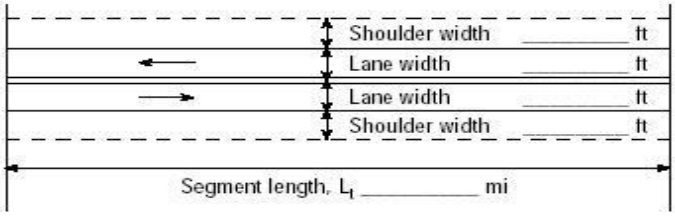
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 85B (SB)*
Agency or Company	*Yolo County*	From/To	*SR-16 to County Rd 21A*
Date Performed	*5/27/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035)*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *141*veh/h
Opposing direction vol., V_o *144*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *0.9*

☐ Class I highway ☑ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.86*
No-passing zone *80%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *6*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.7*	*1.7*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.966*	*0.966*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*170*	*173*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.8 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*40.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*35.4 mi/h*
		Percent free flow speed, PFFS	*86.6 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*165*	*168*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*18.2*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*59.2*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*47.5*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*B*
Volume to capacity ratio, *v/c*	*0.10*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1651*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*86.6*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*164.0*
Effective width, Wv (Eq. 15-29) ft	*18.13*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.99*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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LONG-TERM PLUS PROJECT MITIGATED TRAFFIC CONDITIONS

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #18 SR-16 and County Rd 94B

Average Delay (sec/veh): 4.3 Worst Case Level Of Service: D[34.2]

Street Name:	County Rd 94B						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0	0	0 0 1!	0	0	0 1	0	0 0	0 0 1!	0	0
Volume Module:												
Base Vol:	99	0	15	10	14	7	8	454	0	98	516	1
Growth Adj:	1.00 1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	99	0	15	10	14	7	8	454	0	98	516	1
Added Vol:	0	0	0	0	0	0	0	13	0	0	31	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	99	0	15	10	14	7	8	467	0	98	547	1
User Adj:	1.00 1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.85 0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
PHF Volume:	116	0	18	12	16	8	9	549	0	115	643	1
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	116	0	18	12	16	8	9	549	0	115	643	1
Critical Gap Module:												
Critical Gp:	7.1 6.5	6.2		7.1 6.5	6.2		4.1	xxxx xxxxx		4.1	xxxx xxxxx	
FollowUpTim:	3.5 4.0	3.3		3.5 4.0	3.3		2.2	xxxx xxxxx		2.2	xxxx xxxxx	
Capacity Module:												
Cnflict Vol:	1454 1442	549		1450 1441	643		644	xxxx xxxxx		549	xxxx xxxxx	
Potent Cap.:	108 132	536		109 132	473		927	xxxx xxxxx		1006	xxxx xxxxx	
Move Cap.:	85 115	536		95 115	473		927	xxxx xxxxx		1006	xxxx xxxxx	
Total Cap:	234 269	xxxxx		238 257	xxxxx		xxxx	xxxx xxxxx		xxxx	xxxx xxxxx	
Volume/Cap:	0.50 0.00	0.03		0.05 0.06	0.02		0.01	xxxx xxxx		0.11	xxxx xxxx	
Level Of Service Module:												
2Way95thQ:	xxxx xxxx	xxxxx		xxxx xxxx	xxxxx		0.8	xxxx xxxxx		9.7	xxxx xxxxx	
Control Del:	xxxxx xxxx	xxxxx		xxxxx xxxx	xxxxx		8.9	xxxx xxxxx		9.0	xxxx xxxxx	
LOS by Move:	* *	*		* *	*		A	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx 253	xxxxx		xxxx 279	xxxxx		xxxx	xxxx xxxxx		xxxx	xxxx xxxxx	
SharedQueue:	xxxxx 2.8	xxxxx		xxxxx 0.4	xxxxx		0.0	xxxx xxxxx		xxxxx	xxxx xxxxx	
Shrd ConDel:	xxxxx 34.2	xxxxx		xxxxx 19.9	xxxxx		8.9	xxxx xxxxx		xxxxx	xxxx xxxxx	
Shared LOS:	* D	*		* C	*		A	*	*	*	*	*
ApproachDel:	34.2			19.9			xxxxxx			xxxxxx		
ApproachLOS:	D			C			*			*		

Note: Queue reported is the distance per lane in feet.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #18 SR-16 and County Rd 94B

Average Delay (sec/veh): 3.1 Worst Case Level Of Service: C[22.3]

Street Name:	County Rd 94B								SR-16							
Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	1!	0 0	0	0	0	1 0	0	1	0	0 0	0	0	1!	0 0
Volume Module:																
Base Vol:	99	0	5	0	11	15			16	346	0		52	471	1	
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	99	0	5	0	11	15			16	346	0		52	471	1	
Added Vol:	0	0	0	0	0	0			0	15	0		0	35	0	
PasserByVol:	0	0	0	0	0	0			0	0	0		0	0	0	
Initial Fut:	99	0	5	0	11	15			16	361	0		52	506	1	
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.89	0.89	0.89	0.89	0.89	0.89			0.89	0.89	0.89		0.89	0.89	0.89	
PHF Volume:	112	0	6	0	12	17			18	407	0		59	571	1	
Reduct Vol:	0	0	0	0	0	0			0	0	0		0	0	0	
FinalVolume:	112	0	6	0	12	17			18	407	0		59	571	1	
Critical Gap Module:																
Critical Gp:	7.1	6.5	6.2	xxxxx	6.5	6.2			4.1	xxxx	xxxxx		4.1	xxxx	xxxxx	
FollowUpTim:	3.5	4.0	3.3	xxxxx	4.0	3.3			2.2	xxxx	xxxxx		2.2	xxxx	xxxxx	
Capacity Module:																
Cnflict Vol:	1147	1133	407	xxxx	1133	572			572	xxxx	xxxxx		407	xxxx	xxxxx	
Potent Cap.:	176	203	644	xxxx	203	520			986	xxxx	xxxxx		1135	xxxx	xxxxx	
Move Cap.:	153	188	644	xxxx	189	520			986	xxxx	xxxxx		1135	xxxx	xxxxx	
Total Cap:	316	348	xxxxx	339	348	xxxxx			xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Volume/Cap:	0.35	0.00	0.01	xxxx	0.04	0.03			0.02	xxxx	xxxx		0.05	xxxx	xxxx	
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx			1.4	xxxx	xxxxx		4.1	xxxx	xxxxx	
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx			8.7	xxxx	xxxxx		8.3	xxxx	xxxxx	
LOS by Move:	*	*	*	*	*	*			A	*	*		A	*	*	
Movement:	LT -	LTR -	RT	LT -	LTR -	RT			LT -	LTR -	RT		LT -	LTR -	RT	
Shared Cap.:	xxxx	324	xxxxx	xxxx	xxxx	430			xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
SharedQueue:	xxxxx	1.6	xxxxx	xxxxx	xxxx	0.2			0.1	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shrd ConDel:	xxxxx	22.3	xxxxx	xxxxx	xxxx	14.0			8.7	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shared LOS:	*	C	*	*	*	B			A	*	*		*	*	*	
ApproachDel:	22.3			14.0					xxxxxx				xxxxxx			
ApproachLOS:	C			B					*				*			

Note: Queue reported is the distance per lane in feet.

NEAR-TERM PLUS PROJECT ALTERNATIVE TRAFFIC CONDITIONS

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 SR-16 and North Casino Entrance

Cycle (sec):	65	Critical Vol./Cap.(X):	0.260
Loss Time (sec):	6	Average Delay (sec/veh):	10.2
Optimal Cycle:	62	Level Of Service:	B

Street Name:	SR-16						North Casino Entrance					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ovl			Include			Include			Include		
Min. Green:	0	8	8	5	8	0	0	0	0	5	5	5
Y+R:	4.0	5.5	5.5	4.0	5.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	1 0	1	1 0	1 0	0	0 0	0 0	0 0	1 0	0 0	1
Volume Module:												
Base Vol:	0	38	166	21	38	0	0	0	0	198	0	20
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	38	166	21	38	0	0	0	0	198	0	20
Added Vol:	0	36	60	4	110	0	0	0	0	30	0	2
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	74	226	25	148	0	0	0	0	228	0	22
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
PHF Volume:	0	95	289	32	190	0	0	0	0	292	0	28
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	95	289	32	190	0	0	0	0	292	0	28
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	95	289	32	190	0	0	0	0	292	0	28
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	0.81	0.90	0.95	1.00	1.00	1.00	1.00	0.93	1.00	0.83
Lanes:	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Final Sat.:	0	1809	1537	1718	1809	0	0	0	0	1769	0	1583
Capacity Analysis Module:												
Vol/Sat:	0.00	0.05	0.19	0.02	0.10	0.00	0.00	0.00	0.00	0.17	0.00	0.02
Crit Moves:		****		****						****		
Green/Cycle:	0.00	0.13	0.83	0.08	0.21	0.00	0.00	0.00	0.00	0.70	0.00	0.70
Volume/Cap:	0.00	0.40	0.23	0.23	0.50	0.00	0.00	0.00	0.00	0.24	0.00	0.03
Uniform Del:	0.0	26.0	1.2	28.0	22.7	0.0	0.0	0.0	0.0	3.5	0.0	3.0
IncremntDel:	0.0	1.1	0.1	0.9	1.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Delay/Veh:	0.0	27.1	1.2	28.9	23.7	0.0	0.0	0.0	0.0	3.6	0.0	3.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	27.1	1.2	28.9	23.7	0.0	0.0	0.0	0.0	3.6	0.0	3.0
LOS by Move:	A	C	A	C	C	A	A	A	A	A	A	A
HCM2kAvgQ:	0	56	35	21	99	0	0	0	0	55	0	5

Level Of Service Computation Report
Unknown Method (Future Volume Alternative)

Intersection #2 SR-16 and Central Casino Entrance

Street Name:	SR-16						Central Casino Entrance					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0 0 1 0			0 0 1 0 0			0 0 0 0 0			0 0 0 0 0		
Volume Module:												
Base Vol:	0	203	43	0	238	0	0	0	0	0	0	0
Growth Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Bse:	0	0	0	0	0	0	0	0	0	0	0	0
Added Vol:	0	95	15	0	141	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	0	0	0	0	0	0	0	0	0
User Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Volume:	0	0	0	0	0	0	0	0	0	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PCE Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MLF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FinalVolume:	0	0	0	0	0	0	0	0	0	0	0	0
Critical Gap Module: >> Population:0 << >> Run Speed(N/S): 30 MPH <<												
Critical Gp:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capacity Module:												
Cnflict Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Potent Cap.:	0	0	0	0	0	0	0	0	0	0	0	0
Level Of Service Module:												
LOS by Move:												
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	0	0	0	0	0	0	0	0	0	0	0	0

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #3 SR-16 and South Casino Entrance

Average Delay (sec/veh): 1.1 Worst Case Level Of Service: C[20.3]

Street Name:	SR-16						South Casino Entrance					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 1 0			0 0 1 0 0			0 0 0 0 0			1 0 0 0 1		
Volume Module:												
Base Vol:	0	244	42	0	241	0	0	0	0	39	0	2
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	244	42	0	241	0	0	0	0	39	0	2
Added Vol:	0	110	19	0	141	0	0	0	0	6	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	354	61	0	382	0	0	0	0	45	0	2
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Volume:	0	444	76	0	479	0	0	0	0	56	0	3
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	444	76	0	479	0	0	0	0	56	0	3
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	961	xxxx	482
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	285	xxxx	584
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	285	xxxx	584
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.20	xxxx	0.00
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	18.1	xxxx	0.3
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	20.8	xxxx	11.2
LOS by Move:	*	*	*	*	*	*	*	*	*	C	*	B
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			20.3		
ApproachLOS:	*			*			*			C		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #4 SR-16 and County Rd 85

Average Delay (sec/veh): 0.5 Worst Case Level Of Service: B[12.5]

Street Name:	County Rd 85						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0 0		0 0 1!	0 0		0 1 0	0 0		0 0 1	0 0	
Volume Module:												
Base Vol:	0	0	0	5	0	17	14	307	0	0	270	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	5	0	17	14	307	0	0	270	0
Added Vol:	0	0	0	1	0	3	3	144	0	0	126	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	6	0	20	17	451	0	0	396	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
PHF Volume:	0	0	0	6	0	21	18	469	0	0	412	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	6	0	21	18	469	0	0	412	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	917	917	412	412	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	302	272	640	1131	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	298	268	640	1131	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.02	0.00	0.03	0.02	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1.2	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	506	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.2	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	12.5	xxxxx	8.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	B	*	A	*	*	*	*	*
ApproachDel:	xxxxxx			12.5			xxxxxx			xxxxxx		
ApproachLOS:	*			B			*			*		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #5 SR-16 and County Rd 85B

Average Delay (sec/veh): 1.0 Worst Case Level Of Service: B[10.2]

Street Name:	County Rd 85B									SR-16								
Approach:	North Bound						South Bound						East Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Uncontrolled					
Rights:	Include						Include						Include					
Lanes:	0	0	1!	0	0		0	0	0	0	0		0	0	1	0	1	
Volume Module:																		
Base Vol:	59	0	2	0	0		0	0	0	0	0		0	201	118	0	0	
Growth Adj:	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Initial Bse:	59	0	2	0	0		0	0	0	0	0		0	201	118	0	0	
Added Vol:	23	0	0	0	0		0	0	0	0	0		0	128	16	0	0	
PasserByVol:	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	
Initial Fut:	82	0	2	0	0		0	0	0	0	0		0	329	134	0	0	
User Adj:	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
PHF Adj:	0.93	0.93	0.93	0.93	0.93		0.93	0.93	0.93	0.93	0.93		0.93	0.93	0.93	0.93	0.93	
PHF Volume:	89	0	2	0	0		0	0	0	0	0		0	355	145	0	0	
Reduct Vol:	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	
FinalVolume:	89	0	2	0	0		0	0	0	0	0		0	355	145	0	0	
Critical Gap Module:																		
Critical Gp:	6.4	6.5	6.2	xxxxx	xxxx		xxxxx	xxxxx	xxxx	xxxxx			4.1	xxxx	xxxxx			
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxx		xxxxx	xxxxx	xxxx	xxxxx			2.2	xxxx	xxxxx			
Capacity Module:																		
Cnflict Vol:	707	707	355	xxxx	xxxx		xxxxx	xxxx	xxxx	xxxxx			500	xxxx	xxxxx			
Potent Cap.:	401	360	689	xxxx	xxxx		xxxxx	xxxx	xxxx	xxxxx			1049	xxxx	xxxxx			
Move Cap.:	401	359	689	xxxx	xxxx		xxxxx	xxxx	xxxx	xxxxx			1049	xxxx	xxxxx			
Volume/Cap:	0.22	0.00	0.00	xxxx	xxxx		xxxx	xxxx	xxxx	xxxx			0.00	xxxx	xxxx			
Level Of Service Module:																		
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx		xxxxx	xxxx	xxxx	xxxxx			0.2	xxxx	xxxxx			
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx		xxxxx	xxxxx	xxxx	xxxxx			8.4	xxxx	xxxxx			
LOS by Move:	*	*	*	*	*		*	*	*	*			A	*	*			
Movement:	LT	-	LTR	-	RT		LT	-	LTR	-	RT		LT	-	LTR	-	RT	
Shared Cap.:	xxxx		778	xxxxx			xxxx	xxxx	xxxxx				xxxx	xxxx	xxxxx			
SharedQueue:	xxxxx		0.4	xxxxx	xxxxx		xxxx	xxxxx	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx			
Shrd ConDel:	xxxxx		10.2	xxxxx	xxxxx		xxxx	xxxxx	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx			
Shared LOS:	*		B	*	*		*	*	*	*	*		*	*	*			
ApproachDel:			10.2		xxxxxx				xxxxxx						xxxxxx			
ApproachLOS:			B		*				*						*			

Note: Queue reported is the distance per lane in feet.

6: Yolo Ave & Woodland Ave Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR	All
Denied Del/Veh (s)	1.1	0.3	0.1	0.1	0.6	0.2	3.1	0.1	0.1	0.5
Total Del/Veh (s)	16.4	5.1	12.4	11.7	1.5	2.1	0.8	9.4	3.1	4.3

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #7 SR-16 and Capay St

Average Delay (sec/veh): 0.9 Worst Case Level Of Service: C[16.6]

Street Name:	SR-16						Capay St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			0 0 0 1 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	23	255	10	3	179	7	0	4	14	6	6	2
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	23	255	10	3	179	7	0	4	14	6	6	2
Added Vol:	0	114	0	0	130	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	23	369	10	3	309	7	0	4	14	6	6	2
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	25	394	11	3	330	7	0	4	15	6	6	2
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	25	394	11	3	330	7	0	4	15	6	6	2
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx	xxxxx	6.5	6.2	7.1	6.5	6.2
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	338	xxxx	xxxxx	405	xxxx	xxxxx	xxxx	794	334	799	793	400
Potent Cap.:	1205	xxxx	xxxxx	1138	xxxx	xxxxx	xxxx	321	708	304	321	650
Move Cap.:	1205	xxxx	xxxxx	1138	xxxx	xxxxx	xxxx	313	708	289	314	650
Volume/Cap:	0.02	xxxx	xxxx	0.00	xxxx	xxxx	xxxx	0.01	0.02	0.02	0.02	0.00
Level Of Service Module:												
2Way95thQ:	1.6	xxxx	xxxxx	0.2	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	8.0	xxxx	xxxxx	8.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	553	xxxx	326	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	0.1	xxxxx	0.1	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	11.7	xxxxx	16.6	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	B	*	C	*
ApproachDel:	xxxxxx			xxxxxx			11.7			16.6		
ApproachLOS:	*			*			B			C		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #8 SR-16 and Madison St

Average Delay (sec/veh): 0.4 Worst Case Level Of Service: C[17.5]

Street Name:	SR-16								Madison St							
Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Lanes:	0	1	0	0 0	0	0	0	1 0	0	0	1!	0 0	0	1	0	0 0
Volume Module:																
Base Vol:	10	309	0	0	235	6			6	0	9		1	1	0	
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	10	309	0	0	235	6			6	0	9		1	1	0	
Added Vol:	0	112	0	0	129	0			0	0	0		0	0	0	
PasserByVol:	0	0	0	0	0	0			0	0	0		0	0	0	
Initial Fut:	10	421	0	0	364	6			6	0	9		1	1	0	
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.97	0.97	0.97	0.97	0.97	0.97			0.97	0.97	0.97		0.97	0.97	0.97	
PHF Volume:	10	435	0	0	376	6			6	0	9		1	1	0	
Reduct Vol:	0	0	0	0	0	0			0	0	0		0	0	0	
FinalVolume:	10	435	0	0	376	6			6	0	9		1	1	0	
Critical Gap Module:																
Critical Gp:	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx			7.1	6.5	6.2		7.1	6.5	xxxxx	
FollowUpTim:	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx			3.5	4.0	3.3		3.5	4.0	xxxxx	
Capacity Module:																
Cnflict Vol:	382	xxxx	xxxxx	xxxx	xxxx	xxxxx			835	835	379		839	838	xxxxx	
Potent Cap.:	1160	xxxx	xxxxx	xxxx	xxxx	xxxxx			287	304	668		285	302	xxxxx	
Move Cap.:	1160	xxxx	xxxxx	xxxx	xxxx	xxxxx			284	301	668		279	300	xxxxx	
Volume/Cap:	0.01	xxxx	xxxx	xxxx	xxxx	xxxx			0.02	0.00	0.01		0.00	0.00	xxxx	
Level Of Service Module:																
2Way95thQ:	0.7	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx				
Control Del:	8.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx				
LOS by Move:	A	*	*	*	*	*	*	*	*	*	*	*				
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT				
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	434	xxxxx	289	xxxx	xxxxx				
SharedQueue:	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.1	xxxxx	0.0	xxxx	xxxxx				
Shrd ConDel:	8.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	13.6	xxxxx	17.5	xxxx	xxxxx				
Shared LOS:	A	*	*	*	*	*	*	B	*	C	*	*				
ApproachDel:	xxxxxx			xxxxxx			13.6			17.5						
ApproachLOS:	*			*			B			C						

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #9 SR-16 and Plainfield St

Average Delay (sec/veh): 1.3 Worst Case Level Of Service: C[18.9]

Street Name:	SR-16						Plainfield St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 1 0	1 0	0	1 0	0	0	0 0 1!	0	0	0 0 1!	0	0
Volume Module:												
Base Vol:	40 309	19	6	226	4	4	4	32	9	3	4	
Growth Adj:	1.00 1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Initial Bse:	40 309	19	6	226	4	4	4	32	9	3	4	
Added Vol:	0 110	0	1	126	1	0	0	0	0	0	1	
PasserByVol:	0 0	0	0	0	0	0	0	0	0	0	0	
Initial Fut:	40 419	19	7	352	5	4	4	32	9	3	5	
User Adj:	1.00 1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PHF Adj:	0.92 0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
PHF Volume:	43 454	21	8	382	5	4	4	35	10	3	5	
Reduct Vol:	0 0	0	0	0	0	0	0	0	0	0	0	
FinalVolume:	43 454	21	8	382	5	4	4	35	10	3	5	
Critical Gap Module:												
Critical Gp:	4.1 xxxx xxxxx		4.1 xxxx xxxxx			7.1	6.5	6.2	7.1	6.5	6.2	
FollowUpTim:	2.2 xxxx xxxxx		2.2 xxxx xxxxx			3.5	4.0	3.3	3.5	4.0	3.3	
Capacity Module:												
Cnflict Vol:	387 xxxx xxxxx		475 xxxx xxxxx			715	961	384	971	954	238	
Potent Cap.:	1155 xxxx xxxxx		1072 xxxx xxxxx			346	256	663	232	259	801	
Move Cap.:	1155 xxxx xxxxx		1072 xxxx xxxxx			328	244	663	210	247	801	
Volume/Cap:	0.04 xxxx xxxx		0.01 xxxx xxxx			0.01	0.02	0.05	0.05	0.01	0.01	
Level Of Service Module:												
2Way95thQ:	2.9 xxxx xxxxx		0.5 xxxx xxxxx			xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	
Control Del:	8.2 xxxx xxxxx		8.4 xxxx xxxxx			xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	
LOS by Move:	A *	*	A	*	*	*	*	*	*	*	*	
Movement:	LT - LTR - RT		LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			
Shared Cap.:	xxxx xxxx xxxxx		xxxx xxxx xxxxx			xxxx	521	xxxxx	xxxx	277	xxxxx	
SharedQueue:	0.1 xxxx xxxxx		xxxxx xxxx xxxxx			xxxxx	0.3	xxxxx	xxxxx	0.2	xxxxx	
Shrd ConDel:	8.2 xxxx xxxxx		xxxxx xxxx xxxxx			xxxxx	12.5	xxxxx	xxxxx	18.9	xxxxx	
Shared LOS:	A *	*	*	*	*	*	B	*	*	C	*	
ApproachDel:	xxxxxx		xxxxxx			12.5			18.9			
ApproachLOS:	*		*			B			C			

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #10 SR-16 and County Road 21A

Cycle (sec):	100	Critical Vol./Cap.(X):	0.578
Loss Time (sec):	0	Average Delay (sec/veh):	12.3
Optimal Cycle:	0	Level Of Service:	B

Street Name:	SR-16						County Road 21A					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Ignore		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	0 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	1 0	1
Volume Module:												
Base Vol:	0	0	0	257	0	8	5	107	0	0	69	361
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	257	0	8	5	107	0	0	69	361
Added Vol:	0	0	0	125	0	1	2	9	0	0	16	109
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	382	0	9	7	116	0	0	85	470
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
PHF Adj:	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.00
PHF Volume:	0	0	0	418	0	10	8	127	0	0	93	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	418	0	10	8	127	0	0	93	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
FinalVolume:	0	0	0	418	0	10	8	127	0	0	93	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	0.98	0.00	0.02	0.06	0.94	0.00	0.00	1.00	1.00
Final Sat.:	0	0	0	724	0	17	37	608	0	0	583	657
Capacity Analysis Module:												
Vol/Sat:	xxxx	xxxx	xxxx	0.58	xxxx	0.58	0.21	0.21	xxxx	xxxx	0.16	0.00
Crit Moves:						****		****			****	
Delay/Veh:	0.0	0.0	0.0	13.8	0.0	13.8	9.5	9.5	0.0	0.0	9.5	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	13.8	0.0	13.8	9.5	9.5	0.0	0.0	9.5	0.0
LOS by Move:	*	*	*	B	*	B	A	A	*	*	A	*
ApproachDel:	xxxxxx			13.8			9.5			9.5		
Delay Adj:	xxxxx			1.00			1.00			1.00		
ApprAdjDel:	xxxxxx			13.8			9.5			9.5		
LOS by Appr:	*			B			A			A		
AllWayAvgQ:	0.0	0.0	0.0	31.2	31.2	31.2	5.7	5.7	5.7	0.0	4.1	0.0

Note: Queue reported is the distance per lane in feet.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #11 County Rd 85B and County Rd 21A

Average Delay (sec/veh): 5.4 Worst Case Level Of Service: A[9.3]

Street Name:	County Rd 85B									County Rd 21A								
Approach:	North Bound				South Bound					East Bound					West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1!	0	0
Volume Module:																				
Base Vol:	0	24		4		88	29		0		0	0		0		8	0		27	
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
Initial Bse:	0	24		4		88	29		0		0	0		0		8	0		27	
Added Vol:	0	8		2		9	7		0		0	0		0		1	0		16	
PasserByVol:	0	0		0		0	0		0		0	0		0		0	0		0	
Initial Fut:	0	32		6		97	36		0		0	0		0		9	0		43	
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
PHF Adj:	0.73	0.73		0.73		0.73	0.73		0.73		0.73	0.73		0.73		0.73	0.73		0.73	
PHF Volume:	0	44		8		134	50		0		0	0		0		12	0		59	
Reduct Vol:	0	0		0		0	0		0		0	0		0		0	0		0	
FinalVolume:	0	44		8		134	50		0		0	0		0		12	0		59	
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx		xxxxx		4.1	xxxx		xxxxx		xxxxx	xxxx		xxxxx		6.4	6.5		6.2	
FollowUpTim:	xxxxx	xxxx		xxxxx		2.2	xxxx		xxxxx		xxxxx	xxxx		xxxxx		3.5	4.0		3.3	
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx		xxxxx		52	xxxx		xxxxx		xxxx	xxxx		xxxxx		365	365		48	
Potent Cap.:	xxxx	xxxx		xxxxx		1553	xxxx		xxxxx		xxxx	xxxx		xxxxx		635	563		1021	
Move Cap.:	xxxx	xxxx		xxxxx		1553	xxxx		xxxxx		xxxx	xxxx		xxxxx		589	511		1021	
Volume/Cap:	xxxx	xxxx		xxxx		0.09	xxxx		xxxx		xxxx	xxxx		xxxx		0.02	0.00		0.06	
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx		xxxxx		7.0	xxxx		xxxxx		xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx	
Control Del:	xxxxx	xxxx		xxxxx		7.5	xxxx		xxxxx		xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx	
LOS by Move:	*	*		*		A	*		*		*	*		*		*	*		*	
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx		xxxx	906		xxxxx	
SharedQueue:	xxxxx	xxxx		xxxxx		0.3	xxxx		xxxxx		xxxxx	xxxx		xxxxx		xxxxx	0.3		xxxxx	
Shrd ConDel:	xxxxx	xxxx		xxxxx		7.5	xxxx		xxxxx		xxxxx	xxxx		xxxxx		xxxxx	9.3		xxxxx	
Shared LOS:	*	*		*		A	*		*		*	*		*		*	A		*	
ApproachDel:	xxxxxx					xxxxxx					xxxxxx						9.3			
ApproachLOS:	*					*					*						A			

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #12 Country Villa Estates and County Rd 21A

Average Delay (sec/veh): 0.4 Worst Case Level Of Service: B[10.0]

Street Name:	Country Villa Estates									County Rd 21A								
Approach:	North Bound			South Bound			East Bound			West Bound								
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled								
Rights:	Include			Include			Include			Include								
Lanes:	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1!	0	0
Volume Module:																				
Base Vol:	0	0	0	5	0	0	3	98	0	1	43	12								
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
Initial Bse:	0	0	0	5	0	0	3	98	0	1	43	12								
Added Vol:	0	0	0	0	0	0	0	11	0	0	17	0								
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0								
Initial Fut:	0	0	0	5	0	0	3	109	0	1	60	12								
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
PHF Adj:	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69								
PHF Volume:	0	0	0	7	0	0	4	159	0	1	87	17								
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0								
FinalVolume:	0	0	0	7	0	0	4	159	0	1	87	17								
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	xxxxx	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx								
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	xxxxx	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx								
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx	xxxxx	267	xxxx	xxxxx	105	xxxx	xxxxx	159	xxxx	xxxxx								
Potent Cap.:	xxxx	xxxx	xxxxx	722	xxxx	xxxxx	1486	xxxx	xxxxx	1421	xxxx	xxxxx								
Move Cap.:	xxxx	xxxx	xxxxx	720	xxxx	xxxxx	1486	xxxx	xxxxx	1421	xxxx	xxxxx								
Volume/Cap:	xxxx	xxxx	xxxx	0.01	xxxx	xxxx	0.00	xxxx	xxxx	0.00	xxxx	xxxx								
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	xxxxx	0.8	xxxx	xxxxx	0.2	xxxx	xxxxx	0.1	xxxx	xxxxx								
Control Del:	xxxxx	xxxx	xxxxx	10.0	xxxx	xxxxx	7.4	xxxx	xxxxx	7.5	xxxx	xxxxx								
LOS by Move:	*	*	*	B	*	*	A	*	*	A	*	*								
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx	xxxxx				xxxx	xxxx	xxxxx				xxxx	xxxx	xxxxx					
SharedQueue:	xxxxx	xxxx	xxxxx				xxxxx	xxxx	xxxxx				0.0	xxxx	xxxxx					
Shrd ConDel:	xxxxx	xxxx	xxxxx				xxxxx	xxxx	xxxxx				7.4	xxxx	xxxxx					
Shared LOS:	*	*	*				*	*	*				A	*	*					
ApproachDel:	xxxxxx						10.0						xxxxxx							
ApproachLOS:	*						B						*							

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #13 Fremont St and County Rd 21A

Average Delay (sec/veh): 1.7 Worst Case Level Of Service: A[9.9]

Street Name:	Fremont St						County Rd 21A					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			0 0 1! 0 0			0 1 0 0 0			0 0 0 1 0		
Volume Module:												
Base Vol:	0	0	0	20	0	10	17	96	0	0	51	21
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	20	0	10	17	96	0	0	51	21
Added Vol:	0	0	0	0	0	0	0	11	0	0	17	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	20	0	10	17	107	0	0	68	21
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
PHF Volume:	0	0	0	25	0	13	22	135	0	0	86	27
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	25	0	13	22	135	0	0	86	27
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	278	278	99	113	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	712	630	956	1477	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	704	621	956	1477	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.04	0.00	0.01	0.01	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1.1	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	772	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.2	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	9.9	xxxxx	7.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	A	*	A	*	*	*	*	*
ApproachDel:	xxxxxx			9.9			xxxxxx			xxxxxx		
ApproachLOS:	*			A			*			*		

Note: Queue reported is the distance per lane in feet.

DELAY (CONTROL)

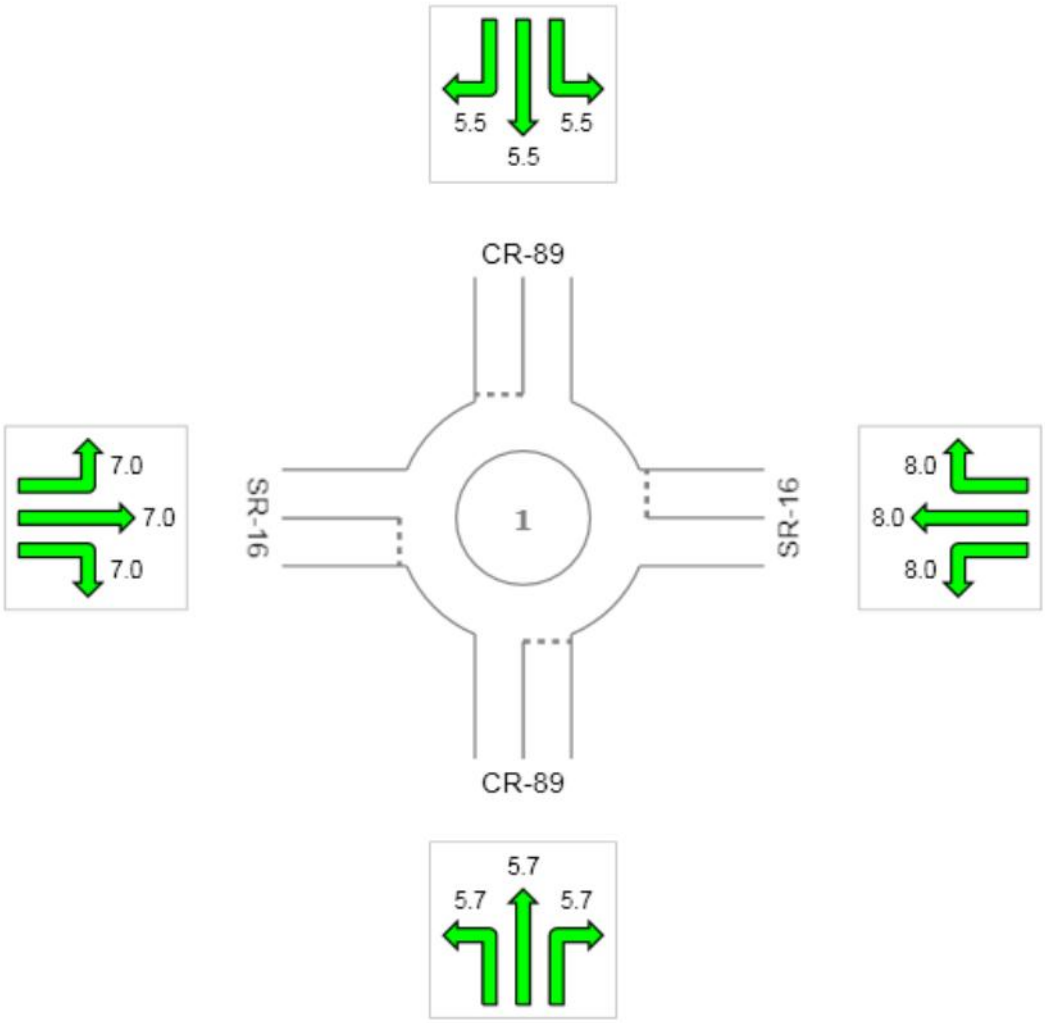
Average control delay per vehicle, or average pedestrian delay (seconds)

Site: SR-16/CR-89

Near-Term Plus Project Alternative Fri PM
Roundabout

All Movement Classes

	South	East	North	West	Intersection
Delay (Control)	5.7	8.0	5.5	7.0	7.4
LOS	A	A	A	A	A



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F | Continuous

Level of Service Method: Delay & v/c (HCM 2010)
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Roundabout Level of Service Method: Same as Sign Control
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #15 SR-16 and SB I-505

Average Delay (sec/veh): 0.3 Worst Case Level Of Service: C[16.2]

Street Name:	SB I-505								SR-16							
Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	0	0 0	0	1	0	0 1	0	0	0	1 0	0	0	1	0 1
Volume Module:																
Base Vol:	0	0	0		4	2	11		0	236	120		0	425	57	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	0	0	0		4	2	11		0	236	120		0	425	57	
Added Vol:	0	0	0		0	0	6		0	95	37		0	118	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	0	0	0		4	2	17		0	331	157		0	543	57	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.81	0.81	0.81		0.81	0.81	0.81		0.81	0.81	0.81		0.81	0.81	0.81	
PHF Volume:	0	0	0		5	2	21		0	407	193		0	668	70	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
FinalVolume:	0	0	0		5	2	21		0	407	193		0	668	70	
Critical Gap Module:																
Critical Gp:	xxxxx	xxxx	xxxxx		6.4	6.6	6.3		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
FollowUpTim:	xxxxx	xxxx	xxxxx		3.5	4.0	3.3		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Capacity Module:																
Cnflict Vol:	xxxx	xxxx	xxxxx		1172	1268	668		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Potent Cap.:	xxxx	xxxx	xxxxx		210	166	453		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Move Cap.:	xxxx	xxxx	xxxxx		210	166	453		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Volume/Cap:	xxxx	xxxx	xxxx		0.02	0.01	0.05		xxxx	xxxx	xxxx		xxxx	xxxx	xxxx	
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	xxxxx		xxxx	xxxx	3.6		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Control Del:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	13.3		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
LOS by Move:	*	*	*		*	*	B		*	*	*		*	*	*	
Movement:	LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT	
Shared Cap.:	xxxx	xxxx	xxxxx		193	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
SharedQueue:	xxxxx	xxxx	xxxxx		0.1	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shrd ConDel:	xxxxx	xxxx	xxxxx		24.4	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shared LOS:	*	*	*		C	*	*		*	*	*		*	*	*	
ApproachDel:	xxxxxx				16.2				xxxxxx				xxxxxx			
ApproachLOS:	*				C				*				*			

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #16 SR-16 and NB I-505

Cycle (sec):	50	Critical Vol./Cap.(X):	0.518
Loss Time (sec):	6	Average Delay (sec/veh):	10.2
Optimal Cycle:	47	Level Of Service:	B

Street Name:	NB I-505						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Ignore			Include		
Min. Green:	5	5	5	0	0	0	0	5	5	0	5	5
Y+R:	4.1	4.1	4.1	4.0	4.0	4.0	4.0	5.5	5.5	4.0	5.5	5.5
Lanes:	0 1	0	0 1	0	0	0 0	0	0	1 0 1	0	0	1 0 1
Volume Module:												
Base Vol:	178	0	82	0	0	0	0	240	3	0	303	4
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	178	0	82	0	0	0	0	240	3	0	303	4
Added Vol:	55	0	0	0	0	0	0	83	12	0	63	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	233	0	82	0	0	0	0	323	15	0	366	4
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Adj:	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.00	0.84	0.84	0.84
PHF Volume:	277	0	98	0	0	0	0	385	0	0	436	5
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	277	0	98	0	0	0	0	385	0	0	436	5
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
FinalVolume:	277	0	98	0	0	0	0	385	0	0	436	5
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.68	1.00	0.81	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.81
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00
Final Sat.:	1291	0	1537	0	0	0	0	1809	1900	0	1809	1537
Capacity Analysis Module:												
Vol/Sat:	0.21	0.00	0.06	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.24	0.00
Crit Moves:	****										****	
Green/Cycle:	0.41	0.00	0.41	0.00	0.00	0.00	0.00	0.47	0.00	0.00	0.47	0.47
Volume/Cap:	0.52	0.00	0.15	0.00	0.00	0.00	0.00	0.46	0.00	0.00	0.52	0.01
Uniform Del:	10.9	0.0	9.1	0.0	0.0	0.0	0.0	9.1	0.0	0.0	9.4	7.2
IncremntDel:	0.9	0.0	0.1	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.6	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00
Delay/Veh:	11.8	0.0	9.3	0.0	0.0	0.0	0.0	9.5	0.0	0.0	10.0	7.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	11.8	0.0	9.3	0.0	0.0	0.0	0.0	9.5	0.0	0.0	10.0	7.2
LOS by Move:	B	A	A	A	A	A	A	A	A	A	A	A
HCM2kAvgQ:	98	0	26	0	0	0	0	111	0	0	117	1

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #17 SR-16 and Wild Wings Dr

Average Delay (sec/veh): 1.3 Worst Case Level Of Service: C[18.5]

Street Name:	Wild Wings Dr						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			1 0 0 0 1			1 0 1 0 0			0 0 1 0 1		
Volume Module:												
Base Vol:	0	0	0	54	0	7	15	321	0	0	303	88
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	54	0	7	15	321	0	0	303	88
Added Vol:	0	0	0	0	0	0	0	83	0	0	63	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	54	0	7	15	404	0	0	366	88
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
PHF Volume:	0	0	0	60	0	8	17	452	0	0	409	98
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	60	0	8	17	452	0	0	409	98
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	895	xxxx	409	508	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	311	xxxx	642	1042	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	307	xxxx	642	1042	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.20	xxxx	0.01	0.02	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	17.9	xxxx	0.9	1.2	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	19.6	xxxx	10.7	8.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	C	*	B	A	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			18.5			xxxxxx			xxxxxx		
ApproachLOS:	*			C			*			*		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #18 SR-16 and County Rd 94B

Average Delay (sec/veh): 1.0 Worst Case Level Of Service: C[22.2]

Street Name:	County Rd 94B						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0	0	0 0 1!	0	0	0 1	0	0 0	0 0 1!	0	0
Volume Module:												
Base Vol:	6	0	14	8	5	5	2	358	0	17	391	1
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	6	0	14	8	5	5	2	358	0	17	391	1
Added Vol:	0	0	0	0	0	0	2	81	0	0	63	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	6	0	14	8	5	5	4	439	0	17	454	1
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
PHF Volume:	7	0	16	9	6	6	5	516	0	20	533	1
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	7	0	16	9	6	6	5	516	0	20	533	1
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1105	1100	516	1108	1099	534	535	xxxx	xxxxx	516	xxxx	xxxxx
Potent Cap.:	188	212	559	187	212	546	1018	xxxx	xxxxx	1035	xxxx	xxxxx
Move Cap.:	179	207	559	179	207	546	1018	xxxx	xxxxx	1035	xxxx	xxxxx
Volume/Cap:	0.04	0.00	0.03	0.05	0.03	0.01	0.00	xxxx	xxxx	0.02	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.3	xxxx	xxxxx	1.5	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.6	xxxx	xxxxx	8.5	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	341	xxxxx	xxxx	231	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.2	xxxxx	xxxxx	0.3	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	16.3	xxxxx	xxxxx	22.2	xxxxx	8.6	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	C	*	*	C	*	A	*	*	*	*	*
ApproachDel:	16.3			22.2			xxxxxx			xxxxxx		
ApproachLOS:	C			C			*			*		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #19 SR-16 and County Rd 95

Average Delay (sec/veh): 0.9 Worst Case Level Of Service: C[19.7]

Street Name:	County Rd 95						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0	0	0 0 0	1	0	0 0 0	1	0	0 1 0	0	0
Volume Module:												
Base Vol:	6	3	22	0	6	2	0	381	0	25	397	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	6	3	22	0	6	2	0	381	0	25	397	0
Added Vol:	1	0	0	0	0	0	0	78	2	0	61	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	7	3	22	0	6	2	0	459	2	25	458	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	8	3	24	0	7	2	0	508	2	28	507	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	8	3	24	0	7	2	0	508	2	28	507	0
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	xxxxx	6.5	6.2	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	4.0	3.3	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1076	1072	509	xxxx	1073	507	xxxx	xxxx	xxxxx	511	xxxx	xxxxx
Potent Cap.:	197	220	564	xxxx	220	565	xxxx	xxxx	xxxxx	1039	xxxx	xxxxx
Move Cap.:	187	214	564	xxxx	214	565	xxxx	xxxx	xxxxx	1039	xxxx	xxxxx
Volume/Cap:	0.04	0.02	0.04	xxxx	0.03	0.00	xxxx	xxxx	xxxx	0.03	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	2.1	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.6	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	354	xxxxx	xxxx	xxxx	254	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.3	xxxxx	xxxxx	xxxx	0.1	xxxxx	xxxx	xxxxx	0.1	xxxx	xxxxx
Shrd ConDel:	xxxxx	16.3	xxxxx	xxxxx	xxxx	19.7	xxxxx	xxxx	xxxxx	8.6	xxxx	xxxxx
Shared LOS:	*	C	*	*	*	C	*	*	*	A	*	*
ApproachDel:		16.3			19.7			xxxxxx			xxxxxx	
ApproachLOS:		C			C			*			*	

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #20 SR-16 and County Rd 98

Cycle (sec):	80	Critical Vol./Cap.(X):	0.446
Loss Time (sec):	12	Average Delay (sec/veh):	25.6
Optimal Cycle:	80	Level Of Service:	C

Street Name:	County Rd 98						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	5	5	5	5	6	6	5	5	5
Y+R:	4.0	6.0	6.0	4.0	6.0	6.0	4.0	5.3	5.3	4.0	5.3	5.3
Lanes:	1 0	0	1 0	1 0	1	0 1	1 0	1	0 1	1 0	1	0 1
Volume Module:												
Base Vol:	87	124	78	60	175	64	112	251	121	65	190	51
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	87	124	78	60	175	64	112	251	121	65	190	51
Added Vol:	7	0	0	0	0	39	49	17	13	0	15	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	94	124	78	60	175	103	161	268	134	65	205	51
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	100	132	83	64	186	110	171	285	143	69	218	54
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	100	132	83	64	186	110	171	285	143	69	218	54
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	100	132	83	64	186	110	171	285	143	69	218	54
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.92	0.92	0.93	0.98	0.83	0.90	0.86	0.86	0.90	0.95	0.81
Lanes:	1.00	0.61	0.39	1.00	1.00	1.00	1.00	1.33	0.67	1.00	1.00	1.00
Final Sat.:	1769	1077	677	1769	1862	1583	1718	2177	1088	1718	1809	1537
Capacity Analysis Module:												
Vol/Sat:	0.06	0.12	0.12	0.04	0.10	0.07	0.10	0.13	0.13	0.04	0.12	0.04
Crit Moves:		****		****			****				****	
Green/Cycle:	0.14	0.27	0.27	0.08	0.22	0.22	0.22	0.33	0.33	0.16	0.27	0.27
Volume/Cap:	0.41	0.45	0.45	0.45	0.46	0.32	0.45	0.39	0.39	0.25	0.45	0.13
Uniform Del:	31.6	24.0	24.0	35.1	27.1	26.2	26.8	20.4	20.4	29.4	24.2	22.1
IncremntDel:	1.1	0.7	0.7	2.2	0.8	0.5	0.8	0.2	0.2	0.5	0.7	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	32.7	24.6	24.6	37.3	27.9	26.7	27.6	20.6	20.6	29.9	24.9	22.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	32.7	24.6	24.6	37.3	27.9	26.7	27.6	20.6	20.6	29.9	24.9	22.2
LOS by Move:	C	C	C	D	C	C	C	C	C	C	C	C
HCM2kAvgQ:	68	118	118	38	97	55	89	102	102	42	120	27

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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #21 SR-16 and W. Kentucky Ave

Cycle (sec):	80	Critical Vol./Cap.(X):	0.409
Loss Time (sec):	12	Average Delay (sec/veh):	19.2
Optimal Cycle:	80	Level Of Service:	B

Street Name:	SR-16						W. Kentucky Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	5	5	5	5	5	5	5	5	5
Y+R:	4.0	6.0	6.0	4.0	6.0	6.0	4.0	5.3	5.3	4.0	5.3	5.3
Lanes:	1 0	0	1 0	1 0	0	1 0	1 0	0	1 0	1 0	0	1 0
Volume Module:												
Base Vol:	18	187	90	13	152	33	24	35	7	81	59	20
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	18	187	90	13	152	33	24	35	7	81	59	20
Added Vol:	0	36	13	0	32	0	0	0	0	7	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	18	223	103	13	184	33	24	35	7	88	59	20
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
PHF Volume:	23	288	133	17	237	43	31	45	9	114	76	26
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	23	288	133	17	237	43	31	45	9	114	76	26
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	23	288	133	17	237	43	31	45	9	114	76	26
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.90	0.91	0.91	0.90	0.93	0.93	0.93	0.96	0.96	0.93	0.94	0.94
Lanes:	1.00	0.68	0.32	1.00	0.85	0.15	1.00	0.83	0.17	1.00	0.75	0.25
Final Sat.:	1718	1179	545	1718	1498	269	1769	1513	303	1769	1338	453
Capacity Analysis Module:												
Vol/Sat:	0.01	0.24	0.24	0.01	0.16	0.16	0.02	0.03	0.03	0.06	0.06	0.06
Crit Moves:		****		****				****		****		
Green/Cycle:	0.18	0.57	0.57	0.06	0.45	0.45	0.11	0.07	0.07	0.15	0.11	0.11
Volume/Cap:	0.08	0.43	0.43	0.16	0.35	0.35	0.16	0.43	0.43	0.43	0.52	0.52
Uniform Del:	27.4	9.9	9.9	35.5	14.2	14.2	32.3	35.7	35.7	30.9	33.6	33.6
IncremntDel:	0.1	0.3	0.3	0.7	0.3	0.3	0.4	2.3	2.3	1.1	2.5	2.5
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	27.5	10.2	10.2	36.2	14.5	14.5	32.7	38.0	38.0	32.0	36.1	36.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	27.5	10.2	10.2	36.2	14.5	14.5	32.7	38.0	38.0	32.0	36.1	36.1
LOS by Move:	C	B	B	D	B	B	C	D	D	C	D	D
HCM2kAvgQ:	11	144	144	13	115	115	20	46	46	75	78	78

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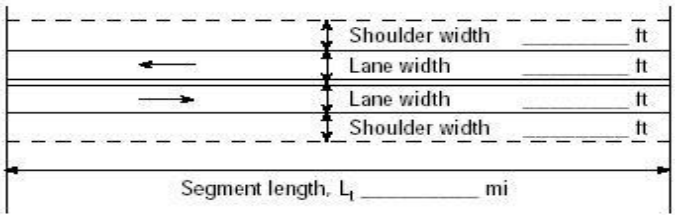
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*CCCR to County Road 85*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019) Plus Proj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *416*veh/h

Opposing direction vol., V_o *468*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *6.7*

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☐ Level ☑ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.88*

No-passing zone *75%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*2.0*	*1.9*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.1*	*1.1*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.949*	*0.953*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*0.94*	*0.96*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*530*	*581*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.3 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*51.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*40.7 mi/h*
		Percent free flow speed, PFFS	*78.8 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.6*	*1.5*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.971*	*0.976*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*0.94*	*0.96*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*518*	*568*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*52.7*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*35.4*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*69.6*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.31*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1570*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1633*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*78.8*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*472.7*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.20*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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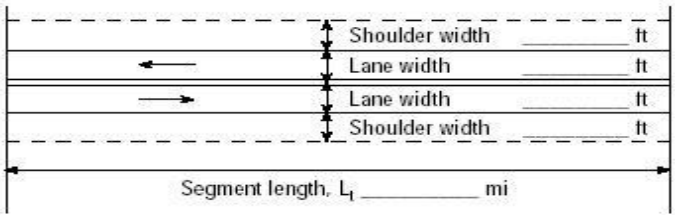
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*CCCR to County Road 85*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019) Plus Proj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☐ Level ☑ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.88*

No-passing zone *75%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *3*/mi

Analysis direction vol., V_d *468*veh/h

Opposing direction vol., V_o *416*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *6.7*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.9*	*2.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.1*	*1.1*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.953*	*0.949*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*0.96*	*0.94*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*581*	*530*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, v		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.6 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*51.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*40.4 mi/h*
		Percent free flow speed, PFFS	*78.3 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.5*	*1.6*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.976*	*0.971*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*0.96*	*0.94*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*568*	*518*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*55.1*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*35.4*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*73.6*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.33*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1629*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1616*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*78.3*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*531.8*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.25*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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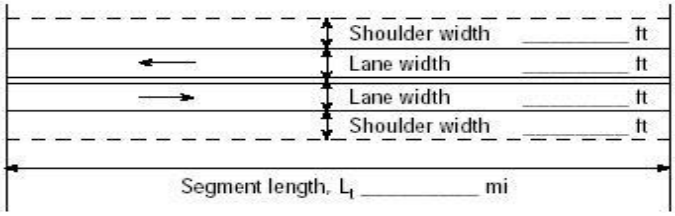
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*County Road 85 to Esparto Town*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019) Plus Proj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Analysis direction vol., V_d	*403*veh/h	Grade Length	mi Up/down
Opposing direction vol., V_o	*464*veh/h	Peak-hour factor, PHF	*0.95*
Shoulder width ft	*2.0*	No-passing zone	*85%*
Lane Width ft	*12.0*	% Trucks and Buses , P_T	*5* %
Segment Length mi	*1.4*	% Recreational vehicles, P_R	*4%*
		Access points *mi*	*5*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.3*	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.985*	*0.990*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*431*	*493*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*0.3 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.3 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*42.1 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*32.6 mi/h*
		Percent free flow speed, PFFS	*77.5 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*426*	*488*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*46.6*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*40.4*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*65.4*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*C*
Volume to capacity ratio, *v/c*	*0.25*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1683*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*77.5*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*424.2*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.14*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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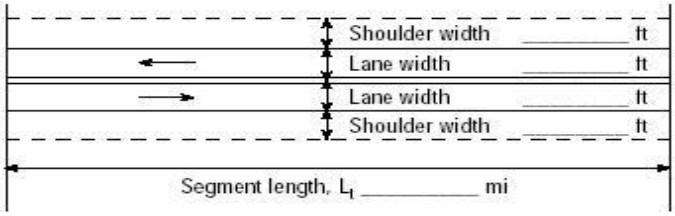
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*County Road 85 to Esparto Town*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019) Plus Proj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Analysis direction vol., V_d	*464*veh/h	Grade Length mi	Up/down
Opposing direction vol., V_o	*403*veh/h	Peak-hour factor, PHF	*0.95*
Shoulder width ft	*2.0*	No-passing zone	*85%*
Lane Width ft	*12.0*	% Trucks and Buses , P_T	*5 %*
Segment Length mi	*1.4*	% Recreational vehicles, P_R	*4%*
		Access points *mi*	*5*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.2*	*1.3*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.990*	*0.985*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*493*	*431*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*0.3 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.6 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*42.1 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*32.3 mi/h*
		Percent free flow speed, PFFS	*76.8 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*488*	*426*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*48.7*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*40.4*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*70.3*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.29*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*76.8*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*488.4*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.21*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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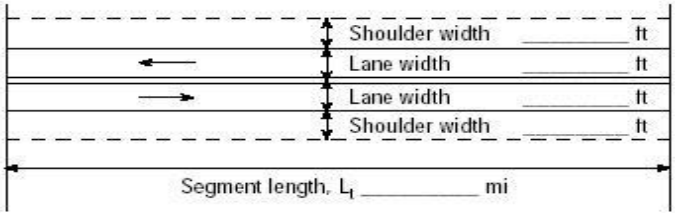
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*through Esparto Town*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019) Plus Proj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Analysis direction vol., V_d	*477*veh/h	Grade Length mi	Up/down
Opposing direction vol., V_o	*392*veh/h	Peak-hour factor, PHF	*0.93*
Shoulder width ft	*2.0*	No-passing zone	*95%*
Lane Width ft	*12.0*	% Trucks and Buses , P_T	*5 %*
Segment Length mi	*1.2*	% Recreational vehicles, P_R	*4%*
		Access points *mi*	*14*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.2*	*1.3*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.990*	*0.985*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*518*	*428*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*3.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.7 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*38.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*28.9 mi/h*
		Percent free flow speed, PFFS	*74.2 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*513*	*424*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*50.5*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*40.0*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*72.4*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.30*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*74.2*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*512.9*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.24*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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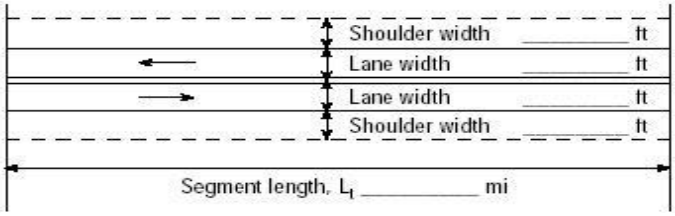
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*through Esparto Town*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019) Plus Proj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.93*

No-passing zone *95%*

Show North Arrow

Analysis direction vol., V_d *392*veh/h

Opposing direction vol., V_o *477*veh/h

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Shoulder width ft *2.0*

Lane Width ft *12.0*

Access points *mi* *14*/mi

Segment length mi *1.2*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.3*	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.985*	*0.990*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*428*	*518*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*3.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.3 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*38.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*29.3 mi/h*
		Percent free flow speed, PFFS	*75.2 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*424*	*513*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*46.3*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*40.0*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*64.4*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*C*
Volume to capacity ratio, *v/c*	*0.25*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1683*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*75.2*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*421.5*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.14*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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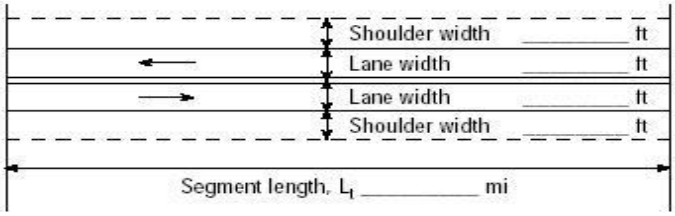
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*Esparto Town to County Rd 89*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019) Plus Proj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Analysis direction vol., V_d	*555*veh/h	Grade Length	mi Up/down
Opposing direction vol., V_o	*499*veh/h	Peak-hour factor, PHF	*0.86*
Shoulder width ft	*4.0*	No-passing zone	*80%*
Lane Width ft	*12.0*	% Trucks and Buses , P_T	*5 %*
Segment Length mi	*2.7*	% Recreational vehicles, P_R	*4%*
		Access points *mi*	*3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.990*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*649*	*586*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.3 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*41.0 mi/h*
		Percent free flow speed, PFFS	*77.5 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*645*	*580*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*60.1*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*31.9*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*76.9*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.38*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*77.5*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*645.3*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.05*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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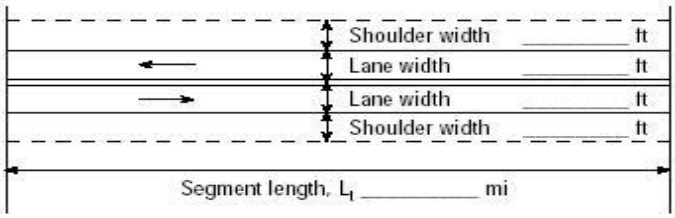
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*Esparto Town to County Rd 89*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019) Plus Proj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.86*

No-passing zone *80%*

Analysis direction vol., V_d *499*veh/h

Opposing direction vol., V_o *555*veh/h

% Trucks and Buses , P_T *5* %

% Recreational vehicles, P_R *4%*

Access points *mi* *3*/mi

Shoulder width ft *4.0*

Lane Width ft *12.0*

Segment Length mi *2.7*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.2*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.990*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*586*	*649*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.0 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*41.3 mi/h*
		Percent free flow speed, PFFS	*78.1 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*580*	*645*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*58.0*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*31.9*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*73.1*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.34*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*78.1*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*580.2*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.00*
Bicycle level of service (Exhibit 15-4)	*E*
Notes	
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain. 2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10. 6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.	

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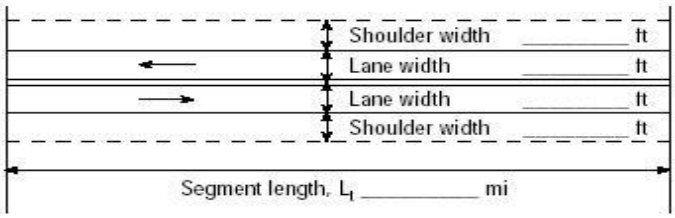
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*County Rd 89 to I-505*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019) Plus Proj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *560*veh/h

Opposing direction vol., V_o *491*veh/h

Shoulder width ft *4.0*

Lane Width ft *12.0*

Segment Length mi *0.8*

Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.81*

No-passing zone *100%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *4*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.990*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*695*	*612*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*1.0 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.4 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.7 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*40.2 mi/h*
		Percent free flow speed, PFFS	*76.2 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*691*	*606*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*62.0*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*31.0*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*78.5*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.41*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*76.2*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*691.4*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.09*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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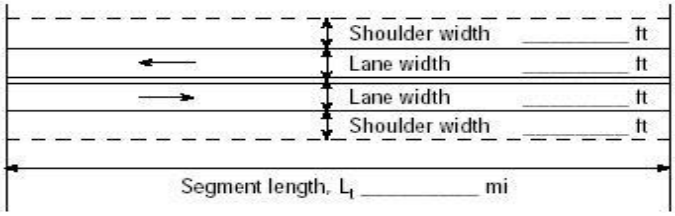
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*County Rd 89 to I-505*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019) Plus Proj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.81*

No-passing zone *100%*

Analysis direction vol., V_d *491*veh/h

Opposing direction vol., V_o *560*veh/h

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Shoulder width ft *4.0*

Lane Width ft *12.0*

Access points *mi* *4*/mi

Segment Length mi *0.8*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.2*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.990*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*612*	*695*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.0 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.1 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.7 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*40.5 mi/h*
		Percent free flow speed, PFFS	*76.8 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*606*	*691*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*59.3*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*31.0*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*73.8*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.36*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*76.8*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*606.2*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.02*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
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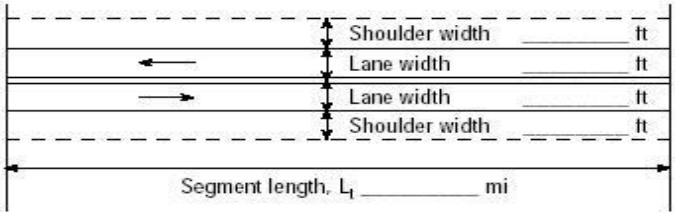
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*I-505 to County Rd 98*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019) Plus Proj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *403*veh/h

Opposing direction vol., V_o *563*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *8.3*

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.89*

No-passing zone *100*%

% Trucks and Buses , P_T *5* %

% Recreational vehicles, P_R *4*%

Access points *mi* *35*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.3*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.985*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*460*	*636*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0* *mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6* *mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*8.8* *mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.1* *mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*43.6* *mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*33.0* *mi/h*
		Percent free flow speed, PFFS	*75.7* *%*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*455*	*633*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*50.0*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*35.2*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*64.7*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.27*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*75.7*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*452.8*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.17*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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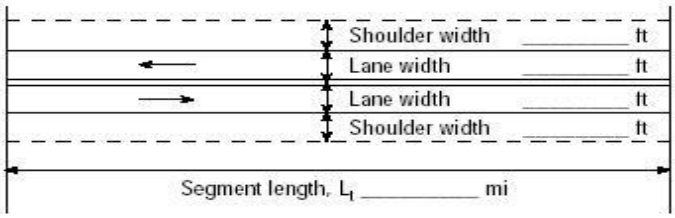
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*I-505 to County Rd 98*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019) Plus Pro Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.89*

No-passing zone *100%*

Analysis direction vol., V_d *563*veh/h

Opposing direction vol., V_o *403*veh/h

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Shoulder width ft *2.0*

Lane Width ft *12.0*

Access points *mi* *35*/mi

Segment Length mi *8.3*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.3*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.985*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*636*	*460*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*8.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.8 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*43.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*32.3 mi/h*
		Percent free flow speed, PFFS	*74.1 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*633*	*455*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*58.3*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*35.2*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*78.8*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.37*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1683*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*74.1*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*632.6*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.34*
Bicycle level of service (Exhibit 15-4)	*E*
Notes	
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain. 2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10. 6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.	

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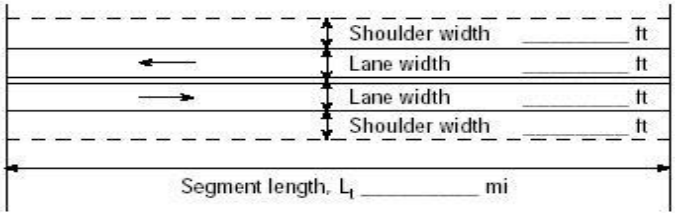
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 21A (WB)*
Agency or Company	*Yolo County*	From/To	*County Rd 85 to SR-16*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019) Plus Proj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Analysis direction vol., V_d	*94*veh/h	Grade Length mi	Up/down
Opposing direction vol., V_o	*123*veh/h	Peak-hour factor, PHF	*0.82*
Shoulder width ft	*2.0*	No-passing zone	*25%*
Lane Width ft	*12.0*	% Trucks and Buses , P_T	*5 %*
Segment Length mi	*1.2*	% Recreational vehicles, P_R	*4%*
		Access points *mi*	7/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.9*	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.957*	*0.962*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*120*	*156*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*0.4 mi/h*	Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*40.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*38.1 mi/h*
		Percent free flow speed, PFFS	*93.7 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*115*	*151*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*13.2*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*35.4*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*28.5*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*A*
Volume to capacity ratio, *v/c*	*0.07*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1642*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*93.7*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*114.6*
Effective width, Wv (Eq. 15-29) ft	*21.42*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.16*
Bicycle level of service (Exhibit 15-4)	*C*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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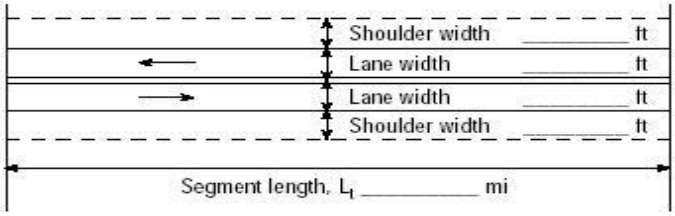
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 21A (EB)*
Agency or Company	*Yolo County*	From/To	*County Rd 85 to SR-16*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019) Plus Proj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *123*veh/h
Opposing direction vol., V_o *94*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *1.2*

☐ Class I highway ☑ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.82*
No-passing zone *25%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* 7/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.8*	*1.9*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.962*	*0.957*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*156*	*120*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*0.2 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*40.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*38.3 mi/h*
		Percent free flow speed, PFFS	*94.2 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*151*	*115*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*16.9*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*35.4*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*37.0*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*A*
Volume to capacity ratio, *v/c*	*0.09*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*94.2*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*150.0*
Effective width, Wv (Eq. 15-29) ft	*19.39*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.71*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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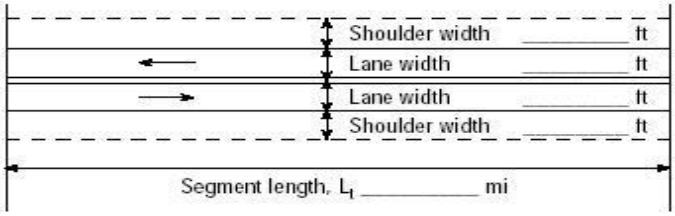
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 85B (NB)*
Agency or Company	*Yolo County*	From/To	*SR-16 to County Rd 21A*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019) Plus Proj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.83*

No-passing zone *80%*

Analysis direction vol., V_d *85*veh/h

Opposing direction vol., V_o *138*veh/h

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *6*/mi

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *0.9*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.9*	*1.7*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.957*	*0.966*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*107*	*172*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.8 mi/h*	Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*40.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*35.9 mi/h*
		Percent free flow speed, PFFS	*87.9 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*103*	*167*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*11.9*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*52.3*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*31.9*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*A*
Volume to capacity ratio, *v/c*	*0.06*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1651*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*87.9*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*102.4*
Effective width, Wv (Eq. 15-29) ft	*22.05*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*2.97*
Bicycle level of service (Exhibit 15-4)	*C*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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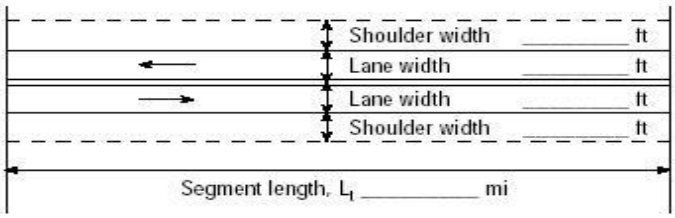
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 85B (SB)*
Agency or Company	*Yolo County*	From/To	*SR-16 to County Rd 21A*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Near-Term (2019) Plus Proj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *138*veh/h
Opposing direction vol., V_o *85*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *0.9*

Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.83*
No-passing zone *80%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *6*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.9*	*1.7*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.957*	*0.966*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*174*	*106*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.2 mi/h*	Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*40.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*36.5 mi/h*
		Percent free flow speed, PFFS	*89.3 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*167*	*103*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*18.4*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*52.3*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*50.7*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*B*
Volume to capacity ratio, *v/c*	*0.10*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*89.3*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*166.3*
Effective width, Wv (Eq. 15-29) ft	*18.34*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.96*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 SR-16 and North Casino Entrance

Cycle (sec):	65	Critical Vol./Cap.(X):	0.261
Loss Time (sec):	6	Average Delay (sec/veh):	6.5
Optimal Cycle:	62	Level Of Service:	A

Street Name:	SR-16						North Casino Entrance					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ovl			Include			Include			Include		
Min. Green:	0	8	8	5	8	0	0	0	0	5	5	5
Y+R:	4.0	5.5	5.5	4.0	5.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	1 0	1	1 0	1 0	0	0 0	0 0	0 0	1 0	0 0	1
Volume Module:												
Base Vol:	0	33	305	19	38	0	0	0	0	269	0	9
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	33	305	19	38	0	0	0	0	269	0	9
Added Vol:	0	31	66	4	28	0	0	0	0	34	0	2
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	64	371	23	66	0	0	0	0	303	0	11
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
PHF Volume:	0	69	399	25	71	0	0	0	0	326	0	12
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	69	399	25	71	0	0	0	0	326	0	12
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	69	399	25	71	0	0	0	0	326	0	12
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	0.81	0.90	0.95	1.00	1.00	1.00	1.00	0.93	1.00	0.83
Lanes:	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Final Sat.:	0	1809	1537	1718	1809	0	0	0	0	1769	0	1583
Capacity Analysis Module:												
Vol/Sat:	0.00	0.04	0.26	0.01	0.04	0.00	0.00	0.00	0.00	0.18	0.00	0.01
Crit Moves:		****		****						****		
Green/Cycle:	0.00	0.13	0.83	0.08	0.21	0.00	0.00	0.00	0.00	0.70	0.00	0.70
Volume/Cap:	0.00	0.29	0.31	0.18	0.19	0.00	0.00	0.00	0.00	0.26	0.00	0.01
Uniform Del:	0.0	25.6	1.3	27.9	21.1	0.0	0.0	0.0	0.0	3.6	0.0	2.9
IncremntDel:	0.0	0.7	0.1	0.6	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Delay/Veh:	0.0	26.3	1.4	28.5	21.4	0.0	0.0	0.0	0.0	3.7	0.0	3.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	26.3	1.4	28.5	21.4	0.0	0.0	0.0	0.0	3.7	0.0	3.0
LOS by Move:	A	C	A	C	C	A	A	A	A	A	A	A
HCM2kAvgQ:	0	38	53	16	32	0	0	0	0	63	0	2

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Level Of Service Computation Report
Unknown Method (Future Volume Alternative)

Intersection #2 SR-16 and Central Casino Entrance

Street Name:	SR-16						Central Casino Entrance					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0 0 1 0			0 0 1 0 0			0 0 0 0 0			0 0 0 0 0		
Volume Module:												
Base Vol:	0	329	89	0	304	0	0	0	0	0	0	0
Growth Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Bse:	0	0	0	0	0	0	0	0	0	0	0	0
Added Vol:	0	96	16	0	63	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	0	0	0	0	0	0	0	0	0
User Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Volume:	0	0	0	0	0	0	0	0	0	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PCE Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MLF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FinalVolume:	0	0	0	0	0	0	0	0	0	0	0	0
Critical Gap Module: >> Population:0 << >> Run Speed(N/S): 30 MPH <<												
Critical Gp:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capacity Module:												
Cnflict Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Potent Cap.:	0	0	0	0	0	0	0	0	0	0	0	0
Level Of Service Module:												
LOS by Move:												
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	0	0	0	0	0	0	0	0	0	0	0	0

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #3 SR-16 and South Casino Entrance

Average Delay (sec/veh): 2.0 Worst Case Level Of Service: D[25.2]

Street Name:	SR-16						South Casino Entrance					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 1 0			0 0 1 0 0			0 0 0 0 0			1 0 0 0 1		
Volume Module:												
Base Vol:	0	424	109	0	292	0	0	0	0	81	0	1
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	424	109	0	292	0	0	0	0	81	0	1
Added Vol:	0	113	21	0	63	0	0	0	0	7	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	537	130	0	355	0	0	0	0	88	0	1
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	564	137	0	373	0	0	0	0	92	0	1
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	564	137	0	373	0	0	0	0	92	0	1
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1005	xxxx	632
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	268	xxxx	480
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	268	xxxx	480
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.35	xxxx	0.00
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	37.1	xxxx	0.2
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	25.4	xxxx	12.5
LOS by Move:	*	*	*	*	*	*	*	*	*	D	*	B
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			25.2		
ApproachLOS:	*			*			*			D		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #4 SR-16 and County Rd 85

Average Delay (sec/veh): 0.3 Worst Case Level Of Service: C[17.4]

Street Name:	County Rd 85						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0 0		0 0 1!	0 0		0 1 0	0 0		0 0 0	1 0	
Volume Module:												
Base Vol:	0	0	0	5	0	9	9	335	0	0	553	3
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	5	0	9	9	335	0	0	553	3
Added Vol:	0	0	0	0	0	3	1	68	0	0	131	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	5	0	12	10	403	0	0	684	3
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
PHF Volume:	0	0	0	6	0	13	11	444	0	0	754	3
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	6	0	13	11	444	0	0	754	3
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	1222	1222	756	757	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	198	179	408	840	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	196	177	408	840	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.03	0.00	0.03	0.01	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1.0	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	9.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	310	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.2	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	17.4	xxxxx	9.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	C	*	A	*	*	*	*	*
ApproachDel:	xxxxxx			17.4			xxxxxx			xxxxxx		
ApproachLOS:	*			C			*			*		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #5 SR-16 and County Rd 85B

Average Delay (sec/veh): 2.0 Worst Case Level Of Service: C[16.4]

Street Name:	County Rd 85B						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0	0	0 0 0	0	0	0 0 1	0	1	1 0 1	0	0
Volume Module:												
Base Vol:	101	0	2	0	0	0	0	219	116	3	442	0
Growth Adj:	1.00 1.00	1.00	1.00	1.00	1.00	1.00	1.00 1.00	1.00	1.00	1.00 1.00	1.00	
Initial Bse:	101	0	2	0	0	0	0	219	116	3	442	0
Added Vol:	25	0	0	0	0	0	0	54	14	0	106	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	126	0	2	0	0	0	0	273	130	3	548	0
User Adj:	1.00 1.00	1.00	1.00	1.00	1.00	1.00	1.00 1.00	1.00	1.00	1.00 1.00	1.00	
PHF Adj:	0.92 0.92	0.92	0.92	0.92	0.92	0.92	0.92 0.92	0.92	0.92	0.92 0.92	0.92	
PHF Volume:	137	0	2	0	0	0	0	297	141	3	596	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	137	0	2	0	0	0	0	297	141	3	596	0
Critical Gap Module:												
Critical Gp:	6.4 6.5		6.2	xxxxx xxxx		xxxxx	xxxxx xxxx		xxxxx	4.1 xxxx		xxxxx
FollowUpTim:	3.5 4.0		3.3	xxxxx xxxx		xxxxx	xxxxx xxxx		xxxxx	2.2 xxxx		xxxxx
Capacity Module:												
Cnflict Vol:	899 899		297	xxxx xxxx		xxxxx	xxxx xxxx		xxxxx	438 xxxx		xxxxx
Potent Cap.:	310 279		743	xxxx xxxx		xxxxx	xxxx xxxx		xxxxx	1106 xxxx		xxxxx
Move Cap.:	309 278		743	xxxx xxxx		xxxxx	xxxx xxxx		xxxxx	1106 xxxx		xxxxx
Volume/Cap:	0.44 0.00		0.00	xxxx xxxx		xxxx	xxxx xxxx		xxxx	0.00 xxxx		xxxx
Level Of Service Module:												
2Way95thQ:	xxxx xxxx		xxxxx	xxxx xxxx		xxxxx	xxxx xxxx		xxxxx	0.2 xxxx		xxxxx
Control Del:	xxxxx xxxx		xxxxx	xxxxx xxxx		xxxxx	xxxxx xxxx		xxxxx	8.3 xxxx		xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx 454		xxxxx	xxxx xxxx		xxxxx	xxxx xxxx		xxxxx	xxxx xxxx		xxxxx
SharedQueue:	xxxxx 1.3		xxxxx	xxxxx xxxx		xxxxx	xxxxx xxxx		xxxxx	xxxxx xxxx		xxxxx
Shrd ConDel:	xxxxx 16.4		xxxxx	xxxxx xxxx		xxxxx	xxxxx xxxx		xxxxx	xxxxx xxxx		xxxxx
Shared LOS:	*	C	*	*	*	*	*	*	*	*	*	*
ApproachDel:	16.4			xxxxxx			xxxxxx			xxxxxx		
ApproachLOS:	C			*			*			*		

Note: Queue reported is the distance per lane in feet.

6: Yolo Ave & Woodland Ave Performance by movement

Movement	EBL	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR	All
Denied Del/Veh (s)	0.3	0.2	0.1	0.1	0.1	0.4	0.7	3.4	0.1	0.1	0.3
Total Del/Veh (s)	20.1	5.6	11.8	5.7	4.3	1.9	5.9	0.2	11.3	10.2	3.9

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #7 SR-16 and Capay St

Average Delay (sec/veh): 0.9 Worst Case Level Of Service: C[19.2]

Street Name:	SR-16						Capay St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	30	467	11	3	239	7	5	2	23	3	1	3
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	30	467	11	3	239	7	5	2	23	3	1	3
Added Vol:	0	112	0	0	61	0	0	0	0	0	0	1
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	30	579	11	3	300	7	5	2	23	3	1	4
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
PHF Volume:	34	659	13	3	342	8	6	2	26	3	1	5
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	34	659	13	3	342	8	6	2	26	3	1	5
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx	7.1	6.5	6.2	7.1	6.5	6.2
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	3.5	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	350	xxxx	xxxxx	672	xxxx	xxxxx	1089	1093	346	1101	1091	666
Potent Cap.:	1193	xxxx	xxxxx	905	xxxx	xxxxx	193	214	697	189	215	460
Move Cap.:	1193	xxxx	xxxxx	905	xxxx	xxxxx	185	207	697	176	208	460
Volume/Cap:	0.03	xxxx	xxxx	0.00	xxxx	xxxx	0.03	0.01	0.04	0.02	0.01	0.01
Level Of Service Module:												
2Way95thQ:	2.2	xxxx	xxxxx	0.3	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	8.1	xxxx	xxxxx	9.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	431	xxxxx	xxxx	262	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.3	xxxxx	xxxxx	0.1	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	14.1	xxxxx	xxxxx	19.2	xxxxx
Shared LOS:	*	*	*	*	*	*	*	B	*	*	C	*
ApproachDel:	xxxxxx			xxxxxx			14.1			19.2		
ApproachLOS:	*			*			B			C		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #8 SR-16 and Madison St

Average Delay (sec/veh): 0.4 Worst Case Level Of Service: B[13.7]

Street Name:	SR-16								Madison St							
Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Lanes:	0	1	0	0 0	0	0	0	1 0	0	0	1!	0 0	0	0	0	0 1
Volume Module:																
Base Vol:	14	500	0	0	256	6			5	0	14		0	0	0	
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	14	500	0	0	256	6			5	0	14		0	0	0	
Added Vol:	0	110	0	0	60	0			0	0	0		0	0	1	
PasserByVol:	0	0	0	0	0	0			0	0	0		0	0	0	
Initial Fut:	14	610	0	0	316	6			5	0	14		0	0	1	
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.93	0.93	0.93	0.93	0.93	0.93			0.93	0.93	0.93		0.93	0.93	0.93	
PHF Volume:	15	654	0	0	339	6			5	0	15		0	0	1	
Reduct Vol:	0	0	0	0	0	0			0	0	0		0	0	0	
FinalVolume:	15	654	0	0	339	6			5	0	15		0	0	1	
Critical Gap Module:																
Critical Gp:	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx			7.1	6.5	6.2		xxxxx	xxxx	6.2	
FollowUpTim:	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx			3.5	4.0	3.3		xxxxx	xxxx	3.3	
Capacity Module:																
Cnflict Vol:	345	xxxx	xxxxx	xxxx	xxxx	xxxxx			1026	1026	342		xxxx	xxxx	654	
Potent Cap.:	1197	xxxx	xxxxx	xxxx	xxxx	xxxxx			213	235	701		xxxx	xxxx	467	
Move Cap.:	1197	xxxx	xxxxx	xxxx	xxxx	xxxxx			210	232	701		xxxx	xxxx	467	
Volume/Cap:	0.01	xxxx	xxxx	xxxx	xxxx	xxxx			0.03	0.00	0.02		xxxx	xxxx	0.00	
Level Of Service Module:																
2Way95thQ:	1.0	xxxx	xxxxx	xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx		xxxx	xxxx	0.2	
Control Del:	8.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx		xxxxx	xxxx	12.7	
LOS by Move:	A	*	*	*	*	*			*	*	*		*	*	B	
Movement:	LT -	LTR -	RT	LT -	LTR -	RT			LT -	LTR -	RT		LT -	LTR -	RT	
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx			xxxx	434	xxxxx		xxxx	xxxx	xxxxx	
SharedQueue:	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx			xxxxx	0.1	xxxxx		xxxxx	xxxx	xxxxx	
Shrd ConDel:	8.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx			xxxxx	13.7	xxxxx		xxxxx	xxxx	xxxxx	
Shared LOS:	A	*	*	*	*	*			*	B	*		*	*	*	
ApproachDel:	xxxxxx			xxxxxx					13.7				12.7			
ApproachLOS:	*			*					B				B			

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #9 SR-16 and Plainfield St

Average Delay (sec/veh): 1.2 Worst Case Level Of Service: C[22.4]

Street Name:	SR-16						Plainfield St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 1 0	1 0		0 1 0	1 0		0 0 1! 0	0		0 0 1! 0	0	
Volume Module:												
Base Vol:	27 522	12		8 254	5		5	8	17	9	8	3
Growth Adj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00	
Initial Bse:	27 522	12		8 254	5		5	8	17	9	8	3
Added Vol:	0 109	0		1 59	0		0	0	0	0	0	1
PasserByVol:	0 0	0		0 0	0		0	0	0	0	0	0
Initial Fut:	27 631	12		9 313	5		5	8	17	9	8	4
User Adj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00	
PHF Adj:	0.97 0.97	0.97		0.97 0.97	0.97		0.97 0.97	0.97		0.97 0.97	0.97	
PHF Volume:	28 653	12		9 324	5		5	8	18	9	8	4
Reduct Vol:	0 0	0		0 0	0		0	0	0	0	0	0
FinalVolume:	28 653	12		9 324	5		5	8	18	9	8	4
Critical Gap Module:												
Critical Gp:	4.1 xxxx xxxxx			4.1 xxxx xxxxx			7.1	6.5	6.2	7.1	6.5	6.2
FollowUpTim:	2.2 xxxx xxxxx			2.2 xxxx xxxxx			3.5	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	329 xxxx xxxxx			665 xxxx xxxxx			731	1066	326	1072	1062	332
Potent Cap.:	1214 xxxx xxxxx			910 xxxx xxxxx			337	222	715	198	223	709
Move Cap.:	1214 xxxx xxxxx			910 xxxx xxxxx			317	215	715	183	216	709
Volume/Cap:	0.02 xxxx xxxx			0.01 xxxx xxxx			0.02	0.04	0.02	0.05	0.04	0.01
Level Of Service Module:												
2Way95thQ:	1.8 xxxx xxxxx			0.8 xxxx xxxxx			xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	8.0 xxxx xxxxx			9.0 xxxx xxxxx			xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx xxxx xxxxx			xxxx xxxx xxxxx			xxxx	391	xxxxx	xxxx	228	xxxxx
SharedQueue:	0.1 xxxx xxxxx			xxxxx xxxx xxxxx			xxxxx	0.3	xxxxx	xxxxx	0.3	xxxxx
Shrd ConDel:	8.0 xxxx xxxxx			xxxxx xxxx xxxxx			xxxxx	15.0	xxxxx	xxxxx	22.4	xxxxx
Shared LOS:	A	*	*	*	*	*	*	C	*	*	C	*
ApproachDel:	xxxxxx			xxxxxx			15.0			22.4		
ApproachLOS:	*			*			C			C		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #10 SR-16 and County Road 21A

Cycle (sec):	100	Critical Vol./Cap.(X):	0.545
Loss Time (sec):	0	Average Delay (sec/veh):	11.9
Optimal Cycle:	0	Level Of Service:	B

Street Name:	SR-16						County Road 21A					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Ignore		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	0 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	1 0	1
Volume Module:												
Base Vol:	0	0	0	276	0	7	4	120	0	0	105	558
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	276	0	7	4	120	0	0	105	558
Added Vol:	0	0	0	58	0	1	1	10	0	0	17	108
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	334	0	8	5	130	0	0	122	666
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
PHF Adj:	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.00
PHF Volume:	0	0	0	380	0	9	6	148	0	0	139	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	380	0	9	6	148	0	0	139	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
FinalVolume:	0	0	0	380	0	9	6	148	0	0	139	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	0.98	0.00	0.02	0.04	0.96	0.00	0.00	1.00	1.00
Final Sat.:	0	0	0	696	0	17	24	626	0	0	593	670
Capacity Analysis Module:												
Vol/Sat:	xxxx	xxxx	xxxx	0.55	xxxx	0.55	0.24	0.24	xxxx	xxxx	0.23	0.00
Crit Moves:				****				****			****	
Delay/Veh:	0.0	0.0	0.0	13.4	0.0	13.4	9.7	9.7	0.0	0.0	10.1	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	13.4	0.0	13.4	9.7	9.7	0.0	0.0	10.1	0.0
LOS by Move:	*	*	*	B	*	B	A	A	*	*	B	*
ApproachDel:	xxxxxx			13.4			9.7			10.1		
Delay Adj:	xxxxx			1.00			1.00			1.00		
ApprAdjDel:	xxxxxx			13.4			9.7			10.1		
LOS by Appr:	*			B			A			B		
AllWayAvgQ:	0.0	0.0	0.0	27.1	27.1	27.1	6.8	6.8	6.8	0.0	6.7	0.0

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #11 County Rd 85B and County Rd 21A

Average Delay (sec/veh): 6.0 Worst Case Level Of Service: A[9.1]

Street Name:	County Rd 85B									County Rd 21A								
Approach:	North Bound						South Bound						East Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Uncontrolled						Uncontrolled						Stop Sign					
Rights:	Include						Include						Include					
Lanes:	0	0	0	1	0		0	1	0	0	0		0	0	0	0	0	
Volume Module:																		
Base Vol:	0	32	0				87	24	0				0	0	0			
Growth Adj:	1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00			
Initial Bse:	0	32	0				87	24	0				0	0	0			
Added Vol:	0	8	1				10	4	0				0	0	0			
PasserByVol:	0	0	0				0	0	0				0	0	0			
Initial Fut:	0	40	1				97	28	0				0	0	0			
User Adj:	1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00			
PHF Adj:	0.79	0.79	0.79				0.79	0.79	0.79				0.79	0.79	0.79			
PHF Volume:	0	51	1				123	36	0				0	0	0			
Reduct Vol:	0	0	0				0	0	0				0	0	0			
FinalVolume:	0	51	1				123	36	0				0	0	0			
Critical Gap Module:																		
Critical Gp:	xxxxx	xxxx	xxxxx				4.1	xxxx	xxxxx				xxxx	xxxxx				
FollowUpTim:	xxxxx	xxxx	xxxxx				2.2	xxxx	xxxxx				xxxx	xxxxx				
Capacity Module:																		
Cnflict Vol:	xxxx	xxxx	xxxxx				52	xxxx	xxxxx				xxxx	xxxx	xxxxx			
Potent Cap.:	xxxx	xxxx	xxxxx				1554	xxxx	xxxxx				xxxx	xxxx	xxxxx			
Move Cap.:	xxxx	xxxx	xxxxx				1554	xxxx	xxxxx				xxxx	xxxx	xxxxx			
Volume/Cap:	xxxx	xxxx	xxxx				0.08	xxxx	xxxx				xxxx	xxxx	xxxx			
Level Of Service Module:																		
2Way95thQ:	xxxx	xxxx	xxxxx				6.5	xxxx	xxxxx				xxxx	xxxx	xxxxx			
Control Del:	xxxxx	xxxx	xxxxx				7.5	xxxx	xxxxx				xxxxx	xxxx	xxxxx			
LOS by Move:	*	*	*				A	*	*				*	*	*			
Movement:	LT	-	LTR	-	RT		LT	-	LTR	-	RT		LT	-	LTR	-	RT	
Shared Cap.:	xxxx	xxxx	xxxxx				xxxx	xxxx	xxxxx				xxxx	xxxx	xxxxx			
SharedQueue:	xxxxx	xxxx	xxxxx				0.3	xxxx	xxxxx				xxxxx	xxxx	xxxxx			
Shrd ConDel:	xxxxx	xxxx	xxxxx				7.5	xxxx	xxxxx				xxxxx	xxxx	xxxxx			
Shared LOS:	*	*	*				A	*	*				*	*	*			
ApproachDel:	xxxxxx						xxxxxx						xxxxxx					
ApproachLOS:	*						*						*					

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #12 Country Villa Estates and County Rd 21A

Average Delay (sec/veh): 0.1 Worst Case Level Of Service: B[10.1]

Street Name:	Country Villa Estates									County Rd 21A								
Approach:	North Bound			South Bound			East Bound			West Bound								
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled								
Rights:	Include			Include			Include			Include								
Lanes:	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	1	0
Volume Module:																				
Base Vol:	0	0	0	3	0	0	0	105	0	0	82	9								
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
Initial Bse:	0	0	0	3	0	0	0	105	0	0	82	9								
Added Vol:	0	0	0	0	0	0	0	12	0	0	18	0								
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0								
Initial Fut:	0	0	0	3	0	0	0	117	0	0	100	9								
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
PHF Adj:	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79								
PHF Volume:	0	0	0	4	0	0	0	148	0	0	127	11								
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0								
FinalVolume:	0	0	0	4	0	0	0	148	0	0	127	11								
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx	xxxxx	281	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx								
Potent Cap.:	xxxx	xxxx	xxxxx	709	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx								
Move Cap.:	xxxx	xxxx	xxxxx	709	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx								
Volume/Cap:	xxxx	xxxx	xxxx	0.01	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx								
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	xxxxx	0.4	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx								
Control Del:	xxxxx	xxxx	xxxxx	10.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
LOS by Move:	*	*	*	B	*	*	*	*	*	*	*	*								
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx		
SharedQueue:	xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx		
Shrd ConDel:	xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx		
Shared LOS:	*	*	*			*	*	*			*	*	*			*	*	*		
ApproachDel:	xxxxxx					10.1					xxxxxx					xxxxxx				
ApproachLOS:	*					B					*					*				

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #13 Fremont St and County Rd 21A

Average Delay (sec/veh): 1.1 Worst Case Level Of Service: B[10.2]

Street Name:	Fremont St						County Rd 21A					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0 0		0 0 1!	0 0		0 1 0	0 0		0 0 0	1 0	
Volume Module:												
Base Vol:	0	0	0	14	0	8	10	106	0	0	84	25
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	14	0	8	10	106	0	0	84	25
Added Vol:	0	0	0	0	0	0	0	12	0	0	18	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	14	0	8	10	118	0	0	102	25
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
PHF Volume:	0	0	0	19	0	11	13	157	0	0	135	33
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	19	0	11	13	157	0	0	135	33
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	335	335	152	169	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	660	585	894	1409	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	655	580	894	1409	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.03	0.00	0.01	0.01	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.7	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.6	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	726	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.1	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	10.2	xxxxx	7.6	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	B	*	A	*	*	*	*	*
ApproachDel:	xxxxxx			10.2			xxxxxx			xxxxxx		
ApproachLOS:	*			B			*			*		

Note: Queue reported is the distance per lane in feet.

DELAY (CONTROL)

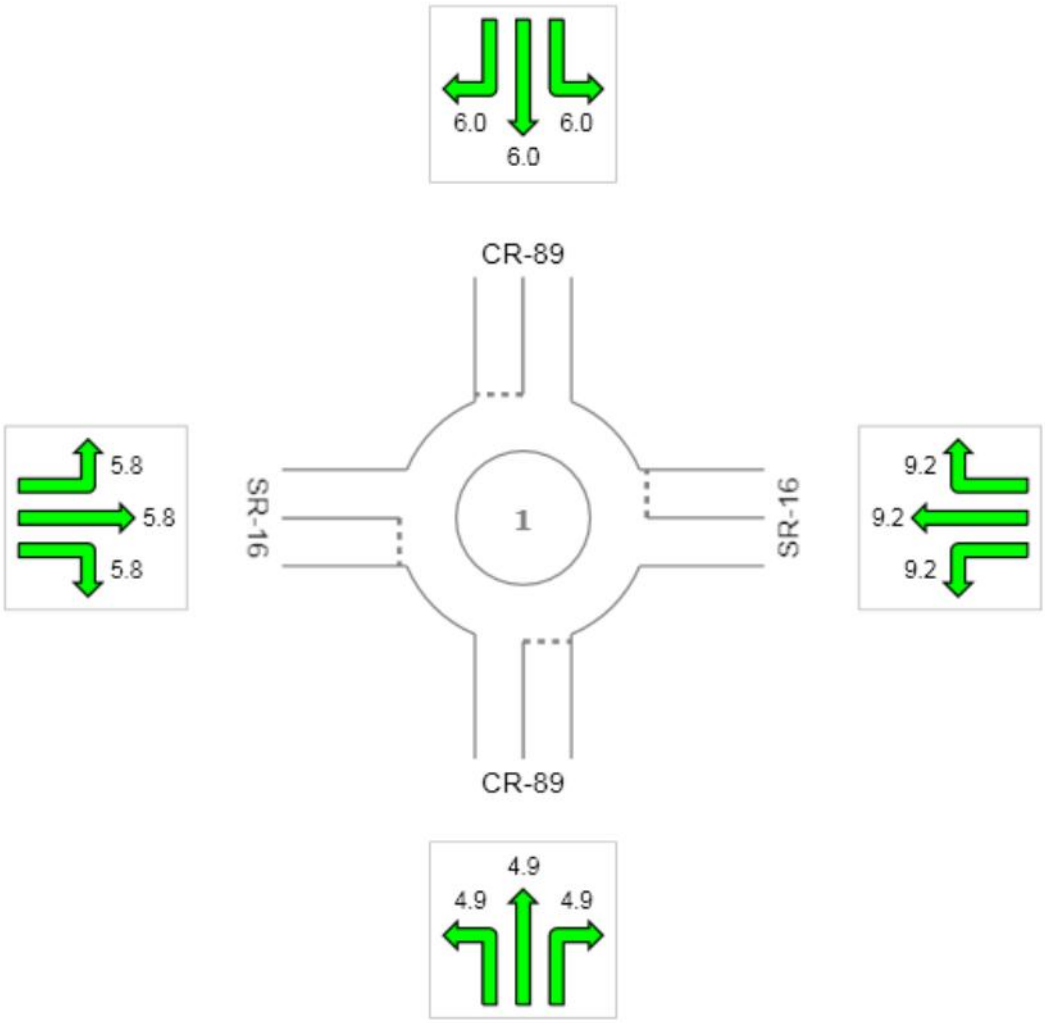
Average control delay per vehicle, or average pedestrian delay (seconds)

Site: SR-16/CR-89

Near-Term Plus Project Alternative Sat PM
Roundabout

All Movement Classes

	South	East	North	West	Intersection
Delay (Control)	4.9	9.2	6.0	5.8	7.8
LOS	A	A	A	A	A



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F | Continuous

Level of Service Method: Delay & v/c (HCM 2010)
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Roundabout Level of Service Method: Same as Sign Control
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #15 SR-16 and SB I-505

Average Delay (sec/veh): 0.3 Worst Case Level Of Service: C[18.9]

Street Name:	SB I-505								SR-16							
Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	0	0 0	0	1	0	0 1	0	0	0	1 0	0	0	1	0 1
Volume Module:																
Base Vol:	0	0	0		6	1	7		0	169	181		0	644	34	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	0	0	0		6	1	7		0	169	181		0	644	34	
Added Vol:	0	0	0		0	0	6		0	41	27		0	118	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	0	0	0		6	1	13		0	210	208		0	762	34	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.89	0.89	0.89		0.89	0.89	0.89		0.89	0.89	0.89		0.89	0.89	0.89	
PHF Volume:	0	0	0		7	1	15		0	237	235		0	860	38	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
FinalVolume:	0	0	0		7	1	15		0	237	235		0	860	38	
Critical Gap Module:																
Critical Gp:	xxxxx	xxxx	xxxxx		6.4	6.6	6.3		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
FollowUpTim:	xxxxx	xxxx	xxxxx		3.5	4.0	3.3		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Capacity Module:																
Cnflict Vol:	xxxx	xxxx	xxxxx		1214	1332	860		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Potent Cap.:	xxxx	xxxx	xxxxx		198	152	351		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Move Cap.:	xxxx	xxxx	xxxxx		198	152	351		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Volume/Cap:	xxxx	xxxx	xxxx		0.03	0.01	0.04		xxxx	xxxx	xxxx		xxxx	xxxx	xxxx	
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	xxxxx		xxxx	xxxx	3.3		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Control Del:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	15.7		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
LOS by Move:	*	*	*		*	*	C		*	*	*		*	*	*	
Movement:	LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT	
Shared Cap.:	xxxx	xxxx	xxxxx		190	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
SharedQueue:	xxxxx	xxxx	xxxxx		0.1	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shrd ConDel:	xxxxx	xxxx	xxxxx		24.8	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shared LOS:	*	*	*		C	*	*		*	*	*		*	*	*	
ApproachDel:	xxxxxx				18.9				xxxxxx				xxxxxx			
ApproachLOS:	*				C				*				*			

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #16 SR-16 and NB I-505

Cycle (sec):	50	Critical Vol./Cap.(X):	0.698
Loss Time (sec):	6	Average Delay (sec/veh):	13.7
Optimal Cycle:	47	Level Of Service:	B

Street Name:	NB I-505						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Ignore			Include		
Min. Green:	5	5	5	0	0	0	0	5	5	0	5	5
Y+R:	4.1	4.1	4.1	4.0	4.0	4.0	4.0	5.5	5.5	4.0	5.5	5.5
Lanes:	0 1	0	0 1	0	0	0 0	0	0	1 0 1	0	0	1 0 1
Volume Module:												
Base Vol:	353	0	46	0	0	0	0	171	5	0	334	6
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	353	0	46	0	0	0	0	171	5	0	334	6
Added Vol:	58	0	0	0	0	0	0	37	4	0	60	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	411	0	46	0	0	0	0	208	9	0	394	6
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Adj:	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.00	0.87	0.87	0.87
PHF Volume:	471	0	53	0	0	0	0	238	0	0	451	7
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	471	0	53	0	0	0	0	238	0	0	451	7
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
FinalVolume:	471	0	53	0	0	0	0	238	0	0	451	7
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.68	1.00	0.81	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.81
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00
Final Sat.:	1291	0	1537	0	0	0	0	1809	1900	0	1809	1537
Capacity Analysis Module:												
Vol/Sat:	0.36	0.00	0.03	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.25	0.00
Crit Moves:	****										****	
Green/Cycle:	0.52	0.00	0.52	0.00	0.00	0.00	0.00	0.36	0.00	0.00	0.36	0.36
Volume/Cap:	0.70	0.00	0.07	0.00	0.00	0.00	0.00	0.37	0.00	0.00	0.70	0.01
Uniform Del:	9.0	0.0	5.9	0.0	0.0	0.0	0.0	11.9	0.0	0.0	13.7	10.4
IncremntDel:	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	3.4	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00
Delay/Veh:	12.2	0.0	5.9	0.0	0.0	0.0	0.0	12.2	0.0	0.0	17.1	10.4
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	12.2	0.0	5.9	0.0	0.0	0.0	0.0	12.2	0.0	0.0	17.1	10.4
LOS by Move:	B	A	A	A	A	A	A	B	A	A	B	B
HCM2kAvgQ:	176	0	11	0	0	0	0	76	0	0	154	2

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #17 SR-16 and Wild Wings Dr

Average Delay (sec/veh): 1.7 Worst Case Level Of Service: C[16.0]

Street Name:	Wild Wings Dr						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			1 0 0 0 1			1 0 1 0 0			0 0 1 0 1		
Volume Module:												
Base Vol:	0	0	0	65	0	14	9	216	0	0	314	69
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	65	0	14	9	216	0	0	314	69
Added Vol:	0	0	0	0	0	0	0	37	0	0	60	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	65	0	14	9	253	0	0	374	69
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
PHF Volume:	0	0	0	76	0	16	11	296	0	0	437	81
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	76	0	16	11	296	0	0	437	81
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	754	xxxx	437	518	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	377	xxxx	620	1033	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	374	xxxx	620	1033	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.20	xxxx	0.03	0.01	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	18.7	xxxx	2.0	0.8	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	17.1	xxxx	11.0	8.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	C	*	B	A	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			16.0			xxxxxx			xxxxxx		
ApproachLOS:	*			C			*			*		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #18 SR-16 and County Rd 94B

Average Delay (sec/veh): 0.6 Worst Case Level Of Service: C[15.1]

Street Name:	County Rd 94B						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0	0	0 0 0	1	0	0 1 0	0	0	0 0 1!	0	0
Volume Module:												
Base Vol:	6	0	5	0	4	11	4	273	0	9	357	1
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	6	0	5	0	4	11	4	273	0	9	357	1
Added Vol:	0	0	0	0	0	0	0	37	0	0	60	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	6	0	5	0	4	11	4	310	0	9	417	1
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
PHF Volume:	7	0	6	0	5	12	5	350	0	10	471	1
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	7	0	6	0	5	12	5	350	0	10	471	1
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	xxxxx	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	859	851	350	xxxx	850	471	472	xxxx	xxxxx	350	xxxx	xxxxx
Potent Cap.:	277	297	693	xxxx	297	593	1075	xxxx	xxxxx	1192	xxxx	xxxxx
Move Cap.:	265	293	693	xxxx	294	593	1075	xxxx	xxxxx	1192	xxxx	xxxxx
Volume/Cap:	0.03	0.00	0.01	xxxx	0.02	0.02	0.00	xxxx	xxxx	0.01	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.3	xxxx	xxxxx	0.6	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.4	xxxx	xxxxx	8.0	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	369	xxxxx	xxxx	xxxx	466	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.1	xxxxx	xxxxx	xxxx	0.1	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	15.1	xxxxx	xxxxx	xxxx	13.0	8.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	C	*	*	*	B	A	*	*	*	*	*
ApproachDel:	15.1			13.0			xxxxxx			xxxxxx		
ApproachLOS:	C			B			*			*		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #19 SR-16 and County Rd 95

Average Delay (sec/veh): 0.9 Worst Case Level Of Service: C[17.2]

Street Name:	County Rd 95						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0	0	0 0 1	0	0	0 0 0 1		0	0 1	0	0 0
Volume Module:												
Base Vol:	10	3	22	0	4	0	0	276	0	19	358	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	10	3	22	0	4	0	0	276	0	19	358	0
Added Vol:	1	0	0	0	0	0	0	36	1	0	59	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	11	3	22	0	4	0	0	312	1	19	417	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	12	3	24	0	4	0	0	339	1	21	453	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	12	3	24	0	4	0	0	339	1	21	453	0
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	xxxxx	6.5	xxxxx	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	4.0	xxxxx	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	836	834	340	xxxx	835	xxxxx	xxxx	xxxx	xxxxx	340	xxxx	xxxxx
Potent Cap.:	286	304	703	xxxx	304	xxxxx	xxxx	xxxx	xxxxx	1202	xxxx	xxxxx
Move Cap.:	280	299	703	xxxx	298	xxxxx	xxxx	xxxx	xxxxx	1202	xxxx	xxxxx
Volume/Cap:	0.04	0.01	0.03	xxxx	0.01	xxxx	xxxx	xxxx	xxxx	0.02	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	1.1	xxxxx	xxxx	xxxx	xxxxx	1.3	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	17.2	xxxxx	xxxxx	xxxx	xxxxx	8.0	xxxx	xxxxx
LOS by Move:	*	*	*	*	C	*	*	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	446	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.3	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	0.1	xxxx	xxxxx
Shrd ConDel:	xxxxx	13.8	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.0	xxxx	xxxxx
Shared LOS:	*	B	*	*	*	*	*	*	*	A	*	*
ApproachDel:		13.8			17.2			xxxxxx			xxxxxx	
ApproachLOS:		B			C			*			*	

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #20 SR-16 and County Rd 98

Cycle (sec):	80	Critical Vol./Cap.(X):	0.377
Loss Time (sec):	12	Average Delay (sec/veh):	24.9
Optimal Cycle:	80	Level Of Service:	C

Street Name:	County Rd 98						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	5	5	5	5	6	6	5	5	5
Y+R:	4.0	6.0	6.0	4.0	6.0	6.0	4.0	5.3	5.3	4.0	5.3	5.3
Lanes:	1 0	0	1 0	1 0	1	0 1	1 0	1	0 1	1 0	1	0 1
Volume Module:												
Base Vol:	97	114	81	47	107	57	56	199	80	43	214	45
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	97	114	81	47	107	57	56	199	80	43	214	45
Added Vol:	6	0	0	0	0	38	23	9	5	0	14	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	103	114	81	47	107	95	79	208	85	43	228	45
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
PHF Volume:	106	118	84	49	110	98	82	215	88	44	235	46
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	106	118	84	49	110	98	82	215	88	44	235	46
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	106	118	84	49	110	98	82	215	88	44	235	46
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.92	0.92	0.93	0.98	0.83	0.90	0.87	0.87	0.90	0.95	0.81
Lanes:	1.00	0.58	0.42	1.00	1.00	1.00	1.00	1.42	0.58	1.00	1.00	1.00
Final Sat.:	1769	1021	725	1769	1862	1583	1718	2335	954	1718	1809	1537
Capacity Analysis Module:												
Vol/Sat:	0.06	0.12	0.12	0.03	0.06	0.06	0.05	0.09	0.09	0.03	0.13	0.03
Crit Moves:		****		****			****				****	
Green/Cycle:	0.19	0.31	0.31	0.07	0.19	0.19	0.13	0.28	0.28	0.19	0.35	0.35
Volume/Cap:	0.32	0.38	0.38	0.38	0.31	0.33	0.38	0.33	0.33	0.14	0.38	0.09
Uniform Del:	28.0	21.8	21.8	35.4	27.9	28.0	32.1	22.8	22.8	26.9	19.7	17.7
IncremntDel:	0.5	0.4	0.4	1.8	0.5	0.6	1.1	0.2	0.2	0.2	0.4	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	28.5	22.2	22.2	37.2	28.5	28.7	33.2	23.0	23.0	27.1	20.1	17.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	28.5	22.2	22.2	37.2	28.5	28.7	33.2	23.0	23.0	27.1	20.1	17.7
LOS by Move:	C	C	C	D	C	C	C	C	C	C	C	B
HCM2kAvgQ:	62	103	103	28	57	51	45	75	75	24	113	20

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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #21 SR-16 and W. Kentucky Ave

Cycle (sec):	80	Critical Vol./Cap.(X):	0.237
Loss Time (sec):	12	Average Delay (sec/veh):	18.7
Optimal Cycle:	80	Level Of Service:	B

Street Name:	SR-16						W. Kentucky Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	5	5	5	5	5	5	5	5	5
Y+R:	4.0	6.0	6.0	4.0	6.0	6.0	4.0	5.3	5.3	4.0	5.3	5.3
Lanes:	1 0	0	1 0	1 0	0	1 0	1 0	0	1 0	1 0	0	1 0
Volume Module:												
Base Vol:	5	134	64	12	133	25	15	34	12	42	46	8
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	5	134	64	12	133	25	15	34	12	42	46	8
Added Vol:	0	18	5	0	32	0	0	0	0	6	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	5	152	69	12	165	25	15	34	12	48	46	8
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
PHF Volume:	5	163	74	13	177	27	16	36	13	51	49	9
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	5	163	74	13	177	27	16	36	13	51	49	9
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	5	163	74	13	177	27	16	36	13	51	49	9
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.90	0.91	0.91	0.90	0.93	0.93	0.93	0.94	0.94	0.93	0.96	0.96
Lanes:	1.00	0.69	0.31	1.00	0.87	0.13	1.00	0.74	0.26	1.00	0.85	0.15
Final Sat.:	1718	1186	538	1718	1539	233	1769	1323	467	1769	1551	270
Capacity Analysis Module:												
Vol/Sat:	0.00	0.14	0.14	0.01	0.11	0.11	0.01	0.03	0.03	0.03	0.03	0.03
Crit Moves:		****		****				****		****		
Green/Cycle:	0.22	0.56	0.56	0.06	0.40	0.40	0.11	0.11	0.11	0.12	0.11	0.11
Volume/Cap:	0.01	0.25	0.25	0.12	0.29	0.29	0.08	0.25	0.25	0.25	0.28	0.28
Uniform Del:	24.5	9.1	9.1	35.4	16.2	16.2	31.6	32.4	32.4	32.0	32.4	32.4
IncremntDel:	0.0	0.1	0.1	0.5	0.2	0.2	0.2	0.6	0.6	0.6	0.7	0.7
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	24.5	9.2	9.2	35.9	16.4	16.4	31.8	33.1	33.1	32.7	33.1	33.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	24.5	9.2	9.2	35.9	16.4	16.4	31.8	33.1	33.1	32.7	33.1	33.1
LOS by Move:	C	A	A	D	B	B	C	C	C	C	C	C
HCM2kAvgQ:	2	72	72	10	86	86	10	33	33	34	39	39

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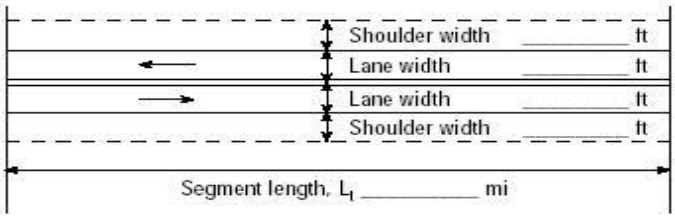
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*CCCR to County Road 85*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019) Plus Proj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☐ Level ☑ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.93*

No-passing zone *75%*

Show North Arrow

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *3*/mi

Analysis direction vol., V_d *696*veh/h

Opposing direction vol., V_o *442*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *6.7*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.6*	*1.9*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.1*	*1.1*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.967*	*0.953*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*0.98*	*0.94*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*790*	*531*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.4 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*51.6 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*38.9 mi/h*
		Percent free flow speed, PFFS	*75.5 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.5*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*0.976*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*0.99*	*0.94*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*756*	*518*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*64.5*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*28.4*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*81.4*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.46*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1547*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1616*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*75.5*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*748.4*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.43*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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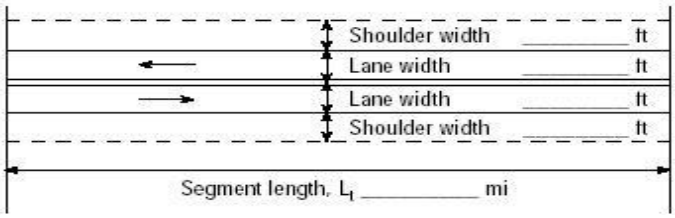
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*CCCR to County Road 85*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019) Plus Proj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☐ Level ☑ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.93*

No-passing zone *75%*

Analysis direction vol., V_d *442*veh/h

Opposing direction vol., V_o *696*veh/h

% Trucks and Buses , P_T *5* %

% Recreational vehicles, P_R *4%*

Shoulder width ft *2.0*

Lane Width ft *12.0*

Access points *mi* *3*/mi

Segment Length mi *6.7*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.9*	*1.6*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.1*	*1.1*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.953*	*0.967*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*0.94*	*0.98*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*531*	*790*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.5 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*51.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*39.8 mi/h*
		Percent free flow speed, PFFS	*77.2 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.5*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.976*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*0.94*	*0.99*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*518*	*756*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*55.3*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*28.4*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*66.8*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.31*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1636*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*77.2*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*475.3*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.20*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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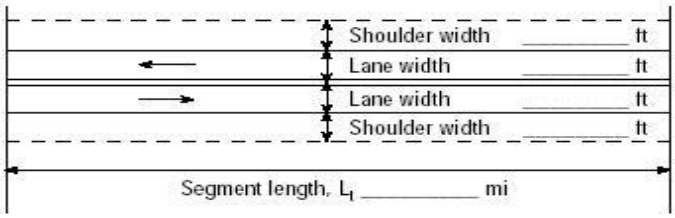
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*County Road 85 to Esparto Town*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019) Plus Proj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Analysis direction vol., V_d	*687*veh/h	Grade Length mi	Up/down
Opposing direction vol., V_o	*407*veh/h	Peak-hour factor, PHF	*0.92*
Shoulder width ft	*2.0*	No-passing zone	*85%*
Lane Width ft	*12.0*	% Trucks and Buses , P_T	*5 %*
Segment Length mi	*1.4*	% Recreational vehicles, P_R	*4%*
		Access points *mi*	*5*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.3*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.985*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*750*	*449*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=$S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.3 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.5 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*42.1 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*30.3 mi/h*
		Percent free flow speed, PFFS	*72.0 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*747*	*445*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*63.0*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*29.9*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*81.7*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.44*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*72.0*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*746.7*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.43*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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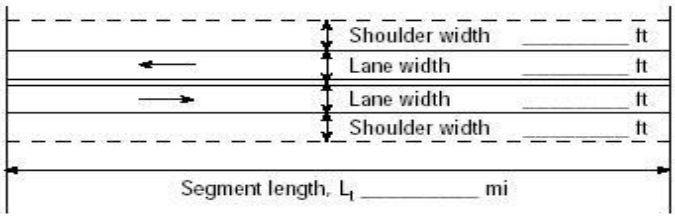
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*County Road 85 to Esparto Town*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019) Plus Proj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *407*veh/h

Opposing direction vol., V_o *687*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *1.4*

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.92*

No-passing zone *85%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *5*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.3*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.985*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*445*	*758*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*0.3 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.4 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*42.1 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*31.4 mi/h*
		Percent free flow speed, PFFS	*74.5 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*445*	*747*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*51.2*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*29.9*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*62.4*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*C*
Volume to capacity ratio, *v/c*	*0.26*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*74.5*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*442.4*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.16*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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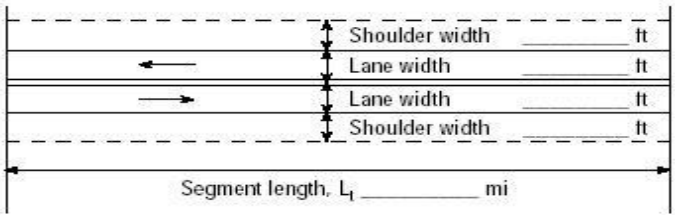
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*through Esparto Town*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019) Plus Proj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Analysis direction vol., V_d	*670*veh/h	Grade Length mi	Up/down
Opposing direction vol., V_o	*342*veh/h	Peak-hour factor, PHF	*0.92*
Shoulder width ft	*2.0*	No-passing zone	*95%*
Lane Width ft	*12.0*	% Trucks and Buses , P_T	*5 %*
Segment Length mi	*1.2*	% Recreational vehicles, P_R	*4%*
		Access points *mi*	*14*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.4*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.980*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*732*	*379*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*3.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*3.0 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*38.9 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*27.3 mi/h*
		Percent free flow speed, PFFS	*70.1 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*728*	*374*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*61.6*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*30.7*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*81.9*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.43*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*70.1*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*728.3*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.41*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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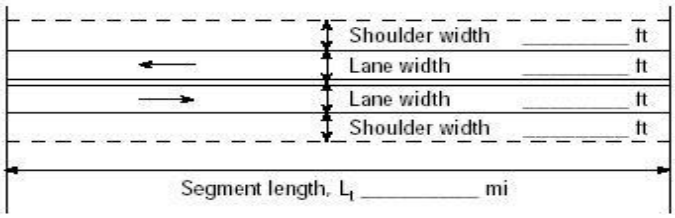
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*through Esparto Town*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019) Plus Proj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.92*

No-passing zone *95%*

Show North Arrow

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *14*/mi

Analysis direction vol., V_d *342*veh/h

Opposing direction vol., V_o *670*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *1.2*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.4*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.980*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*379*	*732*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*3.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.6 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*38.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*28.7 mi/h*
		Percent free flow speed, PFFS	*73.7 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*374*	*728*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*46.0*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*30.7*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*56.4*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*C*
Volume to capacity ratio, *v/c*	*0.22*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*73.7*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*371.7*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.07*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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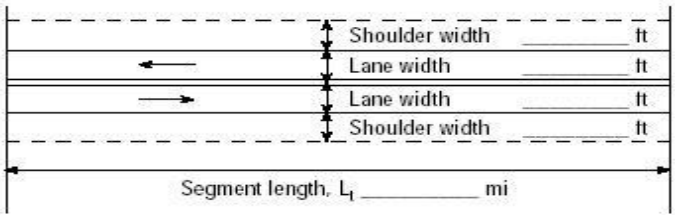
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*Esparto Town to County Rd 89*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2016) Plus Proj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *787*veh/h

Opposing direction vol., V_o *464*veh/h

Shoulder width ft *4.0*

Lane Width ft *12.0*

Segment Length mi *2.7*

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.92*

No-passing zone *80%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.990*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*860*	*509*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.4 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.9 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*39.9 mi/h*
		Percent free flow speed, PFFS	*75.4 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*855*	*504*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*69.2*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*25.9*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*85.5*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.51*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1683*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*75.4*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*855.4*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.20*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
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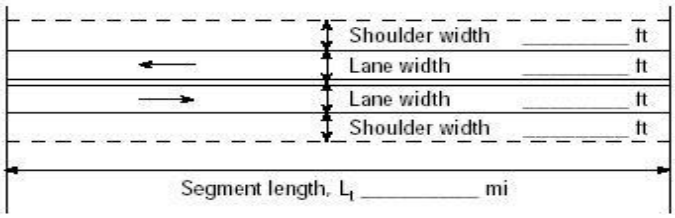
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*Esparto Town to County Rd 89*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2016) Plus Proj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Analysis direction vol., V_d	*464*veh/h	Grade Length mi	Up/down
Opposing direction vol., V_o	*787*veh/h	Peak-hour factor, PHF	*0.92*
Shoulder width ft	*4.0*	No-passing zone	*80%*
Lane Width ft	*12.0*	% Trucks and Buses , P_T	*5 %*
Segment Length mi	*2.7*	% Recreational vehicles, P_R	*4%*
		Access points *mi*	*3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.2*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.990*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*509*	*860*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.1 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*41.2 mi/h*
		Percent free flow speed, PFFS	*77.8 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*504*	*855*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*55.7*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*25.9*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*65.3*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.30*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1700*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*77.8*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*504.3*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.93*
Bicycle level of service (Exhibit 15-4)	*E*
Notes	
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain. 2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10. 6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.	

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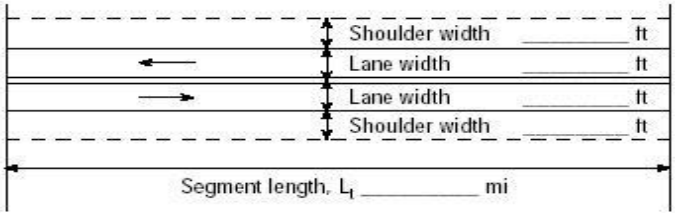
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*County Rd 89 to I-505*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019) Plus Proj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *775*veh/h
Opposing direction vol., V_o *460*veh/h
Shoulder width ft *4.0*
Lane Width ft *12.0*
Segment Length mi *0.8*

☑ Class I highway ☐ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.93*
No-passing zone *100*%
% Trucks and Buses , P_T *5* %
% Recreational vehicles, P_R *4*%
Access points *mi* *4*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.0*	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*0.990*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*833*	*500*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*1.0 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.5 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.7 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*39.9 mi/h*
		Percent free flow speed, PFFS	*75.6* %

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*833*	*495*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*67.8*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*27.6*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*85.1*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.49*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1683*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*75.6*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*833.3*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.18*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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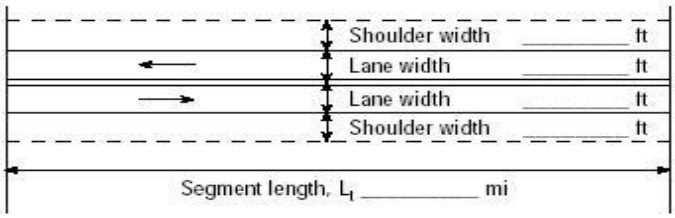
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*County Rd 89 to I-505*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019) Plus Proj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.93*

No-passing zone *100%*

Analysis direction vol., V_d *460*veh/h

Opposing direction vol., V_o *775*veh/h

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Shoulder width ft *4.0*

Lane Width ft *12.0*

Access points *mi* *4*/mi

Segment Length mi *0.8*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.2*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.990*	*1.000*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*500*	*833*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*1.0 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.5 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.7 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*40.9 mi/h*
		Percent free flow speed, PFFS	*77.5 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*495*	*833*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*55.2*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*27.6*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*65.5*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.29*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*77.5*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*494.6*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.92*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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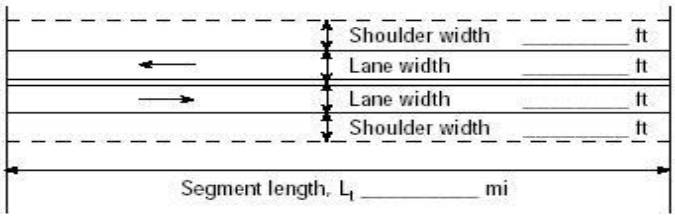
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*I-505 to County Rd 98*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019) Plus Proj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *428*veh/h
Opposing direction vol., V_o *372*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *8.3*

☑ Class I highway ☐ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.92*
No-passing zone *100*%
% Trucks and Buses , P_T *5* %
% Recreational vehicles, P_R *4*%
Access points *mi* *35*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.3*	*1.3*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.985*	*0.985*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*472*	*411*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0* *mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6* *mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*8.8* *mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*3.0* *mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*43.6* *mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*33.7* *mi/h*
		Percent free flow speed, PFFS	*77.4* *%*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*468*	*406*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*46.9*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*42.7*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*69.8*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.28*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1675*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*77.4*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*465.2*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.19*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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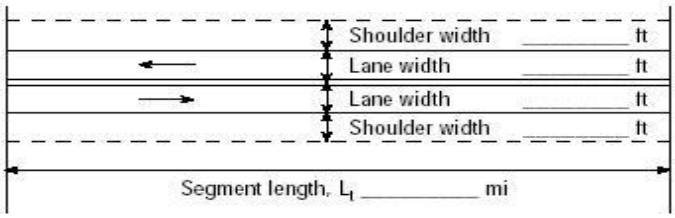
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*I-505 to County Rd 98*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019) Plus Proj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *372*veh/h
Opposing direction vol., V_o *428*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *8.3*

☑ Class I highway ☐ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.92*
No-passing zone *100*%
% Trucks and Buses , P_T *5* %
% Recreational vehicles, P_R *4*%
Access points *mi* *35*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.3*	*1.3*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.985*	*0.985*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*411*	*472*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0* *mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6* *mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*8.8* *mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.7* *mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*43.6* *mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*34.0* *mi/h*
		Percent free flow speed, PFFS	*78.1* %

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*406*	*468*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*44.9*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*42.7*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*64.7*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.24*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1683*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*78.1*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*404.3*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.12*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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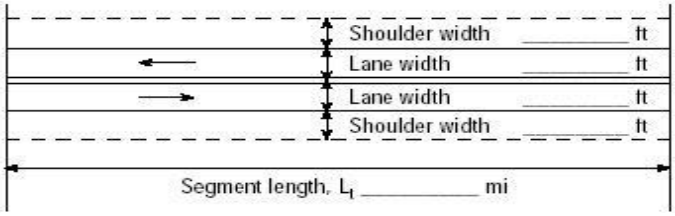
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 21A (WB)*
Agency or Company	*Yolo County*	From/To	*County Rd 85 to SR-16*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019) Plus Proj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *130*veh/h

Opposing direction vol., V_o *135*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *1.2*

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.84*

No-passing zone *25%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* 7/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.8*	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.962*	*0.962*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*161*	*167*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*1.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*0.4 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*40.6 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*37.7 mi/h*
		Percent free flow speed, PFFS	*92.7 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*156*	*162*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*17.4*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*39.2*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*36.6*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*A*
Volume to capacity ratio, *v/c*	*0.09*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1642*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*92.7*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*154.8*
Effective width, Wv (Eq. 15-29) ft	*18.90*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.82*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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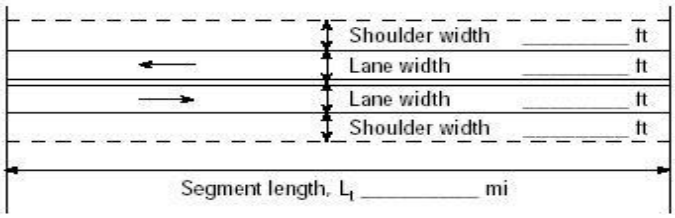
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 21A (EB)*
Agency or Company	*Yolo County*	From/To	*County Rd 85 to SR-16*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019) Plus Proj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Analysis direction vol., V_d	*135*veh/h	Grade Length mi	Up/down
Opposing direction vol., V_o	*130*veh/h	Peak-hour factor, PHF	*0.84*
Shoulder width ft	*2.0*	No-passing zone	*25%*
Lane Width ft	*12.0*	% Trucks and Buses , P_T	*5 %*
Segment Length mi	*1.2*	% Recreational vehicles, P_R	*4%*
		Access points *mi*	7/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.8*	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.962*	*0.962*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*167*	*161*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*0.4 mi/h*	Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*40.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*37.7 mi/h*
		Percent free flow speed, PFFS	*92.7 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*162*	*156*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*17.9*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*39.2*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*37.9*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*A*
Volume to capacity ratio, *v/c*	*0.10*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*92.7*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*160.7*
Effective width, Wv (Eq. 15-29) ft	*18.55*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.91*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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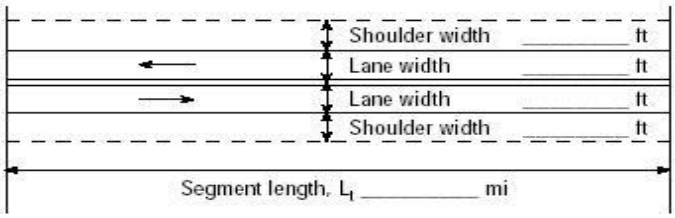
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 85B (NB)*
Agency or Company	*Yolo County*	From/To	*SR-16 to County Rd 21A*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019) Plus Proj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Analysis direction vol., V_d	*127*veh/h	Grade Length mi	Up/down
Opposing direction vol., V_o	*133*veh/h	Peak-hour factor, PHF	*0.86*
Shoulder width ft	*2.0*	No-passing zone	*80%*
Lane Width ft	*12.0*	% Trucks and Buses , P_T	*5 %*
Segment Length mi	*0.9*	% Recreational vehicles, P_R	*4%*
		Access points *mi*	*6*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.8*	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.962*	*0.962*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*154*	*161*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.7 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*40.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*35.8 mi/h*
		Percent free flow speed, PFFS	*87.4 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*148*	*155*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*16.6*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*57.1*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*44.5*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*B*
Volume to capacity ratio, *v/c*	*0.09*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1642*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*87.4*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*147.7*
Effective width, Wv (Eq. 15-29) ft	*19.11*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.76*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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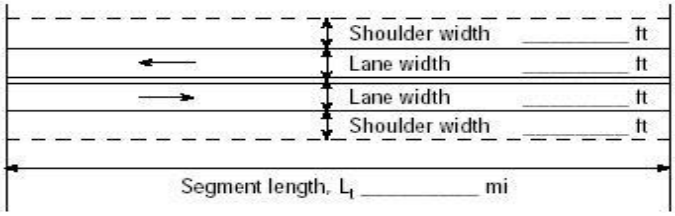
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 85B (SB)*
Agency or Company	*Yolo County*	From/To	*SR-16 to County Rd 21A*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Near-Term (2019) Plus Proj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.86*

No-passing zone *80%*

Analysis direction vol., V_d *133*veh/h

Opposing direction vol., V_o *127*veh/h

% Trucks and Buses , P_T *5* %

% Recreational vehicles, P_R *4%*

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *0.9*

Access points *mi* *6*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.8*	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.962*	*0.962*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*161*	*154*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.7 mi/h*	Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*40.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*35.8 mi/h*
		Percent free flow speed, PFFS	*87.4 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*155*	*148*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*17.3*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*57.1*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*46.5*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*B*
Volume to capacity ratio, *v/c*	*0.09*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*87.4*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*154.7*
Effective width, Wv (Eq. 15-29) ft	*18.69*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.86*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
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LONG-TERM PLUS PROJECT ALTERNATIVE TRAFFIC CONDITIONS

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 SR-16 and North Casino Entrance

Cycle (sec):	65	Critical Vol./Cap.(X):	0.268
Loss Time (sec):	6	Average Delay (sec/veh):	10.8
Optimal Cycle:	62	Level Of Service:	B

Street Name:	SR-16						North Casino Entrance					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ovl			Include			Include			Include		
Min. Green:	0	8	8	5	8	0	0	0	0	5	5	5
Y+R:	4.0	5.5	5.5	4.0	5.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0 1	0 1	1	0 1	0 0	0	0 0	0 0	1	0 0	0 1
Volume Module:												
Base Vol:	0	84	166	21	158	0	0	0	0	198	0	20
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	84	166	21	158	0	0	0	0	198	0	20
Added Vol:	0	0	60	4	0	0	0	0	0	30	0	2
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	84	226	25	158	0	0	0	0	228	0	22
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
PHF Volume:	0	108	289	32	202	0	0	0	0	292	0	28
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	108	289	32	202	0	0	0	0	292	0	28
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	108	289	32	202	0	0	0	0	292	0	28
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	0.81	0.90	0.95	1.00	1.00	1.00	1.00	0.93	1.00	0.83
Lanes:	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Final Sat.:	0	1809	1537	1718	1809	0	0	0	0	1769	0	1583
Capacity Analysis Module:												
Vol/Sat:	0.00	0.06	0.19	0.02	0.11	0.00	0.00	0.00	0.00	0.17	0.00	0.02
Crit Moves:		****		****						****		
Green/Cycle:	0.00	0.13	0.83	0.08	0.21	0.00	0.00	0.00	0.00	0.70	0.00	0.70
Volume/Cap:	0.00	0.46	0.23	0.23	0.53	0.00	0.00	0.00	0.00	0.24	0.00	0.03
Uniform Del:	0.0	26.2	1.2	28.0	22.8	0.0	0.0	0.0	0.0	3.5	0.0	3.0
IncremntDel:	0.0	1.4	0.1	0.9	1.5	0.0	0.0	0.0	0.0	0.1	0.0	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Delay/Veh:	0.0	27.6	1.2	28.9	24.3	0.0	0.0	0.0	0.0	3.6	0.0	3.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	27.6	1.2	28.9	24.3	0.0	0.0	0.0	0.0	3.6	0.0	3.0
LOS by Move:	A	C	A	C	C	A	A	A	A	A	A	A
HCM2kAvgQ:	0	65	35	21	108	0	0	0	0	55	0	5

Level Of Service Computation Report
Unknown Method (Future Volume Alternative)

Intersection #2 SR-16 and Central Casino Entrance

Street Name:	SR-16						Central Casino Entrance					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0 0 1 0			0 0 1 0 0			0 0 0 0 0			0 0 0 0 0		
Volume Module:												
Base Vol:	0	249	43	0	358	0	0	0	0	0	0	0
Growth Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Bse:	0	0	0	0	0	0	0	0	0	0	0	0
Added Vol:	0	60	15	0	30	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	0	0	0	0	0	0	0	0	0
User Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Volume:	0	0	0	0	0	0	0	0	0	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PCE Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MLF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FinalVolume:	0	0	0	0	0	0	0	0	0	0	0	0
Critical Gap Module: >> Population:0 << >> Run Speed(N/S): 30 MPH <<												
Critical Gp:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capacity Module:												
Cnflict Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Potent Cap.:	0	0	0	0	0	0	0	0	0	0	0	0
Level Of Service Module:												
LOS by Move:												
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	0	0	0	0	0	0	0	0	0	0	0	0

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #3 SR-16 and South Casino Entrance

Average Delay (sec/veh): 1.1 Worst Case Level Of Service: C[21.0]

Street Name:	SR-16						South Casino Entrance					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 1 0			0 0 1 0 0			0 0 0 0 0			1 0 0 0 1		
Volume Module:												
Base Vol:	0	290	42	0	361	0	0	0	0	39	0	2
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	290	42	0	361	0	0	0	0	39	0	2
Added Vol:	0	74	19	0	30	0	0	0	0	6	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	364	61	0	391	0	0	0	0	45	0	2
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Volume:	0	456	76	0	490	0	0	0	0	56	0	3
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	456	76	0	490	0	0	0	0	56	0	3
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	984	xxxx	494
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	275	xxxx	575
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	275	xxxx	575
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.20	xxxx	0.00
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	18.8	xxxx	0.3
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	21.4	xxxx	11.3
LOS by Move:	*	*	*	*	*	*	*	*	*	C	*	B
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			21.0		
ApproachLOS:	*			*			*			C		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #4 SR-16 and County Rd 85

Average Delay (sec/veh): 0.8 Worst Case Level Of Service: B[14.3]

Street Name:	County Rd 85						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	0 1	0
Volume Module:												
Base Vol:	0	0	0	13	0	18	27	425	0	0	315	5
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	13	0	18	27	425	0	0	315	5
Added Vol:	0	0	0	0	0	2	1	36	0	0	91	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	13	0	20	28	461	0	0	406	5
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
PHF Volume:	0	0	0	14	0	21	29	480	0	0	422	5
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	14	0	21	29	480	0	0	422	5
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	963	963	425	428	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	284	256	629	1116	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	278	249	629	1116	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.05	0.00	0.03	0.03	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	2.0	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	420	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.3	xxxxx	0.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	14.3	xxxxx	8.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	B	*	A	*	*	*	*	*
ApproachDel:	xxxxxx			14.3			xxxxxx			xxxxxx		
ApproachLOS:	*			B			*			*		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #5 SR-16 and County Rd 85B

Average Delay (sec/veh): 1.1 Worst Case Level Of Service: B[10.3]

Street Name:	County Rd 85B									SR-16								
Approach:	North Bound				South Bound					East Bound					West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	1!	0	0	0	0	0	0	0	0	0	1	0	1	1	0	1	0	0
Volume Module:																				
Base Vol:	66	0	5	0	0	0	0	315	123		5	251	0							
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00							
Initial Bse:	66	0	5	0	0	0	0	315	123		5	251	0							
Added Vol:	22	0	0	0	0	0	0	24	12		0	70	0							
PasserByVol:	0	0	0	0	0	0	0	0	0		0	0	0							
Initial Fut:	88	0	5	0	0	0	0	339	135		5	321	0							
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00							
PHF Adj:	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93		0.93	0.93	0.93							
PHF Volume:	95	0	5	0	0	0	0	366	146		5	347	0							
Reduct Vol:	0	0	0	0	0	0	0	0	0		0	0	0							
FinalVolume:	95	0	5	0	0	0	0	366	146		5	347	0							
Critical Gap Module:																				
Critical Gp:	6.4	6.5	6.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		4.1	xxxx	xxxxx							
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		2.2	xxxx	xxxxx							
Capacity Module:																				
Cnflict Vol:	724	724	366	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		512	xxxx	xxxxx							
Potent Cap.:	393	352	679	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		1038	xxxx	xxxxx							
Move Cap.:	391	350	679	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		1038	xxxx	xxxxx							
Volume/Cap:	0.24	0.00	0.01	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx		0.01	xxxx	xxxx							
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		0.4	xxxx	xxxxx							
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		8.5	xxxx	xxxxx							
LOS by Move:	*	*	*	*	*	*	*	*	*		A	*	*							
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx		784	xxxxx		xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx		
SharedQueue:	xxxxx		0.4	xxxxx		xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx		
Shrd ConDel:	xxxxx		10.3	xxxxx		xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx		
Shared LOS:	*		B	*		*	*	*			*	*	*			*	*	*		
ApproachDel:		10.3				xxxxxx					xxxxxx					xxxxxx				
ApproachLOS:		B				*					*					*				

Note: Queue reported is the distance per lane in feet.

6: Yolo Ave & Woodland Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR	All
Denied Del/Veh (s)	1.0	2.1	0.2	0.1	0.1	0.1	0.5	0.3	3.4	0.1	0.1	0.4
Total Del/Veh (s)	20.7	13.7	7.7	3.1	11.9	5.8	1.2	2.6	0.7	12.3	6.2	5.4

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #7 SR-16 and Capay St

Average Delay (sec/veh): 1.6 Worst Case Level Of Service: C[19.4]

Street Name:	SR-16						Capay St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	32	335	20	9	297	15	5	7	14	12	17	5
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	32	335	20	9	297	15	5	7	14	12	17	5
Added Vol:	0	64	0	0	22	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	32	399	20	9	319	15	5	7	14	12	17	5
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	34	426	21	10	341	16	5	7	15	13	18	5
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	34	426	21	10	341	16	5	7	15	13	18	5
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx	7.1	6.5	6.2	7.1	6.5	6.2
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	3.5	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	357	xxxx	xxxxx	448	xxxx	xxxxx	885	884	349	885	881	437
Potent Cap.:	1185	xxxx	xxxxx	1097	xxxx	xxxxx	266	284	694	266	285	620
Move Cap.:	1185	xxxx	xxxxx	1097	xxxx	xxxxx	243	273	694	247	274	620
Volume/Cap:	0.03	xxxx	xxxx	0.01	xxxx	xxxx	0.02	0.03	0.02	0.05	0.07	0.01
Level Of Service Module:												
2Way95thQ:	2.2	xxxx	xxxxx	0.7	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	8.1	xxxx	xxxxx	8.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	392	xxxxx	xxxx	287	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.2	xxxxx	xxxxx	0.4	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	14.9	xxxxx	xxxxx	19.4	xxxxx
Shared LOS:	*	*	*	*	*	*	*	B	*	*	C	*
ApproachDel:	xxxxxx			xxxxxx			14.9			19.4		
ApproachLOS:	*			*			B			C		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #8 SR-16 and Madison St

Average Delay (sec/veh): 1.1 Worst Case Level Of Service: C[18.7]

Street Name:	SR-16						Madison St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	16	391	5	5	352	16	6	5	9	7	14	5
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	16	391	5	5	352	16	6	5	9	7	14	5
Added Vol:	0	63	0	0	22	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	16	454	5	5	374	16	6	5	9	7	14	5
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
PHF Volume:	17	469	5	5	386	17	6	5	9	7	14	5
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	17	469	5	5	386	17	6	5	9	7	14	5
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx	7.1	6.5	6.2	7.1	6.5	6.2
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	3.5	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	403	xxxx	xxxxx	474	xxxx	xxxxx	919	912	395	917	918	472
Potent Cap.:	1140	xxxx	xxxxx	1072	xxxx	xxxxx	252	274	654	253	272	592
Move Cap.:	1140	xxxx	xxxxx	1072	xxxx	xxxxx	236	268	654	242	266	592
Volume/Cap:	0.01	xxxx	xxxx	0.00	xxxx	xxxx	0.03	0.02	0.01	0.03	0.05	0.01
Level Of Service Module:												
2Way95thQ:	1.1	xxxx	xxxxx	0.4	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	8.2	xxxx	xxxxx	8.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	346	xxxxx	xxxx	289	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.2	xxxxx	xxxxx	0.3	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	16.1	xxxxx	xxxxx	18.7	xxxxx
Shared LOS:	*	*	*	*	*	*	*	C	*	*	C	*
ApproachDel:	xxxxxx			xxxxxx			16.1			18.7		
ApproachLOS:	*			*			C			C		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #9 SR-16 and Plainfield St

Average Delay (sec/veh): 2.0 Worst Case Level Of Service: C[22.9]

Street Name:	SR-16						Plainfield St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 1 0 1 0			1 0 0 1 0			0 0 1! 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	57	383	27	15	341	10	5	6	32	15	9	10
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	57	383	27	15	341	10	5	6	32	15	9	10
Added Vol:	0	63	0	0	22	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	57	446	27	15	363	10	5	6	32	15	9	10
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	62	484	29	16	394	11	5	7	35	16	10	11
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	62	484	29	16	394	11	5	7	35	16	10	11
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx	7.1	6.5	6.2	7.1	6.5	6.2
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	3.5	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	405	xxxx	xxxxx	513	xxxx	xxxxx	802	1068	399	1074	1059	257
Potent Cap.:	1138	xxxx	xxxxx	1037	xxxx	xxxxx	302	222	651	197	224	782
Move Cap.:	1138	xxxx	xxxxx	1037	xxxx	xxxxx	272	206	651	172	208	782
Volume/Cap:	0.05	xxxx	xxxx	0.02	xxxx	xxxx	0.02	0.03	0.05	0.09	0.05	0.01
Level Of Service Module:												
2Way95thQ:	4.3	xxxx	xxxxx	1.2	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	8.3	xxxx	xxxxx	8.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	444	xxxxx	xxxx	238	xxxxx
SharedQueue:	0.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.3	xxxxx	xxxxx	0.5	xxxxx
Shrd ConDel:	8.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	14.0	xxxxx	xxxxx	22.9	xxxxx
Shared LOS:	A	*	*	*	*	*	*	B	*	*	C	*
ApproachDel:	xxxxxx			xxxxxx			14.0			22.9		
ApproachLOS:	*			*			B			C		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #10 SR-16 and County Road 21A

Cycle (sec):	100	Critical Vol./Cap.(X):	0.783
Loss Time (sec):	0	Average Delay (sec/veh):	18.8
Optimal Cycle:	0	Level Of Service:	C

Street Name:	SR-16						County Road 21A					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Ignore		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	0 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	1 0	1
Volume Module:												
Base Vol:	0	0	0	486	0	9	7	128	0	0	84	595
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	486	0	9	7	128	0	0	84	595
Added Vol:	0	0	0	22	0	0	0	9	0	0	16	63
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	508	0	9	7	137	0	0	100	658
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
PHF Adj:	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.00
PHF Volume:	0	0	0	556	0	10	8	150	0	0	110	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	556	0	10	8	150	0	0	110	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
FinalVolume:	0	0	0	556	0	10	8	150	0	0	110	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	0.98	0.00	0.02	0.05	0.95	0.00	0.00	1.00	1.00
Final Sat.:	0	0	0	711	0	13	29	561	0	0	534	595
Capacity Analysis Module:												
Vol/Sat:	xxxx	xxxx	xxxx	0.78	xxxx	0.78	0.27	0.27	xxxx	xxxx	0.21	0.00
Crit Moves:				****				****			****	
Delay/Veh:	0.0	0.0	0.0	22.7	0.0	22.7	10.5	10.5	0.0	0.0	10.4	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	22.7	0.0	22.7	10.5	10.5	0.0	0.0	10.4	0.0
LOS by Move:	*	*	*	C	*	C	B	B	*	*	B	*
ApproachDel:	xxxxxx			22.7			10.5			10.4		
Delay Adj:	xxxxx			1.00			1.00			1.00		
ApprAdjDel:	xxxxxx			22.7			10.5			10.4		
LOS by Appr:	*			C			B			B		
AllWayAvgQ:	0.0	0.0	0.0	74.2	74.2	74.2	7.6	7.6	7.6	0.0	5.4	0.0

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #11 County Rd 85B and County Rd 21A

Average Delay (sec/veh): 5.6 Worst Case Level Of Service: A[9.3]

Street Name:	County Rd 85B									County Rd 21A								
Approach:	North Bound						South Bound			East Bound						West Bound		
Movement:	L	-	T	-	R		L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled						Uncontrolled			Stop Sign						Stop Sign		
Rights:	Include						Include			Include						Include		
Lanes:	0	0	0	1	0		0	1	0	0	0	0	0	0	0	0	0	0	1!	0	0
Volume Module:																					
Base Vol:	0	26		6			93	34		0		0	0		0		9	0		32	
Growth Adj:	1.00	1.00		1.00			1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
Initial Bse:	0	26		6			93	34		0		0	0		0		9	0		32	
Added Vol:	0	6		0			9	2		0		0	0		0		0	0		16	
PasserByVol:	0	0		0			0	0		0		0	0		0		0	0		0	
Initial Fut:	0	32		6			102	36		0		0	0		0		9	0		48	
User Adj:	1.00	1.00		1.00			1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
PHF Adj:	0.73	0.73		0.73			0.73	0.73		0.73		0.73	0.73		0.73		0.73	0.73		0.73	
PHF Volume:	0	44		8			140	50		0		0	0		0		12	0		66	
Reduct Vol:	0	0		0			0	0		0		0	0		0		0	0		0	
FinalVolume:	0	44		8			140	50		0		0	0		0		12	0		66	
Critical Gap Module:																					
Critical Gp:	xxxxx	xxxx		xxxxx			4.1	xxxx		xxxxx		xxxxx	xxxx		xxxxx		6.4	6.5		6.2	
FollowUpTim:	xxxxx	xxxx		xxxxx			2.2	xxxx		xxxxx		xxxxx	xxxx		xxxxx		3.5	4.0		3.3	
Capacity Module:																					
Cnflict Vol:	xxxx	xxxx		xxxxx			52	xxxx		xxxxx		xxxx	xxxx		xxxxx		379	379		48	
Potent Cap.:	xxxx	xxxx		xxxxx			1553	xxxx		xxxxx		xxxx	xxxx		xxxxx		623	553		1021	
Move Cap.:	xxxx	xxxx		xxxxx			1553	xxxx		xxxxx		xxxx	xxxx		xxxxx		576	499		1021	
Volume/Cap:	xxxx	xxxx		xxxx			0.09	xxxx		xxxx		xxxx	xxxx		xxxx		0.02	0.00		0.06	
Level Of Service Module:																					
2Way95thQ:	xxxx	xxxx		xxxxx			7.4	xxxx		xxxxx		xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx	
Control Del:	xxxxx	xxxx		xxxxx			7.5	xxxx		xxxxx		xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx	
LOS by Move:	*	*		*			A	*		*		*	*		*		*	*		*	
Movement:	LT	-	LTR	-	RT		LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx		xxxxx			xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx		xxxx	910		xxxxx	
SharedQueue:	xxxxx	xxxx		xxxxx			0.3	xxxx		xxxxx		xxxxx	xxxx		xxxxx		xxxxx	0.3		xxxxx	
Shrd ConDel:	xxxxx	xxxx		xxxxx			7.5	xxxx		xxxxx		xxxxx	xxxx		xxxxx		xxxxx	9.3		xxxxx	
Shared LOS:	*	*		*			A	*		*		*	*		*		*	A		*	
ApproachDel:	xxxxxx						xxxxxx					xxxxxx					9.3				
ApproachLOS:	*						*					*					A				

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #12 Country Villa Estates and County Rd 21A

Average Delay (sec/veh): 0.4 Worst Case Level Of Service: B[10.1]

Street Name:	Country Villa Estates									County Rd 21A								
Approach:	North Bound			South Bound			East Bound			West Bound								
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled								
Rights:	Include			Include			Include			Include								
Lanes:	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1!	0	0
Volume Module:																				
Base Vol:	0	0	0	5	0	0	3	105	0	1	44	12								
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
Initial Bse:	0	0	0	5	0	0	3	105	0	1	44	12								
Added Vol:	0	0	0	0	0	0	0	9	0	0	16	0								
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0								
Initial Fut:	0	0	0	5	0	0	3	114	0	1	60	12								
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
PHF Adj:	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69								
PHF Volume:	0	0	0	7	0	0	4	166	0	1	87	17								
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0								
FinalVolume:	0	0	0	7	0	0	4	166	0	1	87	17								
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	xxxxx	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx								
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	xxxxx	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx								
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx	xxxxx	274	xxxx	xxxxx	105	xxxx	xxxxx	166	xxxx	xxxxx								
Potent Cap.:	xxxx	xxxx	xxxxx	716	xxxx	xxxxx	1486	xxxx	xxxxx	1412	xxxx	xxxxx								
Move Cap.:	xxxx	xxxx	xxxxx	713	xxxx	xxxxx	1486	xxxx	xxxxx	1412	xxxx	xxxxx								
Volume/Cap:	xxxx	xxxx	xxxx	0.01	xxxx	xxxx	0.00	xxxx	xxxx	0.00	xxxx	xxxx								
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	xxxxx	0.8	xxxx	xxxxx	0.2	xxxx	xxxxx	0.1	xxxx	xxxxx								
Control Del:	xxxxx	xxxx	xxxxx	10.1	xxxx	xxxxx	7.4	xxxx	xxxxx	7.6	xxxx	xxxxx								
LOS by Move:	*	*	*	B	*	*	A	*	*	A	*	*								
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx								
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Shared LOS:	*	*	*	*	*	*	A	*	*	*	*	*								
ApproachDel:	xxxxxx			10.1			xxxxxx			xxxxxx										
ApproachLOS:	*			B			*			*										

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #13 Fremont St and County Rd 21A

Average Delay (sec/veh): 1.7 Worst Case Level Of Service: A[10.0]

Street Name:	Fremont St						County Rd 21A					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			0 0 1! 0 0			0 1 0 0 0			0 0 0 1 0		
Volume Module:												
Base Vol:	0	0	0	20	0	10	17	103	0	0	57	21
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	20	0	10	17	103	0	0	57	21
Added Vol:	0	0	0	0	0	0	0	9	0	0	16	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	20	0	10	17	112	0	0	73	21
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
PHF Volume:	0	0	0	25	0	13	22	142	0	0	92	27
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	25	0	13	22	142	0	0	92	27
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	291	291	106	119	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	700	620	949	1469	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	692	611	949	1469	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.04	0.00	0.01	0.01	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1.1	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	761	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.2	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	10.0	xxxxx	7.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	A	*	A	*	*	*	*	*
ApproachDel:	xxxxxx			10.0			xxxxxx			xxxxxx		
ApproachLOS:	*			A			*			*		

Note: Queue reported is the distance per lane in feet.

DELAY (CONTROL)

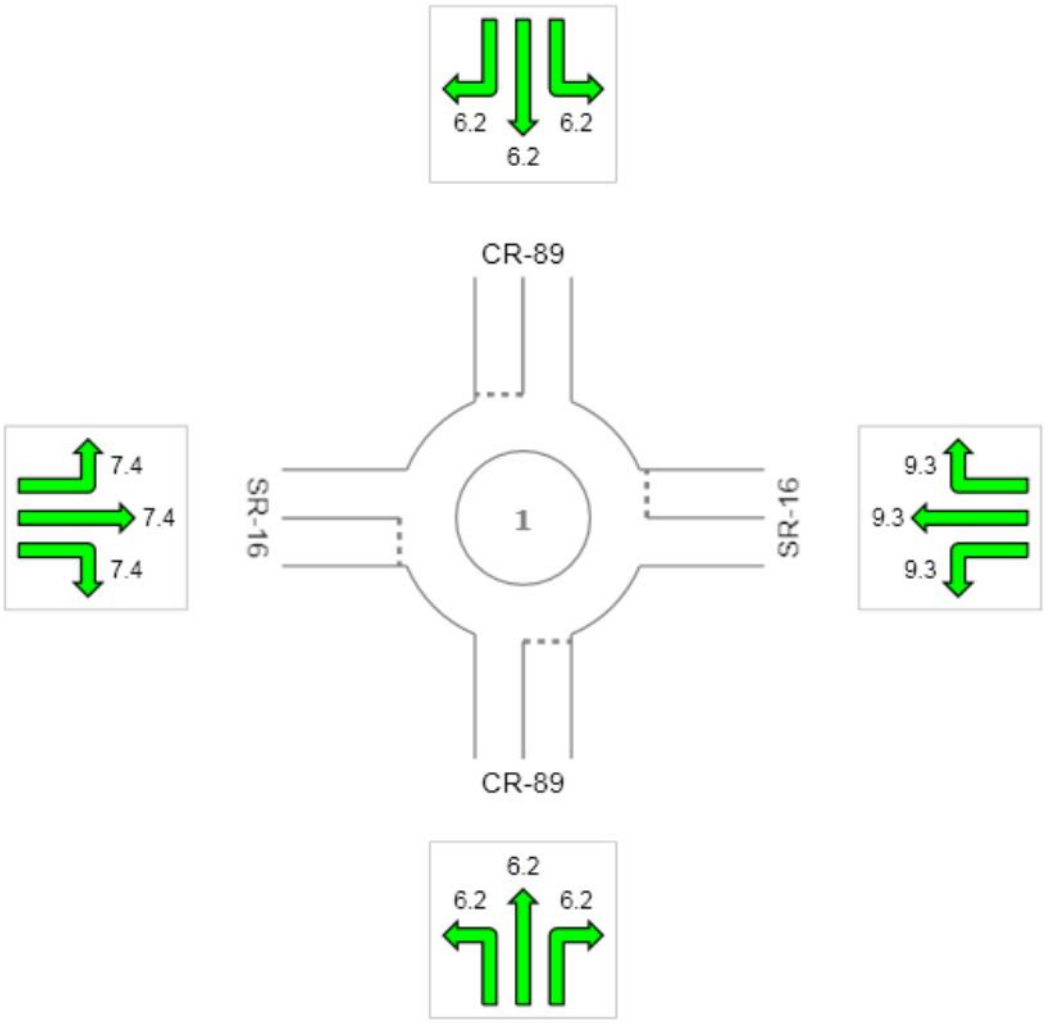
Average control delay per vehicle, or average pedestrian delay (seconds)

Site: SR-16/CR-89

Long-Term Plus Project Alterantive Fri PM
Roundabout

All Movement Classes

	South	East	North	West	Intersection
Delay (Control)	6.2	9.3	6.2	7.4	8.3
LOS	A	A	A	A	A



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F | Continuous

Level of Service Method: Delay & v/c (HCM 2010)
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Roundabout Level of Service Method: Same as Sign Control
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #15 SR-16 and SB I-505

Average Delay (sec/veh): 0.6 Worst Case Level Of Service: C[22.4]

Street Name:	SB I-505						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0 0		0 1	0 0	1	0 0	0 1	0	0 0	1	0 1
Volume Module:												
Base Vol:	0	0	0	7	7	19	0	328	294	0	517	62
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	7	7	19	0	328	294	0	517	62
Added Vol:	0	0	0	0	0	3	0	13	18	0	76	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	7	7	22	0	341	312	0	593	62
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
PHF Volume:	0	0	0	9	9	27	0	419	384	0	729	76
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	9	9	27	0	419	384	0	729	76
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.6	6.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	1341	1533	729	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	166	115	418	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	166	115	418	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.05	0.08	0.06	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	5.2	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	14.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	B	*	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	136	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	0.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	35.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	E	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			22.4			xxxxxx			xxxxxx		
ApproachLOS:	*			C			*			*		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #16 SR-16 and NB I-505

Cycle (sec):	50	Critical Vol./Cap.(X):	0.667
Loss Time (sec):	6	Average Delay (sec/veh):	11.3
Optimal Cycle:	47	Level Of Service:	B

Street Name:	NB I-505						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Ignore			Include		
Min. Green:	5	5	5	0	0	0	0	5	5	0	5	5
Y+R:	4.1	4.1	4.1	4.0	4.0	4.0	4.0	5.5	5.5	4.0	5.5	5.5
Lanes:	0 1	0	0 1	0	0	0 0	0	0	1 0 1	0	0	1 0 1
Volume Module:												
Base Vol:	198	0	210	0	0	0	0	312	19	0	520	9
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	198	0	210	0	0	0	0	312	19	0	520	9
Added Vol:	46	0	0	0	0	0	0	12	1	0	30	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	244	0	210	0	0	0	0	324	20	0	550	9
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Adj:	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.00	0.84	0.84	0.84
PHF Volume:	290	0	250	0	0	0	0	386	0	0	655	11
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	290	0	250	0	0	0	0	386	0	0	655	11
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
FinalVolume:	290	0	250	0	0	0	0	386	0	0	655	11
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.68	1.00	0.81	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.81
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00
Final Sat.:	1291	0	1537	0	0	0	0	1809	1900	0	1809	1537
Capacity Analysis Module:												
Vol/Sat:	0.22	0.00	0.16	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.36	0.01
Crit Moves:	****										****	
Green/Cycle:	0.34	0.00	0.34	0.00	0.00	0.00	0.00	0.54	0.00	0.00	0.54	0.54
Volume/Cap:	0.67	0.00	0.48	0.00	0.00	0.00	0.00	0.39	0.00	0.00	0.67	0.01
Uniform Del:	14.2	0.0	13.1	0.0	0.0	0.0	0.0	6.6	0.0	0.0	8.2	5.3
IncremntDel:	3.9	0.0	0.7	0.0	0.0	0.0	0.0	0.3	0.0	0.0	1.8	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00
Delay/Veh:	18.1	0.0	13.8	0.0	0.0	0.0	0.0	6.9	0.0	0.0	10.0	5.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	18.1	0.0	13.8	0.0	0.0	0.0	0.0	6.9	0.0	0.0	10.0	5.3
LOS by Move:	B	A	B	A	A	A	A	A	A	A	A	A
HCM2kAvgQ:	132	0	91	0	0	0	0	94	0	0	183	2

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #17 SR-16 and Wild Wings Dr

Average Delay (sec/veh): 1.6 Worst Case Level Of Service: D[30.1]

Street Name:	Wild Wings Dr						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			1 0 0 0 1			1 0 1 0 0			0 0 1 0 1		
Volume Module:												
Base Vol:	0	0	0	54	0	7	15	492	0	0	543	88
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	54	0	7	15	492	0	0	543	88
Added Vol:	0	0	0	0	0	0	0	12	0	0	30	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	54	0	7	15	504	0	0	573	88
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
PHF Volume:	0	0	0	60	0	8	17	564	0	0	641	98
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	60	0	8	17	564	0	0	641	98
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	1238	xxxx	641	739	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	194	xxxx	475	854	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	191	xxxx	475	854	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.32	xxxx	0.02	0.02	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	32.2	xxxx	1.3	1.5	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	32.3	xxxx	12.7	9.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	D	*	B	A	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			30.1			xxxxxx			xxxxxx		
ApproachLOS:	*			D			*			*		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #18 SR-16 and County Rd 94B

Average Delay (sec/veh): 29.5 Worst Case Level Of Service: F[306.6]

Street Name:	County Rd 94B						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			0 1 0 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	99	0	15	10	14	7	8	454	0	98	516	1
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	99	0	15	10	14	7	8	454	0	98	516	1
Added Vol:	0	0	0	0	0	0	0	12	0	0	30	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	99	0	15	10	14	7	8	466	0	98	546	1
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
PHF Volume:	116	0	18	12	16	8	9	548	0	115	642	1
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	116	0	18	12	16	8	9	548	0	115	642	1
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1451	1439	548	1448	1439	642	643	xxxx	xxxxx	548	xxxx	xxxxx
Potent Cap.:	109	133	536	109	133	474	928	xxxx	xxxxx	1007	xxxx	xxxxx
Move Cap.:	86	115	536	95	115	474	928	xxxx	xxxxx	1007	xxxx	xxxxx
Volume/Cap:	1.36	0.00	0.03	0.12	0.14	0.02	0.01	xxxx	xxxx	0.11	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.8	xxxx	xxxxx	9.7	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.9	xxxx	xxxxx	9.0	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	96	xxxxx	xxxx	128	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	9.8	xxxxx	xxxxx	1.1	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	307	xxxxx	xxxxx	43.8	xxxxx	8.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	F	*	*	E	*	A	*	*	*	*	*
ApproachDel:	306.6			43.8			xxxxxx			xxxxxx		
ApproachLOS:	F			E			*			*		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #19 SR-16 and County Rd 95

Average Delay (sec/veh): 0.9 Worst Case Level Of Service: D[25.6]

Street Name:	County Rd 95						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0	0	0 0 0	1	0	0 0 0	1	0	0 1	0	0 0
Volume Module:												
Base Vol:	6	3	22	0	6	2	0	538	2	28	553	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	6	3	22	0	6	2	0	538	2	28	553	0
Added Vol:	1	0	0	0	0	0	0	11	0	0	29	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	7	3	22	0	6	2	0	549	2	28	582	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	8	3	24	0	7	2	0	608	2	31	645	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	8	3	24	0	7	2	0	608	2	31	645	0
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	xxxxx	6.5	6.2	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	4.0	3.3	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1320	1316	609	xxxx	1317	645	xxxx	xxxx	xxxxx	610	xxxx	xxxxx
Potent Cap.:	134	158	495	xxxx	158	473	xxxx	xxxx	xxxxx	954	xxxx	xxxxx
Move Cap.:	126	153	495	xxxx	152	473	xxxx	xxxx	xxxxx	954	xxxx	xxxxx
Volume/Cap:	0.06	0.02	0.05	xxxx	0.04	0.00	xxxx	xxxx	xxxx	0.03	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	2.5	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.9	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	267	xxxxx	xxxx	xxxx	183	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.5	xxxxx	xxxxx	xxxx	0.2	xxxxx	xxxx	xxxxx	0.1	xxxx	xxxxx
Shrd ConDel:	xxxxx	20.5	xxxxx	xxxxx	xxxx	25.6	xxxxx	xxxx	xxxxx	8.9	xxxx	xxxxx
Shared LOS:	*	C	*	*	*	D	*	*	*	A	*	*
ApproachDel:		20.5			25.6			xxxxxx			xxxxxx	
ApproachLOS:		C			D			*			*	

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #20 SR-16 and County Rd 98

Cycle (sec):	80	Critical Vol./Cap.(X):	0.507
Loss Time (sec):	12	Average Delay (sec/veh):	25.9
Optimal Cycle:	80	Level Of Service:	C

Street Name:	County Rd 98						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	5	5	5	5	6	6	5	5	5
Y+R:	4.0	6.0	6.0	4.0	6.0	6.0	4.0	5.3	5.3	4.0	5.3	5.3
Lanes:	1 0	0	1 0	1 0	1	0 1	1 0	1	0	1 0	1	0 1
Volume Module:												
Base Vol:	100	127	80	67	188	108	166	279	133	67	260	62
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	100	127	80	67	188	108	166	279	133	67	260	62
Added Vol:	2	0	0	0	0	20	8	3	1	0	7	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	102	127	80	67	188	128	174	282	134	67	267	62
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	109	135	85	71	200	136	185	300	143	71	284	66
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	109	135	85	71	200	136	185	300	143	71	284	66
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	109	135	85	71	200	136	185	300	143	71	284	66
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.92	0.92	0.93	0.98	0.83	0.90	0.86	0.86	0.90	0.95	0.81
Lanes:	1.00	0.61	0.39	1.00	1.00	1.00	1.00	1.36	0.64	1.00	1.00	1.00
Final Sat.:	1769	1076	678	1769	1862	1583	1718	2218	1054	1718	1809	1537
Capacity Analysis Module:												
Vol/Sat:	0.06	0.13	0.13	0.04	0.11	0.09	0.11	0.14	0.14	0.04	0.16	0.04
Crit Moves:		****		****			****				****	
Green/Cycle:	0.12	0.25	0.25	0.08	0.21	0.21	0.21	0.36	0.36	0.17	0.31	0.31
Volume/Cap:	0.51	0.51	0.51	0.51	0.52	0.42	0.51	0.38	0.38	0.25	0.51	0.14
Uniform Del:	33.0	25.9	25.9	35.3	28.2	27.5	27.8	19.1	19.1	29.1	22.6	19.9
IncremntDel:	2.1	1.0	1.0	3.0	1.3	0.9	1.2	0.2	0.2	0.5	0.8	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	35.0	26.9	26.9	38.3	29.4	28.4	29.0	19.3	19.3	29.6	23.4	20.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	35.0	26.9	26.9	38.3	29.4	28.4	29.0	19.3	19.3	29.6	23.4	20.0
LOS by Move:	D	C	C	D	C	C	C	B	B	C	C	C
HCM2kAvgQ:	81	130	130	43	108	71	99	103	103	43	154	30

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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #21 SR-16 and W. Kentucky Ave

Cycle (sec):	80	Critical Vol./Cap.(X):	0.457
Loss Time (sec):	12	Average Delay (sec/veh):	20.0
Optimal Cycle:	80	Level Of Service:	C

Street Name:	SR-16						W. Kentucky Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	5	5	5	5	5	5	5	5	5
Y+R:	4.0	6.0	6.0	4.0	6.0	6.0	4.0	5.3	5.3	4.0	5.3	5.3
Lanes:	1 0	0	1 0	1 0	0	1 0	1 0	0	1 0	1 0	0	1 0
Volume Module:												
Base Vol:	20	225	120	17	175	35	24	38	7	106	64	28
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	20	225	120	17	175	35	24	38	7	106	64	28
Added Vol:	0	8	0	0	19	0	0	0	0	1	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	20	233	120	17	194	35	24	38	7	107	64	28
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
PHF Volume:	26	301	155	22	250	45	31	49	9	138	83	36
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	26	301	155	22	250	45	31	49	9	138	83	36
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	26	301	155	22	250	45	31	49	9	138	83	36
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.90	0.90	0.90	0.90	0.93	0.93	0.93	0.96	0.96	0.93	0.93	0.93
Lanes:	1.00	0.66	0.34	1.00	0.85	0.15	1.00	0.84	0.16	1.00	0.70	0.30
Final Sat.:	1718	1133	584	1718	1497	270	1769	1536	283	1769	1236	541
Capacity Analysis Module:												
Vol/Sat:	0.02	0.27	0.27	0.01	0.17	0.17	0.02	0.03	0.03	0.08	0.07	0.07
Crit Moves:		****		****				****		****		
Green/Cycle:	0.17	0.56	0.56	0.06	0.45	0.45	0.11	0.07	0.07	0.16	0.12	0.12
Volume/Cap:	0.09	0.48	0.48	0.20	0.37	0.37	0.16	0.48	0.48	0.48	0.56	0.56
Uniform Del:	28.1	10.7	10.7	35.6	14.5	14.5	32.1	36.0	36.0	30.3	33.3	33.3
IncremntDel:	0.1	0.4	0.4	0.9	0.3	0.3	0.4	2.9	2.9	1.2	3.4	3.4
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	28.2	11.1	11.1	36.6	14.8	14.8	32.5	38.9	38.9	31.6	36.6	36.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	28.2	11.1	11.1	36.6	14.8	14.8	32.5	38.9	38.9	31.6	36.6	36.6
LOS by Move:	C	B	B	D	B	B	C	D	D	C	D	D
HCM2kAvgQ:	13	165	165	18	123	123	20	52	52	91	91	91

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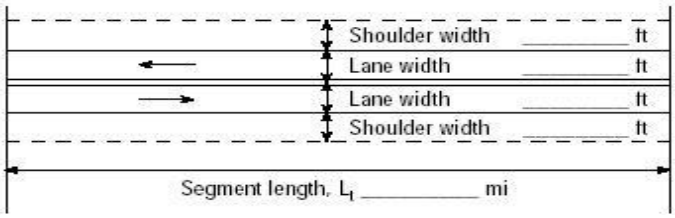
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*CCCR to County Road 85*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035) Plus Prj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *426*veh/h
Opposing direction vol., V_o *489*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *6.7*

☑ Class I highway ☐ Class II highway ☐ Class III highway
Terrain ☐ Level ☑ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.88*
No-passing zone *75%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*2.0*	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.1*	*1.1*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.949*	*0.958*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*0.94*	*0.96*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*543*	*604*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.2 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*51.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*40.5 mi/h*
		Percent free flow speed, PFFS	*78.5 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.6*	*1.4*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.971*	*0.980*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*0.95*	*0.97*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*525*	*584*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*53.4*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*34.6*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*69.8*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.32*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1586*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1633*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*78.5*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*484.1*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.21*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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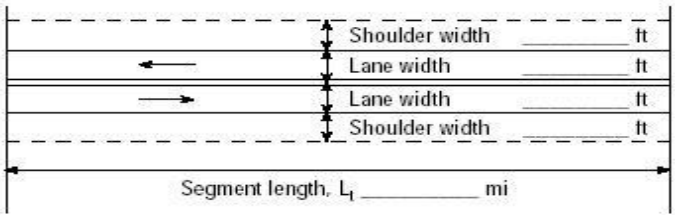
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*CCCR to County Road 85*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035) Plus Prj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *489*veh/h

Opposing direction vol., V_o *426*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *6.7*

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☐ Level ☑ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.88*

No-passing zone *75%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.8*	*2.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.1*	*1.1*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.958*	*0.949*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*0.96*	*0.94*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*604*	*543*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.5 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*51.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*40.2 mi/h*
		Percent free flow speed, PFFS	*77.9 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.4*	*1.6*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.980*	*0.971*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*0.97*	*0.95*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*584*	*525*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*56.8*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*34.6*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*75.0*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.36*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1547*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1616*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*77.9*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*555.7*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.28*
Bicycle level of service (Exhibit 15-4)	*E*
Notes	
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain. 2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10. 6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.	

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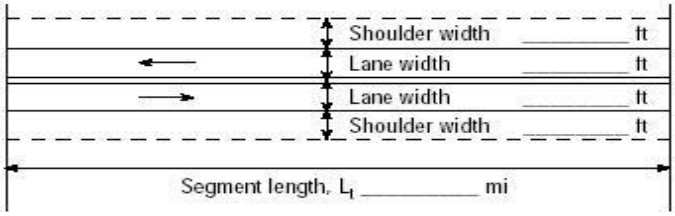
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*County Road 85 to Esparto Town*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035) Plus Prj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Analysis direction vol., V_d	*411*veh/h	Grade Length mi	Up/down
Opposing direction vol., V_o	*474*veh/h	Peak-hour factor, PHF	*0.95*
Shoulder width ft	*2.0*	No-passing zone	*85%*
Lane Width ft	*12.0*	% Trucks and Buses , P_T	*5 %*
Segment Length mi	*1.4*	% Recreational vehicles, P_R	*4%*
		Access points *mi*	*5*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.3*	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.985*	*0.990*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*439*	*504*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*0.3 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.2 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*42.1 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*32.6 mi/h*
		Percent free flow speed, PFFS	*77.4 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*435*	*499*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*46.6*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*39.9*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*65.2*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*C*
Volume to capacity ratio, *v/c*	*0.26*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1683*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*77.4*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*432.6*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.15*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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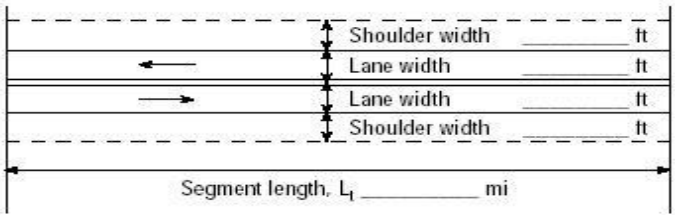
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*County Road 85 to Esparto Town*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035) Plus Prj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *474*veh/h
Opposing direction vol., V_o *411*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *1.4*

☐ Class I highway ☑ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.95*
No-passing zone *85%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *5*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.2*	*1.3*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.990*	*0.985*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*504*	*439*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.3 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.5 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*42.1 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*32.3 mi/h*
		Percent free flow speed, PFFS	*76.7 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*499*	*435*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*50.4*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*39.9*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*71.7*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.29*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*76.7*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*498.9*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.22*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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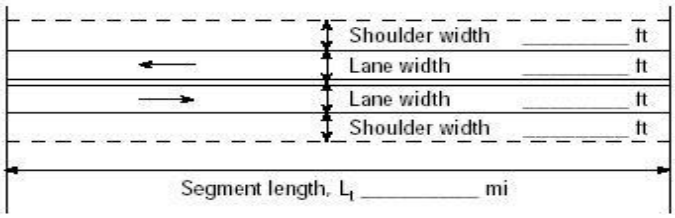
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*through Esparto Town*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035) Plus Prj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.93*

No-passing zone *95%*

Analysis direction vol., V_d *665*veh/h

% Trucks and Buses , P_T *5 %*

Opposing direction vol., V_o *517*veh/h

% Recreational vehicles, P_R *4%*

Shoulder width ft *2.0*

Access points *mi* *14*/mi

Lane Width ft *12.0*

Segment Length mi *1.2*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.990*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*719*	*562*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*3.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.3 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*38.9 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*26.7 mi/h*
		Percent free flow speed, PFFS	*68.5 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*715*	*556*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*64.0*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*30.8*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*81.3*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.42*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*68.5*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*715.1*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.40*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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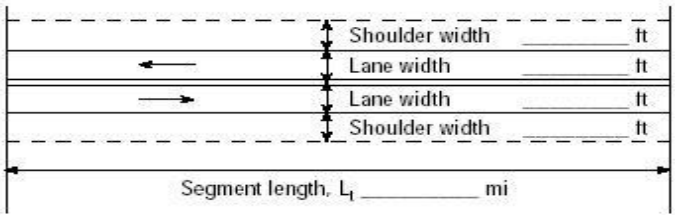
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*through Esparto Town*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035) Plus Prj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.93*

No-passing zone *95%*

Analysis direction vol., V_d *517*veh/h

Opposing direction vol., V_o *665*veh/h

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Shoulder width ft *2.0*

Lane Width ft *12.0*

Access points *mi* *14*/mi

Segment Length mi *1.2*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.2*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.990*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*562*	*719*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*3.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.6 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*38.9 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*27.4 mi/h*
		Percent free flow speed, PFFS	*70.3 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*556*	*715*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*57.5*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*30.8*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*71.0*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.33*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*70.3*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*555.9*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.28*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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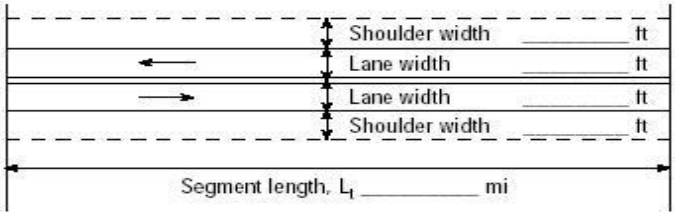
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*Esparto Town to County Rd 89*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035) Plus Prj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.86*

No-passing zone *80%*

Analysis direction vol., V_d *758*veh/h

Opposing direction vol., V_o *645*veh/h

% Trucks and Buses , P_T *5* %

% Recreational vehicles, P_R *4%*

Access points *mi* *3*/mi

Shoulder width ft *4.0*

Lane Width ft *12.0*

Segment Length mi *2.7*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*886*	*754*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.7 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*38.5 mi/h*
		Percent free flow speed, PFFS	*72.7 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*881*	*750*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*71.8*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*23.4*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*84.4*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.52*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*72.7*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*881.4*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.21*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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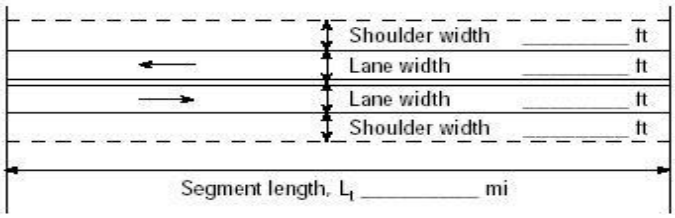
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*Esparto Town to County Rd 89*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035) Plus Prj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Analysis direction vol., V_d	*645*veh/h	Grade Length mi	Up/down
Opposing direction vol., V_o	*758*veh/h	Peak-hour factor, PHF	*0.86*
Shoulder width ft	*4.0*	No-passing zone	*80%*
Lane Width ft	*12.0*	% Trucks and Buses , P_T	*5 %*
Segment Length mi	*2.7*	% Recreational vehicles, P_R	*4%*
		Access points *mi*	*3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*754*	*886*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.1 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*39.1 mi/h*
		Percent free flow speed, PFFS	*73.9 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*750*	*881*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*68.4*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*23.4*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*79.2*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.44*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1700*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*73.9*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*750.0*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.13*
Bicycle level of service (Exhibit 15-4)	*E*
Notes	

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
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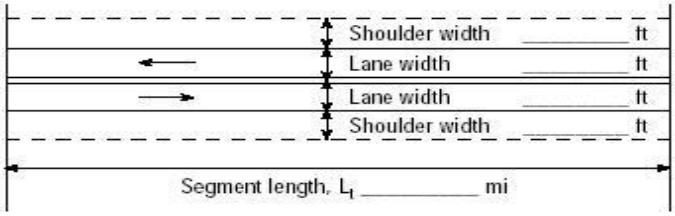
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*County Rd 89 to I-505*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035) Plus Prj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *615*veh/h

Opposing direction vol., V_o *653*veh/h

Shoulder width ft *4.0*

Lane Width ft *12.0*

Segment Length mi *0.8*

Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.81*

No-passing zone *100*%

% Trucks and Buses , P_T *5* %

% Recreational vehicles, P_R *4*%

Access points *mi* *4*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*763*	*810*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*1.0 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.8 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.7 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*38.7 mi/h*
		Percent free flow speed, PFFS	*73.4* %

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*759*	*806*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*67.6*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*25.7*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*80.1*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.45*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*73.4*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*759.3*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.13*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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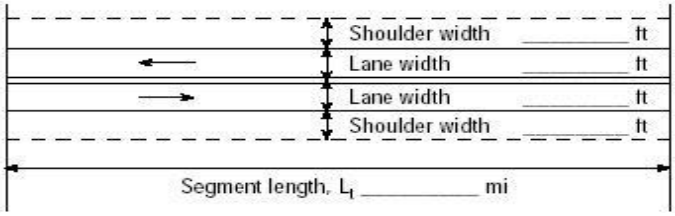
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*County Rd 89 to I-505*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035) Plus Prj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Analysis direction vol., V_d	*653*veh/h	Grade Length mi	Up/down
Opposing direction vol., V_o	*615*veh/h	Peak-hour factor, PHF	*0.81*
Shoulder width ft	*4.0*	No-passing zone	*100*%
Lane Width ft	*12.0*	% Trucks and Buses , P_T	*5* %
Segment Length mi	*0.8*	% Recreational vehicles, P_R	*4*%
		Access points *mi*	*4*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*810*	*763*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*1.0 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.9 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.7 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*38.6 mi/h*
		Percent free flow speed, PFFS	*73.2 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*806*	*759*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*69.8*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*25.7*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*83.0*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.48*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*73.2*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*806.2*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.17*
Bicycle level of service (Exhibit 15-4)	*E*
Notes	
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain. 2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10. 6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.	

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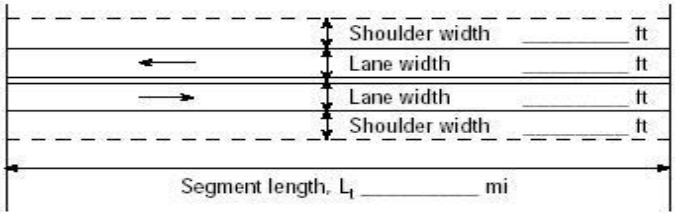
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*I-505 to County Rd 98*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035) Plus Prj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.89*

No-passing zone *100%*

Analysis direction vol., V_d *559*veh/h

Opposing direction vol., V_o *590*veh/h

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Shoulder width ft *2.0*

Lane Width ft *12.0*

Access points *mi* *35*/mi

Segment Length mi *8.3*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*631*	*666*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*8.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.9 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*43.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*31.6 mi/h*
		Percent free flow speed, PFFS	*72.6 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*628*	*663*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*60.6*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*31.6*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*76.0*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.37*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*72.6*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*628.1*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.34*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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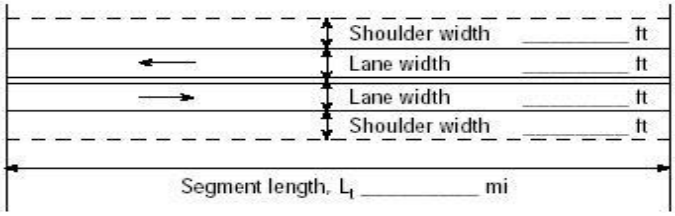
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*I-505 to County Rd 98*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035) Plus Prj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Analysis direction vol., V_d	*590*veh/h	Grade Length	mi Up/down
Opposing direction vol., V_o	*559*veh/h	Peak-hour factor, PHF	*0.89*
Shoulder width ft	*2.0*	No-passing zone	*100*%
Lane Width ft	*12.0*	% Trucks and Buses , P_T	*5* %
Segment Length mi	*8.3*	% Recreational vehicles, P_R	*4*%
		Access points *mi*	*35*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*666*	*631*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*8.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.5 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*43.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*31.0 mi/h*
		Percent free flow speed, PFFS	*71.2* %

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*663*	*628*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*61.9*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*31.6*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*78.1*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.39*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*71.2*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*662.9*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.37*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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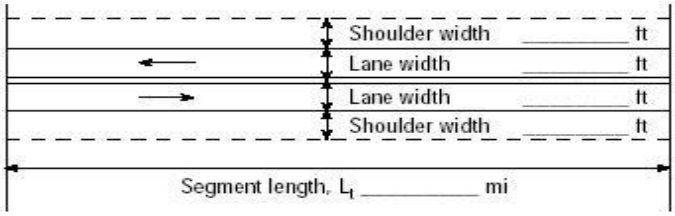
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 21A (WB)*
Agency or Company	*Yolo County*	From/To	*County Rd 85 to SR-16*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035) Plus Prj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *109*veh/h

Opposing direction vol., V_o *144*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *1.2*

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.82*

No-passing zone *25%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* 7/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.7*	*1.9*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.966*	*0.957*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*138*	*184*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*0.6 mi/h*	Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*40.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*37.5 mi/h*
		Percent free flow speed, PFFS	*92.4 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*134*	*176*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*15.2*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*37.0*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*31.2*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*A*
Volume to capacity ratio, *v/c*	*0.08*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1651*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*92.4*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*132.9*
Effective width, Wv (Eq. 15-29) ft	*20.37*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.46*
Bicycle level of service (Exhibit 15-4)	*C*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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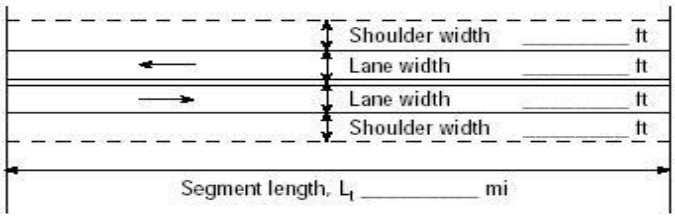
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 21A (EB)*
Agency or Company	*Yolo County*	From/To	*County Rd 85 to SR-16*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035) Plus Prj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *144*veh/h
Opposing direction vol., V_o *109*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *1.2*

☐ Class I highway ☑ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.82*
No-passing zone *25%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* 7/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.7*	*1.9*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.966*	*0.957*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*182*	*139*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*0.3 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*40.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*37.8 mi/h*
		Percent free flow speed, PFFS	*93.1 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*176*	*134*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*19.3*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*37.0*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*40.3*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*B*
Volume to capacity ratio, *v/c*	*0.10*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*93.1*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*175.6*
Effective width, Wv (Eq. 15-29) ft	*17.92*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.07*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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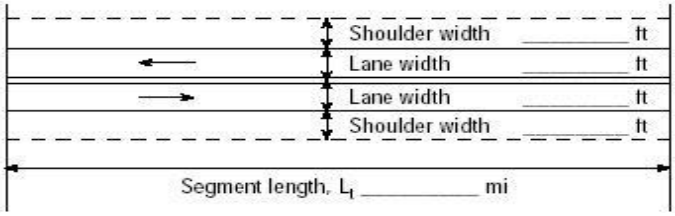
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 85B (NB)*
Agency or Company	*Yolo County*	From/To	*SR-16 to County Rd 21A*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035) Plus Prj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.83*

No-passing zone *80%*

Analysis direction vol., V_d *93*veh/h

Opposing direction vol., V_o *140*veh/h

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Shoulder width ft *2.0*

Lane Width ft *12.0*

Access points *mi* *6*/mi

Segment Length mi *0.9*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.9*	*1.7*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.957*	*0.966*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*117*	*175*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.8 mi/h*	Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*40.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*35.8 mi/h*
		Percent free flow speed, PFFS	*87.6 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*113*	*170*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*13.0*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*53.4*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*34.3*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*A*
Volume to capacity ratio, *v/c*	*0.07*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1651*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*87.6*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*112.0*
Effective width, Wv (Eq. 15-29) ft	*21.49*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.14*
Bicycle level of service (Exhibit 15-4)	*C*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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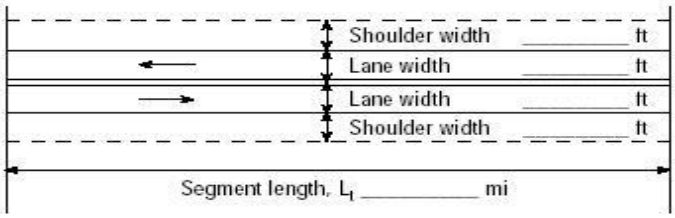
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 85B (SB)*
Agency or Company	*Yolo County*	From/To	*SR-16 to County Rd 21A*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Friday PM*	Analysis Year	*Long-Term (2035) Plus Prj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *140*veh/h
Opposing direction vol., V_o *93*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *0.9*

☐ Class I highway ☑ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.83*
No-passing zone *80%*
% Trucks and Buses , P_T *5 %*
% Recreational vehicles, P_R *4%*
Access points *mi* *6*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.7*	*1.9*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.966*	*0.957*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*175*	*117*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.2 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*40.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*36.4 mi/h*
		Percent free flow speed, PFFS	*89.1 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*170*	*113*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*18.7*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*53.4*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*50.8*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*B*
Volume to capacity ratio, *v/c*	*0.10*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*89.1*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*168.7*
Effective width, Wv (Eq. 15-29) ft	*18.20*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.00*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 SR-16 and North Casino Entrance

Cycle (sec):	65	Critical Vol./Cap.(X):	0.267
Loss Time (sec):	6	Average Delay (sec/veh):	8.5
Optimal Cycle:	62	Level Of Service:	A

Street Name:	SR-16						North Casino Entrance					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ovl			Include			Include			Include		
Min. Green:	0	8	8	5	8	0	0	0	0	5	5	5
Y+R:	4.0	5.5	5.5	4.0	5.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	1	0 1	1 0	1	0 0	0 0	0	0 0	1 0	0	0 1
Volume Module:												
Base Vol:	0	73	305	19	158	0	0	0	0	269	0	9
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	73	305	19	158	0	0	0	0	269	0	9
Added Vol:	0	0	66	4	0	0	0	0	0	34	0	2
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	73	371	23	158	0	0	0	0	303	0	11
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
PHF Volume:	0	78	399	25	170	0	0	0	0	326	0	12
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	78	399	25	170	0	0	0	0	326	0	12
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	78	399	25	170	0	0	0	0	326	0	12
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	0.81	0.90	0.95	1.00	1.00	1.00	1.00	0.93	1.00	0.83
Lanes:	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Final Sat.:	0	1809	1537	1718	1809	0	0	0	0	1769	0	1583
Capacity Analysis Module:												
Vol/Sat:	0.00	0.04	0.26	0.01	0.09	0.00	0.00	0.00	0.00	0.18	0.00	0.01
Crit Moves:		****		****						****		
Green/Cycle:	0.00	0.13	0.83	0.08	0.21	0.00	0.00	0.00	0.00	0.70	0.00	0.70
Volume/Cap:	0.00	0.33	0.31	0.18	0.45	0.00	0.00	0.00	0.00	0.26	0.00	0.01
Uniform Del:	0.0	25.7	1.3	27.9	22.4	0.0	0.0	0.0	0.0	3.6	0.0	2.9
IncremntDel:	0.0	0.8	0.1	0.6	0.8	0.0	0.0	0.0	0.0	0.1	0.0	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Delay/Veh:	0.0	26.6	1.4	28.5	23.2	0.0	0.0	0.0	0.0	3.7	0.0	3.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	26.6	1.4	28.5	23.2	0.0	0.0	0.0	0.0	3.7	0.0	3.0
LOS by Move:	A	C	A	C	C	A	A	A	A	A	A	A
HCM2kAvgQ:	0	44	53	16	87	0	0	0	0	63	0	2

Level Of Service Computation Report
Unknown Method (Future Volume Alternative)

Intersection #2 SR-16 and Central Casino Entrance

Street Name:	SR-16						Central Casino Entrance					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0 0 1 0			0 0 1 0 0			0 0 0 0 0			0 0 0 0 0		
Volume Module:												
Base Vol:	0	404	89	0	457	0	0	0	0	0	0	0
Growth Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Bse:	0	0	0	0	0	0	0	0	0	0	0	0
Added Vol:	0	66	16	0	34	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	0	0	0	0	0	0	0	0	0
User Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Volume:	0	0	0	0	0	0	0	0	0	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PCE Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MLF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FinalVolume:	0	0	0	0	0	0	0	0	0	0	0	0
Critical Gap Module: >> Population:0 << >> Run Speed(N/S): 30 MPH <<												
Critical Gp:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capacity Module:												
Cnflict Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Potent Cap.:	0	0	0	0	0	0	0	0	0	0	0	0
Level Of Service Module:												
LOS by Move:												
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	0	0	0	0	0	0	0	0	0	0	0	0

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #3 SR-16 and South Casino Entrance

Average Delay (sec/veh): 2.4 Worst Case Level Of Service: D[34.6]

Street Name:	SR-16						South Casino Entrance					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 1 0			0 0 1 0 0			0 0 0 0 0			1 0 0 0 1		
Volume Module:												
Base Vol:	0	504	109	0	437	0	0	0	0	81	0	1
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	504	109	0	437	0	0	0	0	81	0	1
Added Vol:	0	82	21	0	34	0	0	0	0	7	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	586	130	0	471	0	0	0	0	88	0	1
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	616	137	0	495	0	0	0	0	92	0	1
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	616	137	0	495	0	0	0	0	92	0	1
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1179	xxxx	684
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	211	xxxx	449
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	211	xxxx	449
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.44	xxxx	0.00
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	51.5	xxxx	0.2
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	34.8	xxxx	13.0
LOS by Move:	*	*	*	*	*	*	*	*	*	D	*	B
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			34.6		
ApproachLOS:	*			*			*			D		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #4 SR-16 and County Rd 85

Average Delay (sec/veh): 0.6 Worst Case Level Of Service: C[25.0]

Street Name:	County Rd 85						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	0 1	0
Volume Module:												
Base Vol:	0	0	0	13	0	10	17	464	0	0	645	5
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	13	0	10	17	464	0	0	645	5
Added Vol:	0	0	0	0	0	2	1	40	0	0	101	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	13	0	12	18	504	0	0	746	5
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
PHF Volume:	0	0	0	14	0	13	20	556	0	0	822	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	14	0	13	20	556	0	0	822	6
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	1421	1421	825	828	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	150	136	372	790	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	147	133	372	790	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.10	0.00	0.04	0.03	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1.9	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	9.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	208	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.5	xxxxx	0.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	25.0	xxxxx	9.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	C	*	A	*	*	*	*	*
ApproachDel:	xxxxxx			25.0			xxxxxx			xxxxxx		
ApproachLOS:	*			C			*			*		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #5 SR-16 and County Rd 85B

Average Delay (sec/veh): 2.9 Worst Case Level Of Service: C[24.7]

Street Name:	County Rd 85B									SR-16								
Approach:	North Bound						South Bound						East Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Uncontrolled					
Rights:	Include						Include						Include					
Lanes:	0	0	1!	0	0		0	0	0	0	0		0	0	1	0	1	
Volume Module:																		
Base Vol:	113	0	5	0	0		0	0	0	0	0		0	343	121	0	0	
Growth Adj:	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Initial Bse:	113	0	5	0	0		0	0	0	0	0		0	343	121	0	0	
Added Vol:	24	0	0	0	0		0	0	0	0	0		0	27	13	0	0	
PasserByVol:	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	
Initial Fut:	137	0	5	0	0		0	0	0	0	0		0	370	134	0	0	
User Adj:	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
PHF Adj:	0.92	0.92	0.92	0.92	0.92		0.92	0.92	0.92	0.92	0.92		0.92	0.92	0.92	0.92	0.92	
PHF Volume:	149	0	5	0	0		0	0	0	0	0		0	402	146	0	0	
Reduct Vol:	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	
FinalVolume:	149	0	5	0	0		0	0	0	0	0		0	402	146	0	0	
Critical Gap Module:																		
Critical Gp:	6.4	6.5	6.2	xxxxx	xxxx		xxxxx	xxxxx	xxxx	xxxxx			4.1	xxxx	xxxxx			
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxx		xxxxx	xxxxx	xxxx	xxxxx			2.2	xxxx	xxxxx			
Capacity Module:																		
Cnflict Vol:	1052	1052	402	xxxx	xxxx		xxxxx	xxxx	xxxx	xxxxx			548	xxxx	xxxxx			
Potent Cap.:	251	226	648	xxxx	xxxx		xxxxx	xxxx	xxxx	xxxxx			1007	xxxx	xxxxx			
Move Cap.:	250	225	648	xxxx	xxxx		xxxxx	xxxx	xxxx	xxxxx			1007	xxxx	xxxxx			
Volume/Cap:	0.60	0.00	0.01	xxxx	xxxx		xxxx	xxxx	xxxx	xxxx			0.01	xxxx	xxxx			
Level Of Service Module:																		
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx		xxxxx	xxxx	xxxx	xxxxx			0.4	xxxx	xxxxx			
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx		xxxxx	xxxxx	xxxx	xxxxx			8.6	xxxx	xxxxx			
LOS by Move:	*	*	*	*	*		*	*	*	*			A	*	*			
Movement:	LT	-	LTR	-	RT		LT	-	LTR	-	RT		LT	-	LTR	-	RT	
Shared Cap.:	xxxx		334	xxxxx			xxxx	xxxx	xxxxx				xxxx	xxxx	xxxxx			
SharedQueue:	xxxxx		2.3	xxxxx	xxxxx		xxxx	xxxxx	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx			
Shrd ConDel:	xxxxx		24.7	xxxxx	xxxxx		xxxx	xxxxx	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx			
Shared LOS:	*		C	*	*		*	*	*	*	*		*	*	*			
ApproachDel:			24.7		xxxxxx				xxxxxx						xxxxxx			
ApproachLOS:			C		*				*						*			

Note: Queue reported is the distance per lane in feet.

6: Yolo Ave & Woodland Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.3	0.3	0.1		0.1	0.7	1.3	3.6	0.3	0.1	0.6
Total Del/Veh (s)	21.6	17.0	8.7	16.5	47.6	2.3	2.7	5.6	2.2	21.2	34.3	6.6

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #7 SR-16 and Capay St

Average Delay (sec/veh): 1.3 Worst Case Level Of Service: D[28.8]

Street Name:	SR-16						Capay St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	42	614	22	9	397	15	5	4	23	6	3	8
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	42	614	22	9	397	15	5	4	23	6	3	8
Added Vol:	0	71	0	0	25	0	0	0	0	0	0	1
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	42	685	22	9	422	15	5	4	23	6	3	9
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
PHF Volume:	48	780	25	10	481	17	6	5	26	7	3	10
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	48	780	25	10	481	17	6	5	26	7	3	10
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx	7.1	6.5	6.2	7.1	6.5	6.2
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	3.5	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	498	xxxx	xxxxx	805	xxxx	xxxxx	1405	1411	489	1413	1407	793
Potent Cap.:	1051	xxxx	xxxxx	806	xxxx	xxxxx	117	138	579	115	139	389
Move Cap.:	1051	xxxx	xxxxx	806	xxxx	xxxxx	107	130	579	102	131	389
Volume/Cap:	0.05	xxxx	xxxx	0.01	xxxx	xxxx	0.05	0.04	0.05	0.07	0.03	0.03
Level Of Service Module:												
2Way95thQ:	3.6	xxxx	xxxxx	1.0	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	8.6	xxxx	xxxxx	9.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	273	xxxxx	xxxx	172	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.5	xxxxx	xxxxx	0.4	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	20.2	xxxxx	xxxxx	28.8	xxxxx
Shared LOS:	*	*	*	*	*	*	*	C	*	*	D	*
ApproachDel:	xxxxxx			xxxxxx			20.2			28.8		
ApproachLOS:	*			*			C			D		

Note: Queue reported is the distance per lane in feet.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #8 SR-16 and Madison St

Average Delay (sec/veh): 0.9 Worst Case Level Of Service: D[25.3]

Street Name:	SR-16						Madison St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	22	633	5	5	383	16	5	5	14	5	5	5
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	22	633	5	5	383	16	5	5	14	5	5	5
Added Vol:	0	70	0	0	25	0	0	0	0	0	0	1
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	22	703	5	5	408	16	5	5	14	5	5	6
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
PHF Volume:	24	753	5	5	437	17	5	5	15	5	5	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	24	753	5	5	437	17	5	5	15	5	5	6
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx	7.1	6.5	6.2	7.1	6.5	6.2
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	3.5	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	454	xxxx	xxxxx	759	xxxx	xxxxx	1266	1263	446	1270	1268	756
Potent Cap.:	1091	xxxx	xxxxx	839	xxxx	xxxxx	146	170	612	145	168	408
Move Cap.:	1091	xxxx	xxxxx	839	xxxx	xxxxx	137	165	612	135	164	408
Volume/Cap:	0.02	xxxx	xxxx	0.01	xxxx	xxxx	0.04	0.03	0.02	0.04	0.03	0.02
Level Of Service Module:												
2Way95thQ:	1.7	xxxx	xxxxx	0.5	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	8.4	xxxx	xxxxx	9.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	268	xxxxx	xxxx	194	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.3	xxxxx	xxxxx	0.3	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	19.9	xxxxx	xxxxx	25.3	xxxxx
Shared LOS:	*	*	*	*	*	*	*	C	*	*	D	*
ApproachDel:	xxxxxx			xxxxxx			19.9			25.3		
ApproachLOS:	*			*			C			D		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #9 SR-16 and Plainfield St

Average Delay (sec/veh): 2.4 Worst Case Level Of Service: E[37.3]

Street Name:	SR-16						Plainfield St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 1 0	1	0	1 0	0	0	1! 0	0	0	0	1! 0	0
Volume Module:												
Base Vol:	38 647	17	20	383	13	6	12	17	15	24	8	
Growth Adj:	1.00 1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Initial Bse:	38 647	17	20	383	13	6	12	17	15	24	8	
Added Vol:	0 69	0	0	24	0	0	0	0	0	0	1	
PasserByVol:	0 0	0	0	0	0	0	0	0	0	0	0	
Initial Fut:	38 716	17	20	407	13	6	12	17	15	24	9	
User Adj:	1.00 1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PHF Adj:	0.97 0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
PHF Volume:	39 740	18	21	421	13	6	12	18	16	25	9	
Reduct Vol:	0 0	0	0	0	0	0	0	0	0	0	0	
FinalVolume:	39 740	18	21	421	13	6	12	18	16	25	9	
Critical Gap Module:												
Critical Gp:	4.1 xxxx xxxxx		4.1 xxxx xxxxx			7.1	6.5	6.2	7.1	6.5	6.2	
FollowUpTim:	2.2 xxxx xxxxx		2.2 xxxx xxxxx			3.5	4.0	3.3	3.5	4.0	3.3	
Capacity Module:												
Cnflict Vol:	434 xxxx xxxxx		758 xxxx xxxxx			930	1306	428	1312	1304	379	
Potent Cap.:	1110 xxxx xxxxx		840 xxxx xxxxx			247	160	627	136	160	668	
Move Cap.:	1110 xxxx xxxxx		840 xxxx xxxxx			204	150	627	118	151	668	
Volume/Cap:	0.04 xxxx xxxx		0.02 xxxx xxxx			0.03	0.08	0.03	0.13	0.16	0.01	
Level Of Service Module:												
2Way95thQ:	2.8 xxxx xxxxx		1.9 xxxx xxxxx			xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	
Control Del:	8.4 xxxx xxxxx		9.4 xxxx xxxxx			xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	
LOS by Move:	A *	*	A	*	*	*	*	*	*	*	*	
Movement:	LT - LTR - RT		LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			
Shared Cap.:	xxxx xxxx xxxxx		xxxx xxxx xxxxx			xxxx	257	xxxxx	xxxx	160	xxxxx	
SharedQueue:	0.1 xxxx xxxxx		xxxxx xxxx xxxxx			xxxxx	0.5	xxxxx	xxxxx	1.2	xxxxx	
Shrd ConDel:	8.4 xxxx xxxxx		xxxxx xxxx xxxxx			xxxxx	21.3	xxxxx	xxxxx	37.3	xxxxx	
Shared LOS:	A *	*	*	*	*	*	C	*	*	E	*	
ApproachDel:	xxxxxx		xxxxxx			21.3			37.3			
ApproachLOS:	*		*			C			E			

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #10 SR-16 and County Road 21A

Cycle (sec):	100	Critical Vol./Cap.(X):	0.914
Loss Time (sec):	0	Average Delay (sec/veh):	28.8
Optimal Cycle:	0	Level Of Service:	D

Street Name:	SR-16						County Road 21A					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Ignore		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	0 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	1 0	1
Volume Module:												
Base Vol:	0	0	0	522	0	8	6	144	0	0	128	920
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	522	0	8	6	144	0	0	128	920
Added Vol:	0	0	0	24	0	0	0	10	0	0	17	69
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	546	0	8	6	154	0	0	145	989
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
PHF Adj:	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.00
PHF Volume:	0	0	0	620	0	9	7	175	0	0	165	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	620	0	9	7	175	0	0	165	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
FinalVolume:	0	0	0	620	0	9	7	175	0	0	165	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	0.99	0.00	0.01	0.04	0.96	0.00	0.00	1.00	1.00
Final Sat.:	0	0	0	679	0	10	22	553	0	0	528	588
Capacity Analysis Module:												
Vol/Sat:	xxxx	xxxx	xxxx	0.91	xxxx	0.91	0.32	0.32	xxxx	xxxx	0.31	0.00
Crit Moves:				****				****			****	
Delay/Veh:	0.0	0.0	0.0	38.1	0.0	38.1	11.7	11.7	0.0	0.0	12.1	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	38.1	0.0	38.1	11.7	11.7	0.0	0.0	12.1	0.0
LOS by Move:	*	*	*	E	*	E	B	B	*	*	B	*
ApproachDel:	xxxxxx			38.1			11.7			12.1		
Delay Adj:	xxxxx			1.00			1.00			1.00		
ApprAdjDel:	xxxxxx			38.1			11.7			12.1		
LOS by Appr:	*			E			B			B		
AllWayAvgQ:	0.0	0.0	0.0	143	143	143.1	10.5	10.5	10.5	0.0	10.3	0.0

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #11 County Rd 85B and County Rd 21A

Average Delay (sec/veh): 6.1 Worst Case Level Of Service: A[9.2]

Street Name:	County Rd 85B									County Rd 21A								
Approach:	North Bound						South Bound						East Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Uncontrolled						Uncontrolled						Stop Sign					
Rights:	Include						Include						Include					
Lanes:	0	0	0	1	0		0	1	0	0	0		0	0	0	0	0	
Volume Module:																		
Base Vol:	0	35	5				92	28	0				0	0	0			
Growth Adj:	1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00			
Initial Bse:	0	35	5				92	28	0				0	0	0			
Added Vol:	0	6	0				10	3	0				0	0	0			
PasserByVol:	0	0	0				0	0	0				0	0	0			
Initial Fut:	0	41	5				102	31	0				0	0	0			
User Adj:	1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00			
PHF Adj:	0.79	0.79	0.79				0.79	0.79	0.79				0.79	0.79	0.79			
PHF Volume:	0	52	6				130	39	0				0	0	0			
Reduct Vol:	0	0	0				0	0	0				0	0	0			
FinalVolume:	0	52	6				130	39	0				0	0	0			
Critical Gap Module:																		
Critical Gp:	xxxxx	xxxx	xxxxx				4.1	xxxx	xxxxx				xxxx	xxxxx				
FollowUpTim:	xxxxx	xxxx	xxxxx				2.2	xxxx	xxxxx				xxxx	xxxxx				
Capacity Module:																		
Cnflict Vol:	xxxx	xxxx	xxxxx				59	xxxx	xxxxx				xxxx	xxxx	xxxxx			
Potent Cap.:	xxxx	xxxx	xxxxx				1545	xxxx	xxxxx				xxxx	xxxx	xxxxx			
Move Cap.:	xxxx	xxxx	xxxxx				1545	xxxx	xxxxx				xxxx	xxxx	xxxxx			
Volume/Cap:	xxxx	xxxx	xxxx				0.08	xxxx	xxxx				xxxx	xxxx	xxxx			
Level Of Service Module:																		
2Way95thQ:	xxxx	xxxx	xxxxx				6.9	xxxx	xxxxx				xxxx	xxxx	xxxxx			
Control Del:	xxxxx	xxxx	xxxxx				7.5	xxxx	xxxxx				xxxxx	xxxx	xxxxx			
LOS by Move:	*	*	*				A	*	*				*	*	*			
Movement:	LT	-	LTR	-	RT		LT	-	LTR	-	RT		LT	-	LTR	-	RT	
Shared Cap.:	xxxx	xxxx	xxxxx				xxxx	xxxx	xxxxx				xxxx	xxxx	xxxxx			
SharedQueue:	xxxxx	xxxx	xxxxx				0.3	xxxx	xxxxx				xxxxx	xxxx	xxxxx			
Shrd ConDel:	xxxxx	xxxx	xxxxx				7.5	xxxx	xxxxx				xxxxx	xxxx	xxxxx			
Shared LOS:	*	*	*				A	*	*				*	*	*			
ApproachDel:	xxxxxx						xxxxxx						xxxxxx					
ApproachLOS:	*						*						*					

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #12 Country Villa Estates and County Rd 21A

Average Delay (sec/veh): 0.2 Worst Case Level Of Service: B[10.2]

Street Name:	Country Villa Estates									County Rd 21A								
Approach:	North Bound			South Bound			East Bound			West Bound								
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled								
Rights:	Include			Include			Include			Include								
Lanes:	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1!	0	0
Volume Module:																				
Base Vol:	0	0	0	3	0	0	1	113	0	1	84	9								
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
Initial Bse:	0	0	0	3	0	0	1	113	0	1	84	9								
Added Vol:	0	0	0	0	0	0	0	10	0	0	17	0								
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0								
Initial Fut:	0	0	0	3	0	0	1	123	0	1	101	9								
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
PHF Adj:	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79								
PHF Volume:	0	0	0	4	0	0	1	156	0	1	128	11								
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0								
FinalVolume:	0	0	0	4	0	0	1	156	0	1	128	11								
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	xxxxx	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx								
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	xxxxx	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx								
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx	xxxxx	295	xxxx	xxxxx	139	xxxx	xxxxx	156	xxxx	xxxxx								
Potent Cap.:	xxxx	xxxx	xxxxx	696	xxxx	xxxxx	1444	xxxx	xxxxx	1424	xxxx	xxxxx								
Move Cap.:	xxxx	xxxx	xxxxx	695	xxxx	xxxxx	1444	xxxx	xxxxx	1424	xxxx	xxxxx								
Volume/Cap:	xxxx	xxxx	xxxx	0.01	xxxx	xxxx	0.00	xxxx	xxxx	0.00	xxxx	xxxx								
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	xxxxx	0.4	xxxx	xxxxx	0.1	xxxx	xxxxx	0.1	xxxx	xxxxx								
Control Del:	xxxxx	xxxx	xxxxx	10.2	xxxx	xxxxx	7.5	xxxx	xxxxx	7.5	xxxx	xxxxx								
LOS by Move:	*	*	*	B	*	*	A	*	*	A	*	*								
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx	xxxxx				xxxx	xxxx	xxxxx				xxxx	xxxx	xxxxx					
SharedQueue:	xxxxx	xxxx	xxxxx				xxxxx	xxxx	xxxxx				0.0	xxxx	xxxxx					
Shrd ConDel:	xxxxx	xxxx	xxxxx				xxxxx	xxxx	xxxxx				7.5	xxxx	xxxxx					
Shared LOS:	*	*	*				*	*	*				A	*	*					
ApproachDel:	xxxxxx						10.2						xxxxxx							
ApproachLOS:	*						B						*							

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #13 Fremont St and County Rd 21A

Average Delay (sec/veh): 1.0 Worst Case Level Of Service: B[10.3]

Street Name:	Fremont St						County Rd 21A					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0 0		0 0 1!	0 0		0 1 0	0 0		0 0 0	1 0	
Volume Module:												
Base Vol:	0	0	0	14	0	8	10	114	0	0	94	25
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	14	0	8	10	114	0	0	94	25
Added Vol:	0	0	0	0	0	0	0	10	0	0	17	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	14	0	8	10	124	0	0	111	25
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
PHF Volume:	0	0	0	19	0	11	13	165	0	0	147	33
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	19	0	11	13	165	0	0	147	33
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	355	355	164	181	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	643	570	881	1395	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	638	565	881	1395	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.03	0.00	0.01	0.01	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.7	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.6	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	709	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.1	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	10.3	xxxxx	7.6	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	B	*	A	*	*	*	*	*
ApproachDel:	xxxxxx			10.3			xxxxxx			xxxxxx		
ApproachLOS:	*			B			*			*		

Note: Queue reported is the distance per lane in feet.

DELAY (CONTROL)

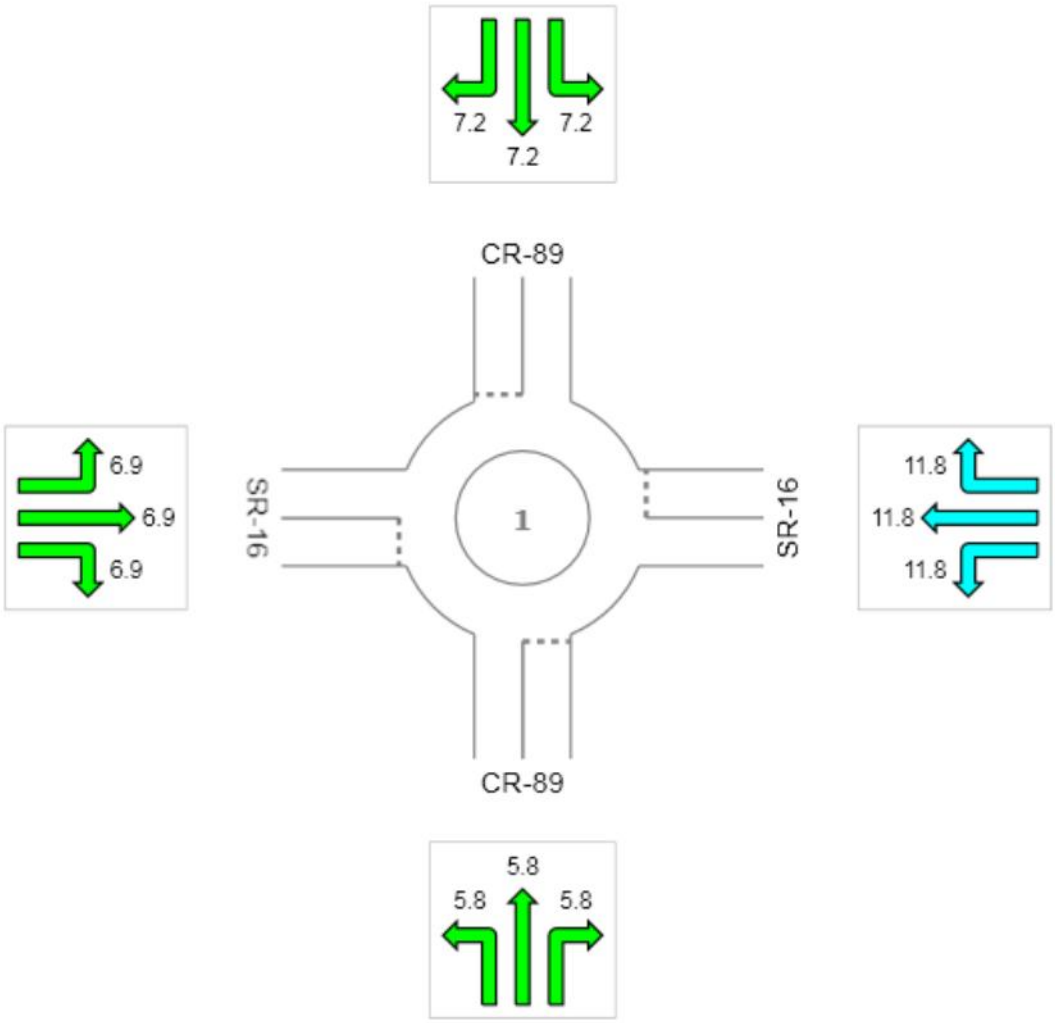
Average control delay per vehicle, or average pedestrian delay (seconds)

Site: SR-16/CR-89

Long-Term Plus Project Sat PM
Roundabout

All Movement Classes

	South	East	North	West	Intersection
Delay (Control)	5.8	11.8	7.2	6.9	9.6
LOS	A	B	A	A	A



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F | Continuous

Level of Service Method: Delay & v/c (HCM 2010)
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Roundabout Level of Service Method: Same as Sign Control
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #15 SR-16 and SB I-505

Average Delay (sec/veh): 0.6 Worst Case Level Of Service: D[30.5]

Street Name:	SB I-505								SR-16							
Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	0	0 0	0	1	0	0 1	0	0	0	1 0	0	0	1	0 1
Volume Module:																
Base Vol:	0	0	0		11	4	12		0	235	443		0	783	37	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	0	0	0		11	4	12		0	235	443		0	783	37	
Added Vol:	0	0	0		0	0	3		0	15	20		0	83	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	0	0	0		11	4	15		0	250	463		0	866	37	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.89	0.89	0.89		0.89	0.89	0.89		0.89	0.89	0.89		0.89	0.89	0.89	
PHF Volume:	0	0	0		12	5	17		0	282	523		0	977	42	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
FinalVolume:	0	0	0		12	5	17		0	282	523		0	977	42	
Critical Gap Module:																
Critical Gp:	xxxxx	xxxx	xxxxx		6.4	6.6	6.3		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
FollowUpTim:	xxxxx	xxxx	xxxxx		3.5	4.0	3.3		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Capacity Module:																
Cnflict Vol:	xxxx	xxxx	xxxxx		1521	1782	977		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Potent Cap.:	xxxx	xxxx	xxxxx		128	80	300		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Move Cap.:	xxxx	xxxx	xxxxx		128	80	300		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Volume/Cap:	xxxx	xxxx	xxxx		0.10	0.06	0.06		xxxx	xxxx	xxxx		xxxx	xxxx	xxxx	
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	xxxxx		xxxx	xxxx	4.5		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Control Del:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	17.7		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
LOS by Move:	*	*	*		*	*	C		*	*	*		*	*	*	
Movement:	LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT	
Shared Cap.:	xxxx	xxxx	xxxxx		111	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
SharedQueue:	xxxxx	xxxx	xxxxx		0.5	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shrd ConDel:	xxxxx	xxxx	xxxxx		43.3	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shared LOS:	*	*	*		E	*	*		*	*	*		*	*	*	
ApproachDel:	xxxxxx				30.5				xxxxxx				xxxxxx			
ApproachLOS:	*				D				*				*			

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #16 SR-16 and NB I-505

Cycle (sec):	50	Critical Vol./Cap.(X):	0.883
Loss Time (sec):	6	Average Delay (sec/veh):	21.5
Optimal Cycle:	64	Level Of Service:	C

Street Name:	NB I-505						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Ignore			Include		
Min. Green:	5	5	5	0	0	0	0	5	5	0	5	5
Y+R:	4.1	4.1	4.1	4.0	4.0	4.0	4.0	5.5	5.5	4.0	5.5	5.5
Lanes:	0 1	0	0 1	0	0	0 0	0	0	1 0 1	0	0	1 0 1
Volume Module:												
Base Vol:	393	0	118	0	0	0	0	222	32	0	573	14
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	393	0	118	0	0	0	0	222	32	0	573	14
Added Vol:	50	0	0	0	0	0	0	13	1	0	33	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	443	0	118	0	0	0	0	235	33	0	606	14
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Adj:	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.00	0.87	0.87	0.87
PHF Volume:	507	0	135	0	0	0	0	269	0	0	694	16
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	507	0	135	0	0	0	0	269	0	0	694	16
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
FinalVolume:	507	0	135	0	0	0	0	269	0	0	694	16
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.68	1.00	0.81	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.81
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00
Final Sat.:	1291	0	1537	0	0	0	0	1809	1900	0	1809	1537
Capacity Analysis Module:												
Vol/Sat:	0.39	0.00	0.09	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.38	0.01
Crit Moves:	****										****	
Green/Cycle:	0.45	0.00	0.45	0.00	0.00	0.00	0.00	0.43	0.00	0.00	0.43	0.43
Volume/Cap:	0.88	0.00	0.20	0.00	0.00	0.00	0.00	0.34	0.00	0.00	0.88	0.02
Uniform Del:	12.7	0.0	8.4	0.0	0.0	0.0	0.0	9.4	0.0	0.0	13.0	8.1
IncremntDel:	14.9	0.0	0.1	0.0	0.0	0.0	0.0	0.3	0.0	0.0	11.5	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00
Delay/Veh:	27.6	0.0	8.6	0.0	0.0	0.0	0.0	9.6	0.0	0.0	24.4	8.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	27.6	0.0	8.6	0.0	0.0	0.0	0.0	9.6	0.0	0.0	24.4	8.1
LOS by Move:	C	A	A	A	A	A	A	A	A	A	C	A
HCM2kAvgQ:	281	0	35	0	0	0	0	75	0	0	280	3

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #17 SR-16 and Wild Wings Dr

Average Delay (sec/veh): 2.0 Worst Case Level Of Service: D[26.0]

Street Name:	Wild Wings Dr						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			1 0 0 0 1			1 0 1 0 0			0 0 1 0 1		
Volume Module:												
Base Vol:	0	0	0	65	0	14	9	331	0	0	563	69
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	65	0	14	9	331	0	0	563	69
Added Vol:	0	0	0	0	0	0	0	13	0	0	33	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	65	0	14	9	344	0	0	596	69
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
PHF Volume:	0	0	0	76	0	16	11	402	0	0	696	81
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	76	0	16	11	402	0	0	696	81
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	1119	xxxx	696	777	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	229	xxxx	441	826	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	226	xxxx	441	826	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.34	xxxx	0.04	0.01	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	35.2	xxxx	2.9	1.0	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	28.7	xxxx	13.5	9.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	D	*	B	A	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			26.0			xxxxxx			xxxxxx		
ApproachLOS:	*			D			*			*		

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #18 SR-16 and County Rd 94B

Average Delay (sec/veh): 8.1 Worst Case Level Of Service: F[72.5]

Street Name:	County Rd 94B									SR-16								
Approach:	North Bound				South Bound					East Bound					West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	1!	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1!	0	0
Volume Module:																				
Base Vol:	99	0	5	0		11	15				16	346	0			52	471	1		
Growth Adj:	1.00	1.00	1.00	1.00		1.00	1.00				1.00	1.00	1.00			1.00	1.00	1.00		
Initial Bse:	99	0	5	0		11	15				16	346	0			52	471	1		
Added Vol:	0	0	0	0		0	0				0	13	0			0	33	0		
PasserByVol:	0	0	0	0		0	0				0	0	0			0	0	0		
Initial Fut:	99	0	5	0		11	15				16	359	0			52	504	1		
User Adj:	1.00	1.00	1.00	1.00		1.00	1.00				1.00	1.00	1.00			1.00	1.00	1.00		
PHF Adj:	0.89	0.89	0.89	0.89		0.89	0.89				0.89	0.89	0.89			0.89	0.89	0.89		
PHF Volume:	112	0	6	0		12	17				18	405	0			59	569	1		
Reduct Vol:	0	0	0	0		0	0				0	0	0			0	0	0		
FinalVolume:	112	0	6	0		12	17				18	405	0			59	569	1		
Critical Gap Module:																				
Critical Gp:	7.1	6.5	6.2	xxxxx		6.5	6.2				4.1	xxxx	xxxxx			4.1	xxxx	xxxxx		
FollowUpTim:	3.5	4.0	3.3	xxxxx		4.0	3.3				2.2	xxxx	xxxxx			2.2	xxxx	xxxxx		
Capacity Module:																				
Cnflict Vol:	1143	1129	405	xxxx		1128	569				570	xxxx	xxxxx			405	xxxx	xxxxx		
Potent Cap.:	177	204	646	xxxx		204	521				988	xxxx	xxxxx			1137	xxxx	xxxxx		
Move Cap.:	154	190	646	xxxx		190	521				988	xxxx	xxxxx			1137	xxxx	xxxxx		
Volume/Cap:	0.72	0.00	0.01	xxxx		0.07	0.03				0.02	xxxx	xxxx			0.05	xxxx	xxxx		
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx		xxxx	xxxxx				1.4	xxxx	xxxxx			4.1	xxxx	xxxxx		
Control Del:	xxxxx	xxxx	xxxxx	xxxxx		xxxx	xxxxx				8.7	xxxx	xxxxx			8.3	xxxx	xxxxx		
LOS by Move:	*	*	*	*		*	*				A	*	*			A	*	*		
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx		160	xxxxx		xxxx	xxxx			300	xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx		
SharedQueue:	xxxxx		4.5	xxxxx		xxxxx	xxxx			0.3	0.1	xxxx	xxxxx			xxxxx	xxxx	xxxxx		
Shrd ConDel:	xxxxx		72.5	xxxxx		xxxxx	xxxx			18.3	8.7	xxxx	xxxxx			xxxxx	xxxx	xxxxx		
Shared LOS:	*		F	*		*	*			C	A	*	*			*	*	*		
ApproachDel:			72.5				18.3				xxxxxx					xxxxxx				
ApproachLOS:			F				C				*					*				

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #19 SR-16 and County Rd 95

Average Delay (sec/veh): 0.9 Worst Case Level Of Service: C[21.8]

Street Name:	County Rd 95									SR-16								
Approach:	North Bound				South Bound					East Bound					West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	1!	0	0	0	0	1	0	0	0	0	1	0	0	0	1	0	0	0
Volume Module:																				
Base Vol:	10	3	22	0	4	0	0	390	0	21	499	0								
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
Initial Bse:	10	3	22	0	4	0	0	390	0	21	499	0								
Added Vol:	1	0	0	0	0	0	0	13	0	0	32	0								
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0								
Initial Fut:	11	3	22	0	4	0	0	403	0	21	531	0								
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92								
PHF Volume:	12	3	24	0	4	0	0	438	0	23	577	0								
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0								
FinalVolume:	12	3	24	0	4	0	0	438	0	23	577	0								
Critical Gap Module:																				
Critical Gp:	7.1	6.5	6.2	xxxxx	6.5	xxxxx	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx								
FollowUpTim:	3.5	4.0	3.3	xxxxx	4.0	xxxxx	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx								
Capacity Module:																				
Cnflict Vol:	1063	1061	438	xxxx	1061	xxxxx	xxxx	xxxx	xxxxx	438	xxxx	xxxxx								
Potent Cap.:	201	224	619	xxxx	224	xxxxx	xxxx	xxxx	xxxxx	1106	xxxx	xxxxx								
Move Cap.:	195	219	619	xxxx	219	xxxxx	xxxx	xxxx	xxxxx	1106	xxxx	xxxxx								
Volume/Cap:	0.06	0.01	0.04	xxxx	0.02	xxxx	xxxx	xxxx	xxxx	0.02	xxxx	xxxx								
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	1.5	xxxxx	xxxx	xxxx	xxxxx	1.6	xxxx	xxxxx								
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	21.8	xxxxx	xxxxx	xxxx	xxxxx	8.3	xxxx	xxxxx								
LOS by Move:	*	*	*	*	C	*	*	*	*	A	*	*								
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx		341	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx				
SharedQueue:	xxxxx		0.4	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		0.1	xxxx	xxxxx				
Shrd ConDel:	xxxxx		16.9	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		8.3	xxxx	xxxxx				
Shared LOS:	*		C	*		*	*	*		*	*	*		A	*	*				
ApproachDel:		16.9			21.8			xxxxxx				xxxxxx								
ApproachLOS:		C			C			*				*								

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #20 SR-16 and County Rd 98

Cycle (sec):	80	Critical Vol./Cap.(X):	0.441
Loss Time (sec):	12	Average Delay (sec/veh):	24.8
Optimal Cycle:	80	Level Of Service:	C

Street Name:	County Rd 98						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	5	5	5	5	6	6	5	5	5
Y+R:	4.0	6.0	6.0	4.0	6.0	6.0	4.0	5.3	5.3	4.0	5.3	5.3
Lanes:	1 0	0	1 0	1 0	1	0 1	1 0	1	0 1	1 0	1	0 1
Volume Module:												
Base Vol:	111	117	83	52	115	96	83	221	88	44	293	55
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	111	117	83	52	115	96	83	221	88	44	293	55
Added Vol:	2	0	0	0	0	22	9	3	1	0	7	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	113	117	83	52	115	118	92	224	89	44	300	55
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
PHF Volume:	117	121	86	54	119	122	95	231	92	45	310	57
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	117	121	86	54	119	122	95	231	92	45	310	57
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	117	121	86	54	119	122	95	231	92	45	310	57
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.92	0.92	0.93	0.98	0.83	0.90	0.87	0.87	0.90	0.95	0.81
Lanes:	1.00	0.59	0.41	1.00	1.00	1.00	1.00	1.43	0.57	1.00	1.00	1.00
Final Sat.:	1769	1022	725	1769	1862	1583	1718	2354	935	1718	1809	1537
Capacity Analysis Module:												
Vol/Sat:	0.07	0.12	0.12	0.03	0.06	0.08	0.06	0.10	0.10	0.03	0.17	0.04
Crit Moves:		****		****			****				****	
Green/Cycle:	0.16	0.27	0.27	0.07	0.18	0.18	0.13	0.31	0.31	0.20	0.39	0.39
Volume/Cap:	0.42	0.44	0.44	0.44	0.35	0.42	0.44	0.31	0.31	0.13	0.44	0.10
Uniform Del:	30.6	24.3	24.3	35.8	28.6	29.0	32.4	20.9	20.9	26.3	18.1	15.6
IncremntDel:	1.1	0.7	0.7	2.5	0.6	1.0	1.4	0.2	0.2	0.2	0.4	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	31.6	25.0	25.0	38.3	29.3	30.1	33.8	21.1	21.1	26.5	18.5	15.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	31.6	25.0	25.0	38.3	29.3	30.1	33.8	21.1	21.1	26.5	18.5	15.6
LOS by Move:	C	C	C	D	C	C	C	C	C	C	B	B
HCM2kAvgQ:	76	114	114	32	62	65	54	77	77	25	146	23

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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #21 SR-16 and W. Kentucky Ave

Cycle (sec):	80	Critical Vol./Cap.(X):	0.270
Loss Time (sec):	12	Average Delay (sec/veh):	18.7
Optimal Cycle:	80	Level Of Service:	B

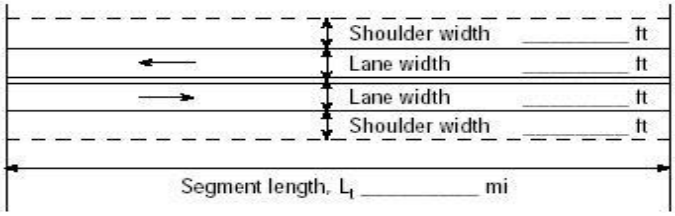
Street Name:	SR-16						W. Kentucky Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	5	5	5	5	5	5	5	5	5
Y+R:	4.0	6.0	6.0	4.0	6.0	6.0	4.0	5.3	5.3	4.0	5.3	5.3
Lanes:	1 0	0	1 0	1 0	0	1 0	1 0	0	1 0	1 0	0	1 0
Volume Module:												
Base Vol:	6	161	85	16	153	27	24	38	7	55	50	11
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	6	161	85	16	153	27	24	38	7	55	50	11
Added Vol:	0	9	0	0	21	0	0	0	0	1	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	6	170	85	16	174	27	24	38	7	56	50	11
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
PHF Volume:	6	182	91	17	186	29	26	41	8	60	54	12
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	6	182	91	17	186	29	26	41	8	60	54	12
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	6	182	91	17	186	29	26	41	8	60	54	12
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.90	0.90	0.90	0.90	0.93	0.93	0.93	0.96	0.96	0.93	0.95	0.95
Lanes:	1.00	0.67	0.33	1.00	0.87	0.13	1.00	0.84	0.16	1.00	0.82	0.18
Final Sat.:	1718	1146	573	1718	1535	238	1769	1536	283	1769	1485	327
Capacity Analysis Module:												
Vol/Sat:	0.00	0.16	0.16	0.01	0.12	0.12	0.01	0.03	0.03	0.03	0.04	0.04
Crit Moves:		****		****				****		****		
Green/Cycle:	0.22	0.57	0.57	0.06	0.42	0.42	0.11	0.10	0.10	0.12	0.11	0.11
Volume/Cap:	0.02	0.28	0.28	0.16	0.29	0.29	0.13	0.28	0.28	0.28	0.33	0.33
Uniform Del:	24.7	8.8	8.8	35.5	15.4	15.4	32.3	33.6	33.6	31.9	33.0	33.0
IncremntDel:	0.0	0.2	0.2	0.7	0.2	0.2	0.3	0.9	0.9	0.7	1.0	1.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	24.8	8.9	8.9	36.2	15.6	15.6	32.6	34.5	34.5	32.6	34.0	34.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	24.8	8.9	8.9	36.2	15.6	15.6	32.6	34.5	34.5	32.6	34.0	34.0
LOS by Move:	C	A	A	D	B	B	C	C	C	C	C	C
HCM2kAvgQ:	3	83	83	14	89	89	17	34	34	40	46	46

DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*CCCR to County Road 85*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035) Plus Prj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☐ Level ☑ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.93*

No-passing zone *75%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *3*/mi

Analysis direction vol., V_d *758*veh/h

Opposing direction vol., V_o *559*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *6.7*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.5*	*1.7*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.1*	*1.1*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.972*	*0.962*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*0.99*	*0.97*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*847*	*644*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.9 mi/h*	Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*51.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*38.1 mi/h*
		Percent free flow speed, PFFS	*73.9 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*0.990*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*0.97*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*815*	*626*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*68.5*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*25.7*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*83.0*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.50*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1586*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1666*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*73.9*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*815.1*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.47*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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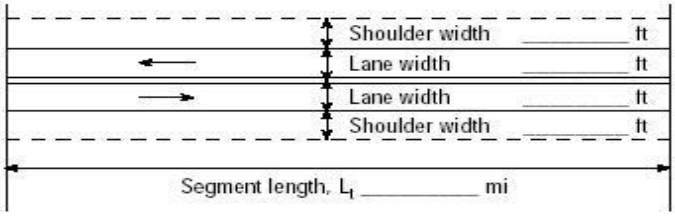
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*CCCR to County Road 85*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035) Plus Prj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☐ Level ☑ Rolling

Analysis direction vol., V_d	*559*veh/h	Grade Length	mi Up/down
Opposing direction vol., V_o	*758*veh/h	Peak-hour factor, PHF	*0.93*
Shoulder width ft	*2.0*	No-passing zone	*75%*
Lane Width ft	*12.0*	% Trucks and Buses , P_T	*5 %*
Segment Length mi	*6.7*	% Recreational vehicles, P_R	*4%*
		Access points *mi*	*3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.7*	*1.5*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.1*	*1.1*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.962*	*0.972*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*0.97*	*0.99*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*644*	*847*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.3 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*51.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*38.7 mi/h*
		Percent free flow speed, PFFS	*75.1 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.2*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.990*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*0.97*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*626*	*815*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*61.8*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*25.7*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*73.0*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.38*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1644*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*75.1*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*601.1*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.32*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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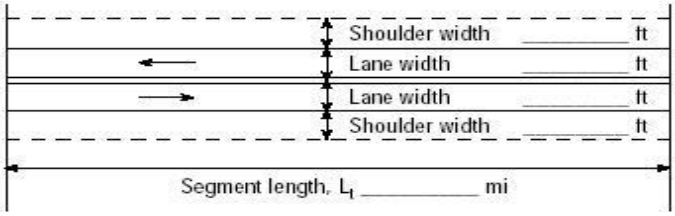
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*County Road 85 to Esparto Town*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035) Plus Prj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.92*

No-passing zone *85%*

Analysis direction vol., V_d *751*veh/h

Opposing direction vol., V_o *517*veh/h

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Shoulder width ft *2.0*

Lane Width ft *12.0*

Access points *mi* *5*/mi

Segment Length mi *1.4*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.990*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*820*	*568*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.3 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.0 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*42.1 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*29.3 mi/h*
		Percent free flow speed, PFFS	*69.7 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*816*	*562*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*67.7*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*27.2*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*83.8*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.48*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*69.7*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*816.3*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.47*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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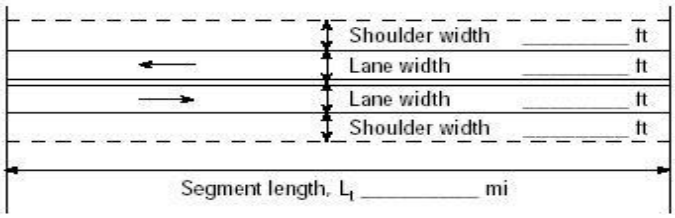
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*County Road 85 to Esparto Town*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035) Plus Prj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *517*veh/h

Opposing direction vol., V_o *751*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *1.4*

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.92*

No-passing zone *85%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *5*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.2*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.990*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*568*	*820*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.3 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.3 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*42.1 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*30.0 mi/h*
		Percent free flow speed, PFFS	*71.3 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*562*	*816*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*58.5*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*27.2*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*69.6*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*C*
Volume to capacity ratio, *v/c*	*0.33*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*71.3*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*562.0*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.28*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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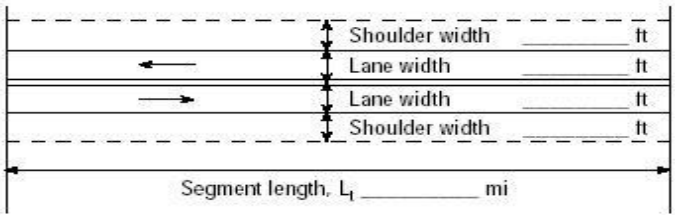
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*through Esparto Town*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035) Plus Prj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.92*

No-passing zone *95%*

Analysis direction vol., V_d *995*veh/h

Opposing direction vol., V_o *554*veh/h

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *14*/mi

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *1.2*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.0*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*1082*	*605*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, v		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*3.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.0 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*38.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*23.8 mi/h*
		Percent free flow speed, PFFS	*61.2 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*1082*	*602*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*76.3*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*20.7*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*89.6*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.64*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*61.2*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*1081.5*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.61*
Bicycle level of service (Exhibit 15-4)	*F*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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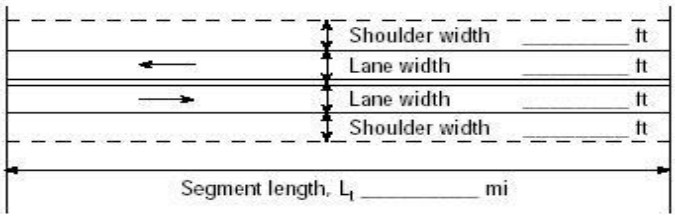
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*through Esparto Town*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035) Plus Prj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Analysis direction vol., V_d	*554*veh/h	Grade Length	mi Up/down
Opposing direction vol., V_o	*995*veh/h	Peak-hour factor, PHF	*0.92*
Shoulder width ft	*2.0*	No-passing zone	*95%*
Lane Width ft	*12.0*	% Trucks and Buses , P_T	*5 %*
Segment Length mi	*1.2*	% Recreational vehicles, P_R	*4%*
		Access points *mi*	*14*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*1.000*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*605*	*1082*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*3.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.1 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*38.9 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*24.7 mi/h*
		Percent free flow speed, PFFS	*63.5 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*602*	*1082*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*63.7*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*20.7*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*71.1*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*D*
Volume to capacity ratio, *v/c*	*0.35*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1700*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*63.5*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*602.2*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.32*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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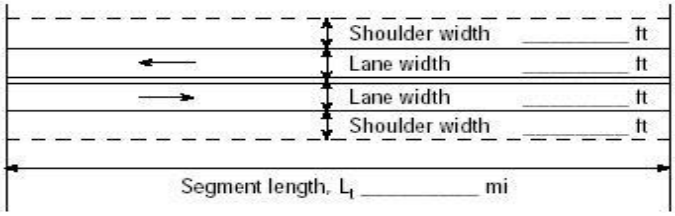
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*Esparto Town to County Rd 89*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035) Plus Prj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Analysis direction vol., V_d	*1134*veh/h	Grade Length mi	Up/down
Opposing direction vol., V_o	*700*veh/h	Peak-hour factor, PHF	*0.92*
Shoulder width ft	*4.0*	No-passing zone	*80%*
Lane Width ft	*12.0*	% Trucks and Buses , P_T	*5 %*
Segment Length mi	*2.7*	% Recreational vehicles, P_R	*4%*
		Access points *mi*	*3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.0*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*1233*	*765*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.5 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.9 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*35.9 mi/h*
		Percent free flow speed, PFFS	*67.9 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*1233*	*761*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*81.7*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*16.4*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*91.8*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.73*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*67.9*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*1232.6*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.38*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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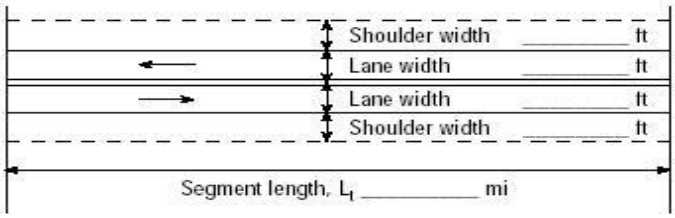
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*Esparto Town to County Rd 89*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035) Plus Prj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Analysis direction vol., V_d	*700*veh/h	Grade Length	mi Up/down
Opposing direction vol., V_o	*1134*veh/h	Peak-hour factor, PHF	*0.92*
Shoulder width ft	*4.0*	No-passing zone	*80%*
Lane Width ft	*12.0*	% Trucks and Buses , P_T	*5 %*
Segment Length mi	*2.7*	% Recreational vehicles, P_R	*4%*
		Access points *mi*	*3*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*1.000*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*765*	*1233*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*0.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*0.9 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.9 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*36.5 mi/h*
		Percent free flow speed, PFFS	*69.0 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*761*	*1233*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*72.8*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*16.4*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*79.1*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.45*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1700*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*69.0*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*760.9*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.14*
Bicycle level of service (Exhibit 15-4)	*E*
Notes	
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain. 2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10. 6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.	

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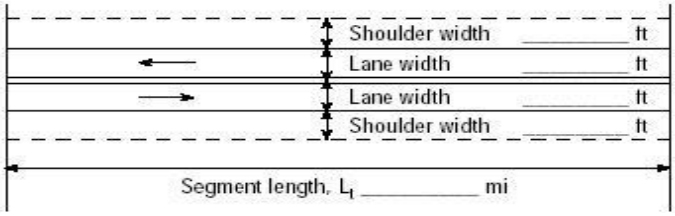
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*County Rd 89 to I-505*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035) Plus Prj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Analysis direction vol., V_d	*881*veh/h	Grade Length mi	Up/down
Opposing direction vol., V_o	*713*veh/h	Peak-hour factor, PHF	*0.93*
Shoulder width ft	*4.0*	No-passing zone	*100*%
Lane Width ft	*12.0*	% Trucks and Buses , P_T	*5* %
Segment Length mi	*0.8*	% Recreational vehicles, P_R	*4*%
		Access points *mi*	*4*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*952*	*771*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.0 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.6 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*52.7 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*37.7 mi/h*
		Percent free flow speed, PFFS	*71.6* %

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*947*	*767*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*74.1*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*22.7*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*86.6*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.56*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*71.6*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*947.3*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.25*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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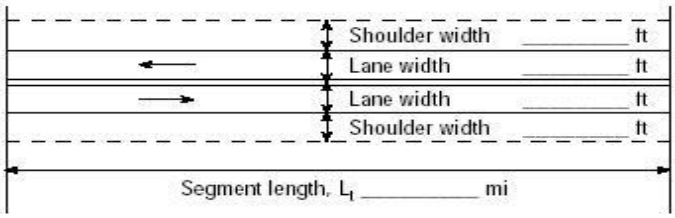
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*County Rd 89 to I-505*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035) Plus Prj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *713* veh/h
Opposing direction vol., V_o *881* veh/h
Shoulder width ft *4.0*
Lane Width ft *12.0*
Segment Length mi *0.8*

☑ Class I highway ☐ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.93*
No-passing zone *100*%
% Trucks and Buses , P_T *5* %
% Recreational vehicles, P_R *4*%
Access points *mi* *4*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*771*	*952*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*1.3 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.0 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.3 mi/h*	Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*52.7 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*38.0 mi/h*
		Percent free flow speed, PFFS	*72.2* %

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*767*	*947*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*69.6*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*22.7*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*79.8*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.45*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1700*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*72.2*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*766.7*
Effective width, Wv (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.14*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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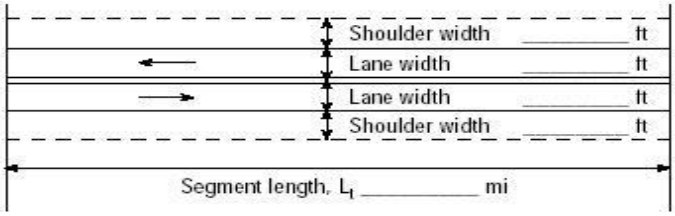
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (NB/WB)*
Agency or Company	*Yolo County*	From/To	*I-505 to County Rd 98*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035) Plus Prj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



☑ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.92*

No-passing zone *100%*

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* *35*/mi

Analysis direction vol., V_d *620*veh/h

Opposing direction vol., V_o *405*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *8.3*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.1*	*1.3*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.985*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*677*	*447*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*8.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.7 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*43.6 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*32.2 mi/h*
		Percent free flow speed, PFFS	*73.8 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*674*	*442*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*59.8*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*33.7*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*80.2*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.40*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1675*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*73.8*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*673.9*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.37*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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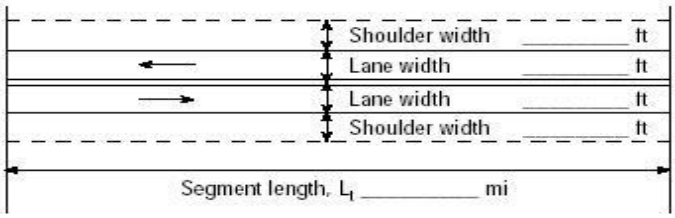
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*SR-16 (SB/EB)*
Agency or Company	*Yolo County*	From/To	*I-505 to County Rd 98*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035) Plus Prj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Analysis direction vol., V_d *405*veh/h
Opposing direction vol., V_o *620*veh/h
Shoulder width ft *2.0*
Lane Width ft *12.0*
Segment Length mi *8.3*

☑ Class I highway ☐ Class II highway ☐ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.92*
No-passing zone *100*%
% Trucks and Buses , P_T *5* %
% Recreational vehicles, P_R *4*%
Access points *mi* *35*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.3*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.985*	*0.995*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*447*	*677*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*55.0* *mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6* *mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*8.8* *mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*1.9* *mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*43.6* *mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*33.0* *mi/h*
		Percent free flow speed, PFFS	*75.6* %

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*442*	*674*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*49.4*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*33.7*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*62.7*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.26*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1692*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*75.6*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*440.2*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.16*
Bicycle level of service (Exhibit 15-4)	*E*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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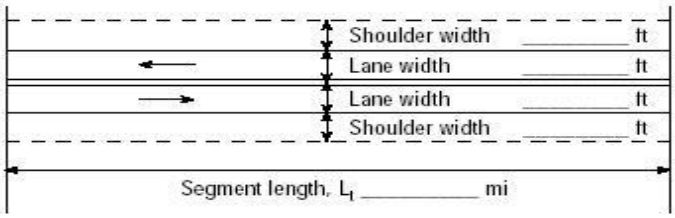
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 21A (WB)*
Agency or Company	*Yolo County*	From/To	*County Rd 85 to SR-16*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035) Plus Prj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.84*

No-passing zone *25%*

Analysis direction vol., V_d *153*veh/h

Opposing direction vol., V_o *160*veh/h

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *1.2*

Access points *mi* 7/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.7*	*1.7*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.966*	*0.966*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*189*	*197*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*0.6 mi/h*	Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*40.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*37.0 mi/h*
		Percent free flow speed, PFFS	*91.1 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*183*	*191*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*20.0*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*42.2*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*40.6*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*B*
Volume to capacity ratio, *v/c*	*0.11*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1659*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*91.1*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*182.1*
Effective width, Wv (Eq. 15-29) ft	*17.29*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.20*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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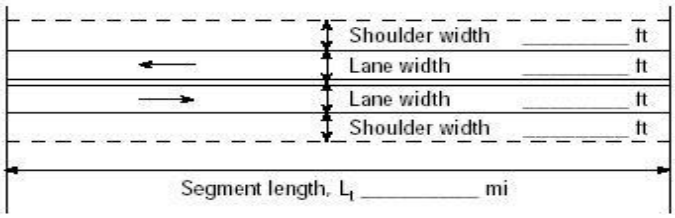
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 21A (EB)*
Agency or Company	*Yolo County*	From/To	*County Rd 85 to SR-16*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035) Plus Prj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.84*

No-passing zone *25%*

Analysis direction vol., V_d *160*veh/h

Opposing direction vol., V_o *153*veh/h

% Trucks and Buses , P_T *5 %*

% Recreational vehicles, P_R *4%*

Access points *mi* 7/mi

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *1.2*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.7*	*1.7*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.966*	*0.966*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*197*	*189*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.8 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*0.5 mi/h*	Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*40.6 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*37.1 mi/h*
		Percent free flow speed, PFFS	*91.4 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*191*	*183*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*20.7*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*42.2*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*42.3*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*B*
Volume to capacity ratio, *v/c*	*0.11*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*91.4*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*190.5*
Effective width, Wv (Eq. 15-29) ft	*16.80*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.30*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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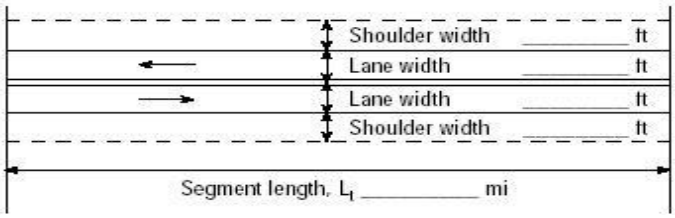
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 85B (SB)*
Agency or Company	*Yolo County*	From/To	*SR-16 to County Rd 21A*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035) Plus Prj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Analysis direction vol., V_d	*142*veh/h	Grade Length mi	Up/down
Opposing direction vol., V_o	*139*veh/h	Peak-hour factor, PHF	*0.86*
Shoulder width ft	*2.0*	No-passing zone	*80%*
Lane Width ft	*12.0*	% Trucks and Buses , P_T	*5 %*
Segment Length mi	*0.9*	% Recreational vehicles, P_R	*4%*
		Access points *mi*	*6*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.7*	*1.7*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.966*	*0.966*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*171*	*167*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*1.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.8 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*40.9 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*35.5 mi/h*
		Percent free flow speed, PFFS	*86.7 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*166*	*162*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*18.3*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*58.9*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*48.1*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*B*
Volume to capacity ratio, *v/c*	*0.10*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*86.7*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*165.1*
Effective width, Wv (Eq. 15-29) ft	*18.06*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.01*
Bicycle level of service (Exhibit 15-4)	*D*
Notes	

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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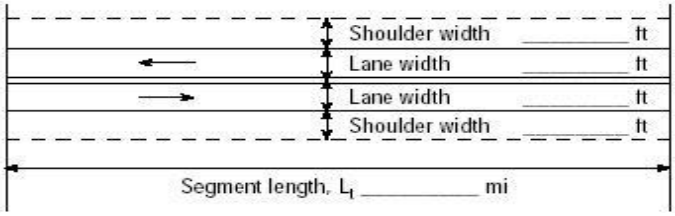
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*Kimley-Horn*	Highway / Direction of Travel	*County Rd 85B (SB)*
Agency or Company	*Yolo County*	From/To	*SR-16 to County Rd 21A*
Date Performed	*7/18/2016*	Jurisdiction	*Caltrans*
Analysis Time Period	*Saturday PM*	Analysis Year	*Long-Term (2035) Plus Prj Alt*

Project Description: *Cache Creek Casino Event Ctr*

Input Data



Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.86*

No-passing zone *80%*

Analysis direction vol., V_d *139*veh/h

Opposing direction vol., V_o *142*veh/h

% Trucks and Buses , P_T *5* %

% Recreational vehicles, P_R *4%*

Access points *mi* *6*/mi

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *0.9*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.7*	*1.7*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.966*	*0.966*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*167*	*171*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*1.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*2.8 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*40.9 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*35.5 mi/h*
		Percent free flow speed, PFFS	*86.7 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.995*	*0.995*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*162*	*166*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*17.9*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*58.9*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*47.0*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*B*
Volume to capacity ratio, *v/c*	*0.10*

Capacity, $C_{d,ATS}$ (Equation 15-12) pc/h	*1651*
Capacity, $C_{d,PTSF}$ (Equation 15-13) pc/h	*1692*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*86.7*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*161.6*
Effective width, Wv (Eq. 15-29) ft	*18.27*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.96*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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LONG-TERM PLUS PROJECT ALTERNATIVE MITIGATED TRAFFIC CONDITIONS

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #18 SR-16 and County Rd 94B

Average Delay (sec/veh): 4.3 Worst Case Level Of Service: D[34.1]

Street Name:	County Rd 94B						SR-16					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0	0	0 0 1!	0	0	0 1	0	0 0	0 0 1!	0	0
Volume Module:												
Base Vol:	99	0	15	10	14	7	8	454	0	98	516	1
Growth Adj:	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00
Initial Bse:	99	0	15	10	14	7	8	454	0	98	516	1
Added Vol:	0	0	0	0	0	0	0	12	0	0	30	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	99	0	15	10	14	7	8	466	0	98	546	1
User Adj:	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00
PHF Adj:	0.85 0.85	0.85	0.85	0.85 0.85	0.85	0.85	0.85 0.85	0.85	0.85	0.85 0.85	0.85	0.85
PHF Volume:	116	0	18	12	16	8	9	548	0	115	642	1
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	116	0	18	12	16	8	9	548	0	115	642	1
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1451	1439	548	1448	1439	642	643	xxxx	xxxxx	548	xxxx	xxxxx
Potent Cap.:	109	133	536	109	133	474	928	xxxx	xxxxx	1007	xxxx	xxxxx
Move Cap.:	86	115	536	95	115	474	928	xxxx	xxxxx	1007	xxxx	xxxxx
Total Cap:	235	270	xxxxx	238	258	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	0.50 0.00	0.03		0.05 0.06	0.02		0.01	xxxx	xxxx	0.11	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.8	xxxx	xxxxx	9.7	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.9	xxxx	xxxxx	9.0	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	253	xxxxx	xxxx	279	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	2.8	xxxxx	xxxxx	0.4	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	34.1	xxxxx	xxxxx	19.8	xxxxx	8.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	D	*	*	C	*	A	*	*	*	*	*
ApproachDel:	34.1			19.8			xxxxxx			xxxxxx		
ApproachLOS:	D			C			*			*		

Note: Queue reported is the distance per lane in feet.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #18 SR-16 and County Rd 94B

Average Delay (sec/veh): 3.1 Worst Case Level Of Service: C[22.2]

Street Name:	County Rd 94B								SR-16							
Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	1!	0 0	0	0	0	1 0	0	1	0	0 0	0	0	1!	0 0
Volume Module:																
Base Vol:	99	0	5	0	11	15			16	346	0		52	471	1	
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	99	0	5	0	11	15			16	346	0		52	471	1	
Added Vol:	0	0	0	0	0	0			0	13	0		0	33	0	
PasserByVol:	0	0	0	0	0	0			0	0	0		0	0	0	
Initial Fut:	99	0	5	0	11	15			16	359	0		52	504	1	
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.89	0.89	0.89	0.89	0.89	0.89			0.89	0.89	0.89		0.89	0.89	0.89	
PHF Volume:	112	0	6	0	12	17			18	405	0		59	569	1	
Reduct Vol:	0	0	0	0	0	0			0	0	0		0	0	0	
FinalVolume:	112	0	6	0	12	17			18	405	0		59	569	1	
Critical Gap Module:																
Critical Gp:	7.1	6.5	6.2	xxxxx	6.5	6.2			4.1	xxxx	xxxxx		4.1	xxxx	xxxxx	
FollowUpTim:	3.5	4.0	3.3	xxxxx	4.0	3.3			2.2	xxxx	xxxxx		2.2	xxxx	xxxxx	
Capacity Module:																
Cnflict Vol:	1143	1129	405	xxxx	1128	569			570	xxxx	xxxxx		405	xxxx	xxxxx	
Potent Cap.:	177	204	646	xxxx	204	521			988	xxxx	xxxxx		1137	xxxx	xxxxx	
Move Cap.:	154	190	646	xxxx	190	521			988	xxxx	xxxxx		1137	xxxx	xxxxx	
Total Cap:	318	349	xxxxx	341	349	xxxxx			xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
Volume/Cap:	0.35	0.00	0.01	xxxx	0.04	0.03			0.02	xxxx	xxxx		0.05	xxxx	xxxx	
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx			1.4	xxxx	xxxxx		4.1	xxxx	xxxxx	
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx			8.7	xxxx	xxxxx		8.3	xxxx	xxxxx	
LOS by Move:	*	*	*	*	*	*			A	*	*		A	*	*	
Movement:	LT -	LTR -	RT	LT -	LTR -	RT			LT -	LTR -	RT		LT -	LTR -	RT	
Shared Cap.:	xxxx	326	xxxxx	xxxx	xxxx	431			xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
SharedQueue:	xxxxx	1.6	xxxxx	xxxxx	xxxx	0.2			0.1	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shrd ConDel:	xxxxx	22.2	xxxxx	xxxxx	xxxx	14.0			8.7	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shared LOS:	*	C	*	*	*	B			A	*	*		*	*	*	
ApproachDel:	22.2			14.0					xxxxxx				xxxxxx			
ApproachLOS:	C			B					*				*			

Note: Queue reported is the distance per lane in feet.

SIGNAL WARRANT ANALYSIS

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **South Casino Entrance** WB EB # OF APPROACH LANES: **1**

CITY, STATE: **Brooks, CA**

COMMENTS: **Existing Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	527	41		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	825	82		Y			Y	Y	**Y**	Y			Y	Y	**Y**	**Y**			
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,352	123		2	0	**0**	2	1	**1**	2	0	**0**	2	1	**1**	**1**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

06/02/16

Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** WB EB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 85** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Capay, CA**

COMMENTS: **Existing Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	591	22		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	900	14		Y			Y			Y			Y						
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,491	36		2	0	**0**	2	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

06/02/16

Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** WB EB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 85B** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Existing Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	539	61		Y			Y	Y	**Y**	Y			Y	Y	**Y**				
05:30 PM TO 06:30 PM	780	103		Y			Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**			
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,319	164		2	0	**0**	2	2	**2**	2	1	**1**	2	2	**2**	**1**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

06/02/16

Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** WB EB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 87** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Esparto, CA**

COMMENTS: **Existing Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	208	258			Y			Y			Y			Y		**Y**			
05:30 PM TO 06:30 PM	261	476			Y			Y			Y			Y		**Y**	**Y**		
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	469	734		0	2	**0**	0	2	**0**	0	2	**0**	0	2	**0**	**2**	**1**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

06/02/16

Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **Capay St** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Esparto, CA**

COMMENTS: **Existing Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	477	18		Y						Y			Y						
05:30 PM TO 06:30 PM	757	20		Y			Y			Y			Y						
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,234	38		2	0	**0**	1	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

06/02/16

Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **Madison St** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Esparto, CA**

COMMENTS: **Existing Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	560	15		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	776	19		Y			Y			Y			Y						
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,336	34		2	0	**0**	2	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

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Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **Plainfield St** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Esparto, CA**

COMMENTS: **Existing Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	604	40		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	828	30		Y			Y			Y			Y						
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,432	70		2	0	**0**	2	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

06/02/16

Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 21A** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Esparto, CA**

COMMENTS: **Existing Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	542	265		Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**		
05:30 PM TO 06:30 PM	787	283		Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**		
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,329	548		2	2	**2**	2	2	**2**	2	2	**2**	2	2	**2**	**2**	**2**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

06/02/16

Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **County Rd 85B** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 21A** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Existing Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	145	35																	
05:30 PM TO 06:30 PM	183	72						Y						Y					
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	328	107		0	0	**0**	0	1	**0**	0	0	**0**	0	1	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

06/02/16

Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **County Rd 21A** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **Country Villa Estates** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Existing Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	157	5																	
05:30 PM TO 06:30 PM	196	3																	
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	353	8		0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED **NOT SATISFIED**			8 HOURS NEEDED **NOT SATISFIED**			8 HOURS NEEDED for both Condition A & B **NOT SATISFIED**						4 HRS NEEDED **NOT SATISFIED**	1 HR NEEDED **NOT SATISFIED**	4 HRS NEEDED **NOT SATISFIED**	1 HR NEEDED **NOT SATISFIED**

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Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **County Rd 21A** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **Fremont St** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Existing Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	185	30																	
05:30 PM TO 06:30 PM	225	22																	
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	410	52		0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

06/02/16

Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 89** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Madison, CA**

COMMENTS: **Existing Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	761	66		Y			Y	Y	**Y**	Y			Y	Y	**Y**	**Y**			
05:30 PM TO 06:30 PM	996	75		Y			Y	Y	**Y**	Y			Y	Y	**Y**	**Y**			
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,757	141		2	0	**0**	2	2	**2**	2	0	**0**	2	2	**2**	**2**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

06/02/16

Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **I-505 SB Ramps** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Existing Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	838	17		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	1,028	14		Y			Y			Y			Y						
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,866	31		2	0	**0**	2	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

06/02/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **Wildwing Dr** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Existing Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	727	61		Y			Y	Y	**Y**	Y			Y	Y	**Y**				
05:30 PM TO 06:30 PM	608	79		Y			Y	Y	**Y**	Y			Y	Y	**Y**				
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,335	140		2	0	**0**	2	2	**2**	2	0	**0**	2	2	**2**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

06/02/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 94B** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Existing Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	769	20		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	644	15		Y			Y			Y			Y						
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,413	35		2	0	**0**	2	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

06/02/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 95** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Existing Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	803	31		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	653	35		Y			Y			Y			Y						
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,456	66		2	0	**0**	2	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

06/02/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **South Casino Entrance** WB EB # OF APPROACH LANES: **1**

CITY, STATE: **Brooks, CA**

COMMENTS: **Near-Term (2019) Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	673	41		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	884	82		Y			Y	Y	**Y**	Y			Y	Y	**Y**	**Y**			
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,557	123		2	0	**0**	2	1	**1**	2	0	**0**	2	1	**1**	**1**	**0**	**0**	**0**
				8 HOURS NEEDED **NOT SATISFIED**			8 HOURS NEEDED **NOT SATISFIED**			8 HOURS NEEDED for both Condition A & B **NOT SATISFIED**						4 HRS NEEDED **NOT SATISFIED**	1 HR NEEDED **NOT SATISFIED**	4 HRS NEEDED **NOT SATISFIED**	1 HR NEEDED **NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** WB EB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 85** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Capay, CA**

COMMENTS: **Near-Term (2019) Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	736	24		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	958	15		Y			Y			Y			Y						
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,694	39		2	0	**0**	2	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** WB EB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 85B** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Near-Term (2019) Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	682	63		Y			Y	Y	**Y**	Y			Y	Y	**Y**				
05:30 PM TO 06:30 PM	837	104		Y			Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**			
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,519	167		2	0	**0**	2	2	**2**	2	1	**1**	2	2	**2**	**1**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16

Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** WB EB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 87** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Esparto, CA**

COMMENTS: **Near-Term (2019) Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	319	308			Y			Y		Y	Y	**Y**		Y		**Y**			
05:30 PM TO 06:30 PM	296	517			Y			Y		Y	Y	**Y**		Y		**Y**	**Y**		
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	615	825		0	2	**0**	0	2	**0**	2	2	**2**	0	2	**0**	**2**	**1**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **Capay St** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Esparto, CA**

COMMENTS: **Near-Term (2016) Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	629	18		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	834	30		Y			Y			Y			Y						
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,463	48		2	0	**0**	2	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **Madison St** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Esparto, CA**

COMMENTS: **Near-Term (2019) Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	716	15		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	851	19		Y			Y			Y			Y						
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,567	34		2	0	**0**	2	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **Plainfield St** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Esparto, CA**

COMMENTS: **Near-Term (2019) Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	759	40		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	902	30		Y			Y			Y			Y						
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,661	70		2	0	**0**	2	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 21A** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Esparto, CA**

COMMENTS: **Near-Term (2019) Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	370	476		Y	Y	**Y**		Y		Y	Y	**Y**		Y		**Y**	**Y**		
05:30 PM TO 06:30 PM	318	701			Y			Y		Y	Y	**Y**		Y		**Y**	**Y**		
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	688	1,177		1	2	**1**	0	2	**0**	2	2	**2**	0	2	**0**	**2**	**2**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **County Rd 85B** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 21A** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Near-Term (2019) Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	154	36																	
05:30 PM TO 06:30 PM	146	73						Y						Y					
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	300	109		0	0	**0**	0	1	**0**	0	0	**0**	0	1	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **County Rd 21A** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **Country Villa Estates** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Near-Term (2019) Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	160	5																	
05:30 PM TO 06:30 PM	198	3																	
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	358	8		0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **County Rd 21A** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **Fremont St** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Near-Term (2019) Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	188	30																	
05:30 PM TO 06:30 PM	227	22																	
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	415	52		0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

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Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 89** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Madison, CA**

COMMENTS: **Near-Term (2019) Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	914	66		Y			Y	Y	**Y**	Y			Y	Y	**Y**	**Y**			
05:30 PM TO 06:30 PM	1,067	75		Y			Y	Y	**Y**	Y			Y	Y	**Y**	**Y**	**Y**		
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,981	141		2	0	**0**	2	2	**2**	2	0	**0**	2	2	**2**	**2**	**1**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **I-505 SB Ramps** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Near-Term (2019) Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	981	20		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	1,097	17		Y			Y			Y			Y						
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	2,078	37		2	0	**0**	2	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

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Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **Wildwing Dr** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Near-Term (2019) Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	831	61		Y			Y	Y	**Y**	Y			Y	Y	**Y**	**Y**			
05:30 PM TO 06:30 PM	659	79		Y			Y	Y	**Y**	Y			Y	Y	**Y**	**Y**			
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,490	140		2	0	**0**	2	2	**2**	2	0	**0**	2	2	**2**	**2**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 94B** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Near-Term (2019) Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	873	20		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	695	15		Y			Y			Y			Y						
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,568	35		2	0	**0**	2	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 95** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Near-Term (2019) Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	904	31		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	703	35		Y			Y			Y			Y						
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,607	66		2	0	**0**	2	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16

Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **South Casino Entrance** WB EB # OF APPROACH LANES: **1**

CITY, STATE: **Brooks, CA**

COMMENTS: **Near-Term (2019) + Project Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	804	48		Y			Y			Y			Y	Y	**Y**				
05:30 PM TO 06:30 PM	1,031	90		Y			Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**		
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,835	138		2	0	**0**	2	1	**1**	2	1	**1**	2	2	**2**	**1**	**1**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** WB EB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 85** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Capay, CA**

COMMENTS: **Near-Term (2019) + Project Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	871	26		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	1,110	17		Y			Y			Y			Y						
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,981	43		2	0	**0**	2	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** WB EB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 85B** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Near-Term (2019) + Project Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	794	85		Y			Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**			
05:30 PM TO 06:30 PM	963	130		Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**		
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,757	215		2	1	**1**	2	2	**2**	2	2	**2**	2	2	**2**	**2**	**1**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** WB EB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 87** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Esparto, CA**

COMMENTS: **Near-Term (2019) + Project Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	346	376			Y			Y		Y	Y	**Y**		Y		**Y**	**Y**		
05:30 PM TO 06:30 PM	325	593			Y			Y		Y	Y	**Y**		Y		**Y**	**Y**		
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	671	969		0	2	**0**	0	2	**0**	2	2	**2**	0	2	**0**	**2**	**2**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **Capay St** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Esparto, CA**

COMMENTS: **Near-Term (2019) + Project Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	726	18		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	937	30		Y			Y			Y			Y						
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,663	48		2	0	**0**	2	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **Madison St** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Esparto, CA**

COMMENTS: **Near-Term (2019) + Project Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	806	15		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	953	19		Y			Y			Y			Y						
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,759	34		2	0	**0**	2	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **Plainfield St** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Esparto, CA**

COMMENTS: **Near-Term (2019) + Project Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	848	40		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	1,117	30		Y			Y			Y			Y						
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,965	70		2	0	**0**	2	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 21A** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Esparto, CA**

COMMENTS: **Near-Term (2019) + Project Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	394	558		Y	Y	**Y**		Y		Y	Y	**Y**		Y		**Y**	**Y**		
05:30 PM TO 06:30 PM	345	792			Y			Y		Y	Y	**Y**		Y		**Y**	**Y**		
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	739	1,350		1	2	**1**	0	2	**0**	2	2	**2**	0	2	**0**	**2**	**2**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **County Rd 85B** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 21A** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Near-Term (2019) + Project Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	172	52												Y					
05:30 PM TO 06:30 PM	168	91						Y			Y			Y					
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	340	143		0	0	**0**	0	1	**0**	0	1	**0**	0	2	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **County Rd 21A** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **Country Villa Estates** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Near-Term (2019) + Project Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	186	5																	
05:30 PM TO 06:30 PM	228	3																	
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	414	8		0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **County Rd 21A** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **Fremont St** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Near-Term (2019) + Project Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	214	30																	
05:30 PM TO 06:30 PM	257	22																	
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	471	52		0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16

Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 89** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Madison, CA**

COMMENTS: **Near-Term (2019) + Project Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	1,031	66		Y			Y	Y	**Y**	Y			Y	Y	**Y**	**Y**			
05:30 PM TO 06:30 PM	1,197	75		Y			Y	Y	**Y**	Y			Y	Y	**Y**	**Y**	**Y**		
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	2,228	141		2	0	**0**	2	2	**2**	2	0	**0**	2	2	**2**	**2**	**1**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **I-505 SB Ramps** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Near-Term (2019) + Project Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	1,096	23		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	1,223	20		Y			Y			Y			Y						
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	2,319	43		2	0	**0**	2	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **Wildwing Dr** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Near-Term (2019) + Project Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	876	61		Y			Y	Y	**Y**	Y			Y	Y	**Y**	**Y**			
05:30 PM TO 06:30 PM	709	79		Y			Y	Y	**Y**	Y			Y	Y	**Y**	**Y**			
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,585	140		2	0	**0**	2	2	**2**	2	0	**0**	2	2	**2**	**2**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 94B** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Near-Term (2019) + Project Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	918	20		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	745	15		Y			Y			Y			Y						
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,663	35		2	0	**0**	2	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 95** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Near-Term (2019) + Project Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	949	32		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	752	37		Y			Y			Y			Y						
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,701	69		2	0	**0**	2	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **South Casino Entrance** WB EB # OF APPROACH LANES: **1**

CITY, STATE: **Brooks, CA**

COMMENTS: **Long-Term (2035) Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	693	41		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	1,050	82		Y			Y	Y	**Y**	Y			Y	Y	**Y**	**Y**	**Y**		
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,743	123		2	0	**0**	2	1	**1**	2	0	**0**	2	1	**1**	**1**	**1**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** WB EB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 85** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Capay, CA**

COMMENTS: **Long-Term (2035) Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	772	31		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	1,131	23		Y			Y			Y			Y						
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,903	54		2	0	**0**	2	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16

Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** WB EB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 85B** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Long-Term (2035) Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	694	71		Y			Y	Y	**Y**	Y			Y	Y	**Y**	**Y**			
05:30 PM TO 06:30 PM	980	118		Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**		
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,674	189		2	1	**1**	2	2	**2**	2	1	**1**	2	2	**2**	**2**	**1**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16

Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** WB EB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 87** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Esparto, CA**

COMMENTS: **Long-Term (2035) Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	345	338			Y			Y		Y	Y	**Y**		Y		**Y**	**Y**		
05:30 PM TO 06:30 PM	438	600		Y	Y	**Y**		Y		Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**		
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	783	938		1	2	**1**	0	2	**0**	2	2	**2**	1	2	**1**	**2**	**2**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **Capay St** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Esparto, CA**

COMMENTS: **Long-Term (2035) Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	708	34		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	1,099	32		Y			Y			Y			Y						
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,807	66		2	0	**0**	2	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **Madison St** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Esparto, CA**

COMMENTS: **Long-Term (2035) Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	785	26		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	1,064	24		Y			Y			Y			Y						
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,849	50		2	0	**0**	2	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **Plainfield St** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Esparto, CA**

COMMENTS: **Long-Term (2035) Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	833	43		Y			Y			Y			Y	Y	**Y**				
05:30 PM TO 06:30 PM	1,118	47		Y			Y			Y			Y	Y	**Y**				
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,951	90		2	0	**0**	2	0	**0**	2	0	**0**	2	2	**2**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16

Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 21A** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Esparto, CA**

COMMENTS: **Long-Term (2035) Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	814	495		Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**		
05:30 PM TO 06:30 PM	1,198	530		Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**		
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	2,012	1,025		2	2	**2**	2	2	**2**	2	2	**2**	2	2	**2**	**2**	**2**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **County Rd 85B** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 21A** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Long-Term (2035) Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	159	41																	
05:30 PM TO 06:30 PM	160	87						Y			Y			Y					
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	319	128		0	0	**0**	0	1	**0**	0	1	**0**	0	1	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **County Rd 21A** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **Country Villa Estates** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Long-Term (2035) Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	165	5																	
05:30 PM TO 06:30 PM	208	3																	
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	373	8		0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **County Rd 21A** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **Fremont St** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Long-Term (2035) Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
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11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	198	30																	
05:30 PM TO 06:30 PM	243	22																	
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	441	52		0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **I-505 SB Ramps** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Long-Term (2035) Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	1,201	33		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	1,498	27		Y			Y			Y			Y						
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	2,699	60		2	0	**0**	2	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **Wildwing Dr** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Long-Term (2035) Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	1,138	61		Y			Y	Y	**Y**	Y			Y	Y	**Y**	**Y**			
05:30 PM TO 06:30 PM	972	79		Y			Y	Y	**Y**	Y			Y	Y	**Y**	**Y**			
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	2,110	140		2	0	**0**	2	2	**2**	2	0	**0**	2	2	**2**	**2**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 94B** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Long-Term (2035) Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	1,077	114		Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**		
05:30 PM TO 06:30 PM	786	104		Y			Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**			
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,863	218		2	1	**1**	2	2	**2**	2	2	**2**	2	2	**2**	**2**	**1**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 95** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Long-Term (2035) Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	1,121	35		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	910	35		Y			Y			Y			Y						
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	2,031	70		2	0	**0**	2	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **South Casino Entrance** WB EB # OF APPROACH LANES: **1**

CITY, STATE: **Brooks, CA**

COMMENTS: **Long-Term (2035) + Project Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	824	48		Y			Y			Y			Y	Y	**Y**				
05:30 PM TO 06:30 PM	1,197	90		Y			Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**		
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	2,021	138		2	0	**0**	2	1	**1**	2	1	**1**	2	2	**2**	**1**	**1**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** WB EB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 85** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Capay, CA**

COMMENTS: **Long-Term (2035) + Project Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	908	33		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	1,283	25		Y			Y			Y			Y						
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	2,191	58		2	0	**0**	2	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** WB EB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 85B** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Long-Term (2035) + Project Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	807	93		Y			Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**			
05:30 PM TO 06:30 PM	1,107	143		Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**		
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,914	236		2	1	**1**	2	2	**2**	2	2	**2**	2	2	**2**	**2**	**1**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** WB EB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 87** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Esparto, CA**

COMMENTS: **Long-Term (2035) + Project Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	372	405		Y	Y	**Y**		Y		Y	Y	**Y**		Y		**Y**	**Y**		
05:30 PM TO 06:30 PM	468	675		Y	Y	**Y**		Y		Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**		
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	840	1,080		2	2	**2**	0	2	**0**	2	2	**2**	1	2	**1**	**2**	**2**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **Capay St** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Esparto, CA**

COMMENTS: **Long-Term (2035) + Project Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	800	35		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	1,202	32		Y			Y			Y			Y						
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	2,002	67		2	0	**0**	2	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **Madison St** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Esparto, CA**

COMMENTS: **Long-Term (2035) + Project Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	876	27		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	1,165	24		Y			Y			Y			Y						
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	2,041	51		2	0	**0**	2	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **Plainfield St** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Esparto, CA**

COMMENTS: **Long-Term (2035) + Project Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	922	43		Y			Y			Y			Y	Y	**Y**				
05:30 PM TO 06:30 PM	1,218	48		Y			Y			Y			Y	Y	**Y**				
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	2,140	91		2	0	**0**	2	0	**0**	2	0	**0**	2	2	**2**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 21A** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Esparto, CA**

COMMENTS: **Long-Term (2035) + Project Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	519	760		Y	Y	**Y**		Y		Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**		
05:30 PM TO 06:30 PM	557	1139		Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**		
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,076	1,899		2	2	**2**	1	2	**1**	2	2	**2**	2	2	**2**	**2**	**2**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **County Rd 85B** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 21A** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Long-Term (2035) + Project Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	178	57						Y						Y					
05:30 PM TO 06:30 PM	182	105			Y			Y			Y			Y					
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	360	162		0	1	**0**	0	2	**0**	0	1	**0**	0	2	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16

Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **County Rd 21A** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **Country Villa Estates** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Long-Term (2035) + Project Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	191	5																	
05:30 PM TO 06:30 PM	238	3																	
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	429	8		0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **County Rd 21A** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **Fremont St** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Long-Term (2035) + Project Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	224	30																	
05:30 PM TO 06:30 PM	273	22																	
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	497	52		0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16

Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **I-505 SB Ramps** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Long-Term (2035) + Project Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	1,315	36		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	1,625	30		Y			Y			Y			Y						
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	2,940	66		2	0	**0**	2	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **Wildwing Dr** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Long-Term (2035) + Project Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	1,182	61		Y			Y	Y	**Y**	Y			Y	Y	**Y**	**Y**			
05:30 PM TO 06:30 PM	1,022	79		Y			Y	Y	**Y**	Y			Y	Y	**Y**	**Y**	**Y**		
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	2,204	140		2	0	**0**	2	2	**2**	2	0	**0**	2	2	**2**	**2**	**1**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 94B** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Long-Term (2035) + Project Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	1,121	114		Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**		
05:30 PM TO 06:30 PM	936	104		Y			Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**		
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	2,057	218		2	1	**1**	2	2	**2**	2	2	**2**	2	2	**2**	**2**	**2**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16

Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 95** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Long-Term (2035) + Project Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	1,164	32		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	958	36		Y			Y			Y			Y						
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	2,122	68		2	0	**0**	2	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **South Casino Entrance** WB EB # OF APPROACH LANES: **1**

CITY, STATE: **Brooks, CA**

COMMENTS: **Near-Term (2019) + Project Alternative Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	797	47		Y			Y			Y			Y	Y	**Y**				
05:30 PM TO 06:30 PM	1,022	89		Y			Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**		
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,819	136		2	0	**0**	2	1	**1**	2	1	**1**	2	2	**2**	**1**	**1**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** WB EB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 85** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Capay, CA**

COMMENTS: **Near-Term (2019) + Project Alternative Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	864	26		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	1,100	17		Y			Y			Y			Y						
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,964	43		2	0	**0**	2	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** WB EB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 85B** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Near-Term (2019) + Project Alternative Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	786	84		Y			Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**			
05:30 PM TO 06:30 PM	954	128		Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**		
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,740	212		2	1	**1**	2	2	**2**	2	2	**2**	2	2	**2**	**2**	**1**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16

Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** WB EB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 87** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Esparto, CA**

COMMENTS: **Near-Term (2019) + Project Alternative Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	343	373			Y			Y		Y	Y	**Y**		Y		**Y**	**Y**		
05:30 PM TO 06:30 PM	322	589			Y			Y		Y	Y	**Y**		Y		**Y**	**Y**		
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	665	962		0	2	**0**	0	2	**0**	2	2	**2**	0	2	**0**	**2**	**2**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **Capay St** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Esparto, CA**

COMMENTS: **Near-Term (2019) + Project Alternative Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	721	18		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	930	30		Y			Y			Y			Y						
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,651	48		2	0	**0**	2	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **Madison St** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Esparto, CA**

COMMENTS: **Near-Term (2019) + Project Alternative Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

			MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
						MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES				→		**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM	TO	07:30 AM																			
07:30 AM	TO	08:30 AM																			
08:30 AM	TO	09:30 AM																			
09:30 AM	TO	10:30 AM																			
10:30 AM	TO	11:30 AM																			
11:00 AM	TO	12:00 PM																			
12:30 PM	TO	01:30 PM																			
01:30 PM	TO	02:30 PM																			
02:30 PM	TO	03:30 PM																			
03:30 PM	TO	04:30 PM																			
04:30 PM	TO	05:30 PM	801	15		Y			Y			Y			Y						
05:30 PM	TO	06:30 PM	946	19		Y			Y			Y			Y						
06:30 PM	TO	07:30 PM																			
07:30 PM	TO	08:30 PM																			
08:30 PM	TO	09:30 PM																			
09:30 PM	TO	10:30 PM																			
			1,747	34		2	0	**0**	2	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
						8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
						NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **Plainfield St** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Esparto, CA**

COMMENTS: **Near-Term (2019) + Project Alternative Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	842	40		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	997	30		Y			Y			Y			Y						
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,839	70		2	0	**0**	2	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 21A** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Esparto, CA**

COMMENTS: **Near-Term (2019) + Project Alternative Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	391	555		Y	Y	**Y**		Y		Y	Y	**Y**		Y		**Y**	**Y**		
05:30 PM TO 06:30 PM	342	788			Y			Y		Y	Y	**Y**		Y		**Y**	**Y**		
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	733	1,343		1	2	**1**	0	2	**0**	2	2	**2**	0	2	**0**	**2**	**2**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **County Rd 85B** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 21A** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Near-Term (2019) + Project Alternative Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	171	52												Y					
05:30 PM TO 06:30 PM	166	90						Y			Y			Y					
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	337	142		0	0	**0**	0	1	**0**	0	1	**0**	0	2	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **County Rd 21A** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **Country Villa Estates** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Near-Term (2019) + Project Alternative Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	185	5																	
05:30 PM TO 06:30 PM	226	3																	
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	411	8		0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **County Rd 21A** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **Fremont St** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Near-Term (2019) + Project Alternative Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	213	30																	
05:30 PM TO 06:30 PM	255	22																	
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	468	52		0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16

Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 89** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Madison, CA**

COMMENTS: **Near-Term (2019) + Project Alternative Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	1,023	66		Y			Y	Y	**Y**	Y			Y	Y	**Y**	**Y**			
05:30 PM TO 06:30 PM	1,188	75		Y			Y	Y	**Y**	Y			Y	Y	**Y**	**Y**	**Y**		
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	2,211	141		2	0	**0**	2	2	**2**	2	0	**0**	2	2	**2**	**2**	**1**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **I-505 SB Ramps** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Near-Term (2019) + Project Alternative Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	1,088	23		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	1,214	20		Y			Y			Y			Y						
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	2,302	43		2	0	**0**	2	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **Wildwing Dr** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Near-Term (2019) + Project Alternative Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	873	61		Y			Y	Y	**Y**	Y			Y	Y	**Y**	**Y**			
05:30 PM TO 06:30 PM	705	79		Y			Y	Y	**Y**	Y			Y	Y	**Y**	**Y**			
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,578	140		2	0	**0**	2	2	**2**	2	0	**0**	2	2	**2**	**2**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 94B** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Near-Term (2019) + Project Alternative Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	915	20		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	741	15		Y			Y			Y			Y						
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,656	35		2	0	**0**	2	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 95** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Near-Term (2019) + Project Alternative Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	944	32		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	749	36		Y			Y			Y			Y						
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,693	68		2	0	**0**	2	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **South Casino Entrance** WB EB # OF APPROACH LANES: **1**

CITY, STATE: **Brooks, CA**

COMMENTS: **Long-Term (2035) + Project Alternative Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	816	47		Y			Y			Y			Y	Y	**Y**				
05:30 PM TO 06:30 PM	1,187	89		Y			Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**		
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	2,003	136		2	0	**0**	2	1	**1**	2	1	**1**	2	2	**2**	**1**	**1**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** WB EB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 85** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Capay, CA**

COMMENTS: **Long-Term (2035) + Project Alternative Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	900	33		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	1,273	25		Y			Y			Y			Y						
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	2,173	58		2	0	**0**	2	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** WB EB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 85B** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Long-Term (2035) + Project Alternative Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	800	93		Y			Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**			
05:30 PM TO 06:30 PM	1,097	142		Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**		
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,897	235		2	1	**1**	2	2	**2**	2	2	**2**	2	2	**2**	**2**	**1**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16

Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** WB EB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 87** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Esparto, CA**

COMMENTS: **Long-Term (2035) + Project Alternative Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	368	403		Y	Y	**Y**		Y		Y	Y	**Y**		Y		**Y**	**Y**		
05:30 PM TO 06:30 PM	465	671		Y	Y	**Y**		Y		Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**		
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	833	1,074		2	2	**2**	0	2	**0**	2	2	**2**	1	2	**1**	**2**	**2**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **Capay St** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Esparto, CA**

COMMENTS: **Long-Term (2035) + Project Alternative Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	794	34		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	1,195	32		Y			Y			Y			Y						
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,989	66		2	0	**0**	2	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

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Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **Madison St** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Esparto, CA**

COMMENTS: **Long-Term (2035) + Project Alternative Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	870	26		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	1,159	24		Y			Y			Y			Y						
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	2,029	50		2	0	**0**	2	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **Plainfield St** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Esparto, CA**

COMMENTS: **Long-Term (2035) + Project Alternative Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	918	43		Y			Y			Y			Y	Y	**Y**				
05:30 PM TO 06:30 PM	1,211	48		Y			Y			Y			Y	Y	**Y**				
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	2,129	91		2	0	**0**	2	0	**0**	2	0	**0**	2	2	**2**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

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Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 21A** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Esparto, CA**

COMMENTS: **Long-Term (2035) + Project Alternative Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	517	758		Y	Y	**Y**		Y		Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**		
05:30 PM TO 06:30 PM	554	1134		Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**		
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	1,071	1,892		2	2	**2**	1	2	**1**	2	2	**2**	2	2	**2**	**2**	**2**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

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Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **County Rd 85B** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 21A** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Long-Term (2035) + Project Alternative Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	176	57						Y						Y					
05:30 PM TO 06:30 PM	179	104						Y			Y			Y					
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	355	161		0	0	**0**	0	2	**0**	0	1	**0**	0	2	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

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Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **County Rd 21A** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **Country Villa Estates** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Long-Term (2035) + Project Alternative Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	190	5																	
05:30 PM TO 06:30 PM	235	3																	
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	425	8		0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **County Rd 21A** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **Fremont St** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Long-Term (2035) + Project Alternative Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	223	30																	
05:30 PM TO 06:30 PM	270	22																	
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	493	52		0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

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Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **I-505 SB Ramps** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Long-Term (2035) + Project Alternative Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	1,308	36		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	1,616	30		Y			Y			Y			Y						
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	2,924	66		2	0	**0**	2	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

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Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **Wildwing Dr** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Long-Term (2035) + Project Alternative Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	1,180	61		Y			Y	Y	**Y**	Y			Y	Y	**Y**	**Y**			
05:30 PM TO 06:30 PM	1,018	79		Y			Y	Y	**Y**	Y			Y	Y	**Y**	**Y**	**Y**		
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	2,198	140		2	0	**0**	2	2	**2**	2	0	**0**	2	2	**2**	**2**	**1**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 94B** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Long-Term (2035) + Project Alternative Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	1,119	114		Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**		
05:30 PM TO 06:30 PM	932	104		Y			Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**		
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	2,051	218		2	1	**1**	2	2	**2**	2	2	**2**	2	2	**2**	**2**	**2**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16

Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: **SR-16** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **County Rd 95** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Unincorporated Yolo County, CA**

COMMENTS: **Long-Term (2035) + Project Alternative Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **Y**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **Y**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES →				**350**	**105**		**525**	**53**		**280**	**84**		**420**	**42**		**60**	**75**	**100**	**190**
06:30 AM TO 07:30 AM																			
07:30 AM TO 08:30 AM																			
08:30 AM TO 09:30 AM																			
09:30 AM TO 10:30 AM																			
10:30 AM TO 11:30 AM																			
11:00 AM TO 12:00 PM																			
12:30 PM TO 01:30 PM																			
01:30 PM TO 02:30 PM																			
02:30 PM TO 03:30 PM																			
03:30 PM TO 04:30 PM																			
04:30 PM TO 05:30 PM	1,161	32		Y			Y			Y			Y						
05:30 PM TO 06:30 PM	955	36		Y			Y			Y			Y						
06:30 PM TO 07:30 PM																			
07:30 PM TO 08:30 PM																			
08:30 PM TO 09:30 PM																			
09:30 PM TO 10:30 PM																			
	2,116	68		2	0	**0**	2	0	**0**	2	0	**0**	2	0	**0**	**0**	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**	**NOT SATISFIED**

07/22/16
Kimley-Horn and Associates

DRAFT TRAFFIC IMPACT STUDY FOR CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

Draft Traffic Impact Study

CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

YOLO COUNTY, CA

June 2010

Prepared for:

Analytical Environmental Services

Prepared by:

Kimley-Horn and Associates, Inc.

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EXECUTIVE SUMMARY

Kimley-Horn and Associates, Inc. (KHA) was retained by Analytical Environmental Services to prepare an off-reservation traffic impact study for the Cache Creek Casino Resort Event Center Project located near Brooks, California. There were three alternatives evaluated at this location – No Action Alternative, Proposed Project, and the Reduced Intensity Alternative (RIA).

For the Proposed Project, the casino would be expanded by 254,223 square feet, including a 40,723 square feet Event Center. During the PM peak hours of the weekday and weekend, approximately 500 additional Friday PM peak hour trips and 557 additional Saturday PM peak hour trips would enter or exit the casino and affect nearby intersections and roadway segments with a major event. Approximately 136 additional Friday PM peak hour trips and 193 additional Saturday PM peak hour trips would enter or exit the casino based on the expanded gaming floor area.

The Reduced Intensity Alternative would expand the existing casino by 172,832 square feet, including a 20,362 square feet Event Center. During the PM peak hours of the weekday and weekend, approximately 332 Friday PM peak hour trips and 361 Saturday PM peak hour trips would enter or exit the casino and affect nearby intersections and roadway segments with a major event. Approximately 68 additional Friday PM peak hour trips and 97 additional Saturday PM peak hour trips would enter or exit the casino based on the expanded gaming floor area.

The No Action Alternative would not make any changes to the existing Resort.

Mitigation Measures are proposed for the Proposed Project (Alternative A) and Reduced Intensity Alternative (Alternative B)..

INTRODUCTION

Kimley-Horn and Associates, Inc was retained by Analytical Environmental Services to prepare a traffic impact study for the Cache Creek Casino Resort (CCCR) Event Center Project located near Brooks, California. It is proposed that the project be completed by late 2013.

The purpose of this study is to address the off-reservation traffic and transportation effects of the proposed casino and event center expansion, as well as a Reduced Intensity Alternative (RIA) and to assist the Tribe's environmental consultant in the preparation of a Tribal Environmental Impact Report (TEIR) for the project. This traffic study was prepared based on discussions with, and criteria set forth by, Yolo County, the City of Woodland, and the California Department of Transportation (Caltrans).

Study Methodology

This traffic study was based on off-reservation planning conditions assumed in the Yolo County General Plan (adopted June 2009), the Esparto General Plan (adopted 2007), the Woodland General Plan (adopted 2002), as well as information provided by Caltrans[1]. Because the Yolo County General Plan documents anticipated a much larger casino expansion and its potential impacts, this study backed off the assumed larger casino development before evaluating the off-reservation impacts of the addition of the Cache Creek Casino Resort Event Center Project.

Development Conditions

The traffic study was based on the following study scenarios:

- Existing Conditions – evaluates current off-reservation traffic counts, existing off-reservation roadway geometry, and existing off-reservation development conditions.

- Near-Term (2013) Conditions – evaluates existing off-reservation traffic volumes with the addition of off-reservation planned projects and roadway improvements that are programmed, funded, and scheduled to be completed by 2013.

- Near-Term (2013) Plus Project Conditions – evaluates the effects of traffic from the Development Alternatives on 2013 off-reservation traffic operations.

- Long-Term (2030) Conditions – evaluates build-out conditions in the off-reservation area projected for 2030 using the forecast from the Yolo County General Plan and the City of Woodland's travel forecast model.

[1] Information included the *SR-16 Safety Improvement Project* report, *SR-16 Transportation Concept Report*, heavy vehicle percentages, SR-16 roadway segment classification, and signal timing.

- Long-Term (2030) Plus Project Conditions – evaluates effects of traffic from the Development Alternatives on 2030 Long-Term off-reservation traffic operations.

Development Alternatives

Three development alternatives are analyzed in this study.

- No Action Alternative – assumes no action would be taken; evaluates conditions that would occur without the proposed expansion project or RIA.

- Alternative A – Proposed Cache Creek Casino Resort Event Center Project (Proposed Project) – assumes casino expansion and event center of approximately 254,223 total square feet, including an increase of 20,497 square feet in gaming floor area as well as a 40,723 square foot event center with 2,300 seats.

- Alternative B – Reduced Intensity Alternative – assumes reduced intensity casino expansion and event center of approximately 172,832 total square feet including an increase of 10,249 square feet in gaming floor area as well as a 20,362 square foot event center with 1,150 seats.

Operating Conditions and Criteria

Operating conditions experienced by drivers are described in terms of Level of Service (LOS), which is a qualitative measure of factors such as delay, speed, travel time, freedom to maneuver, and driving comfort and convenience. Levels of service are represented by a letter scale from LOS A to LOS F, with LOS A representing the best performance and LOS F representing the poorest performance.

Table 1 relates the operational characteristics associated with each level of service category for both signalized and unsignalized intersections. **Table 2** lists the level of service thresholds for roadway segments which is based on both average travel speed and the percent time spent following on two-lane highways. Level of service on Class I facilities is defined in terms of average travel speed as well as percent time-spent-following (where mobility is critical). Percent time-spent-following is defined as the average percent of total travel time that vehicles must travel in platoons behind slower vehicles due to inability to pass on a two-lane highway. The level of service on Class II facilities is based on only the percent time-spent-following because mobility is less critical on the highway.

Table 3 summarizes the local off-reservation level of service standards. Unacceptable levels of service or vehicle queuing at locations on-reservation do not create impacts.

Because sold-out performances at the event center are only expected to occur ocassionally rather than daily, the casino expansion only scenario represents more of a typical PM peak condition. Therefore, off-reservation impacts and associated

mitigations were based on the casino expansion scenarios without a sold-out performance at the event center. When a major event occurs at the Proposed Project, specific additional mitigation will be required to address the special event nature of the additional traffic. It is not assumed that off-reservation intersection or roadway segment improvements will be recommended (such as roadway widening) to accommodate the less frequent higher levels of traffic, just as other jurisdictions do not design for the absolute highest levels associated with other special event venues.

Based on Caltrans requirements, traffic analysis was completed using Traffix software at all intersections and Highway Capacity Software (HCS) at roadway segments. Both software platforms are based on the methodology of the *Highway Capacity Manual* and are approved by Caltrans for use in preparation of traffic impact studies.

Table 1 – Intersection Level of Service Definitions

Level of Service	Description	Signalized (Avg. control delay per vehicle sec/veh)	Unsignalized (Avg. control delay per vehicle sec/veh)
A	Free flow with no delays. Users are virtually unaffected by others in the traffic stream	≤ 10	≤ 10
B	Stable traffic. Traffic flows smoothly with few delays.	> 10 – 20	> 10 – 15
C	Stable flow but the operation of individual users becomes affected by other vehicles. Modest delays.	> 20 – 35	> 15 – 25
D	Approaching unstable flow. Operation of individual users becomes significantly affected by other vehicles. Delays may be more than one cycle during peak hours.	> 35 – 55	> 25 – 35
E	Unstable flow with operating conditions at or near the capacity level. Long delays and vehicle queuing.	> 55 – 80	> 35 – 50
F	Forced or breakdown flow that causes reduced capacity. Stop and go traffic conditions. Excessive long delays and vehicle queuing.	> 80	> 50

Source: Transportation Research Board, *Highway Capacity Manual 2000*, National Research Council, 2000.

Table 2 – Roadway Segment Level of Service Thresholds: Two-Lane Highway

Level of Service	Class I[a] Percent Time Spent Following	Class I[a] Average Travel Speed (mph)	Class II[b] Percent Time Spent Following
A	≤ 35	>55	≤ 40
B	> 35 – 50	> 50 – 55	> 40 – 55
C	> 50 – 65	> 45 – 50	> 55 – 70
D	> 65 – 80	> 40 – 45	> 70 – 85
E	> 80	≤ 40	> 85

Source: Transportation Research Board, *Highway Capacity Manual 2000*, National Research Council, 2000.

[a]Class I: Highways on which motorists expect to travel at relatively high speeds, including major intercity routes, primary arterials, and daily commuter routes.

[b]Class II: Highways on which motorists do not necessarily expect to travel at high speeds, including access routes, scenic and recreational routes that are not primarily arterials, and routes through rugged terrain.

LOS F applies whenever the flow rate exceeds the segment capacity.

Table 3 – Local Level of Service Standards

Jurisdiction	Satisfactory Criteria	Significance Criteria
Yolo County	D – SR-16 between CCCR and I-505 E – SR-16 between CR-85B and CR-21A C – all other County Roads	Project causes LOS to fall below D or any increase in delay to intersections already operating unacceptably
Woodland	C	Project causes LOS to fall below C.
Caltrans	D – signalized intersections and highways	Project causes LOS to fall below D at intersections and highways If LOS already below criteria, the existing LOS and related measure of effectiveness (i.e. delay, percent time-spent-following, and average speed) are to be maintained.

Sources: Yolo County 2030 Countywide General Plan, 2009
Woodland General Plan Policy Document, 2002
Guide for the Preparation of Traffic Impact Studies, Caltrans, December 2002

Normally the standard would be LOS C or better for off-reservation intersections and roadway segments (per Caltrans' Guide for the Preparation of Traffic Impact Studies)

but in the State Route 16 Transportation Concept Report, Caltrans indicated that a lower level of service was acceptable before mitigation would be required[2].

Intersections Included in Analysis

The Proposed Project will generate new vehicular trips that will increase traffic volumes on the nearby off-reservation street network. To assess changes in off-reservation traffic conditions associated with the project, the following intersections that were selected in consultation with Yolo County and Caltrans, illustrated in **Figure 1**, were evaluated in this traffic study:

1. SR-16/ North Casino Entrance
2. SR-16/ Central Casino Entrance
3. SR-16/ South Casino Entrance
4. SR-16/ County Road 85
5. SR-16/ County Road 85B
6. SR-16/ County Road 17
7. SR-16/ Capay Street
8. SR-16/ Madison Street
9. SR-16/ Plainfield Street
10. SR-16/ County Road 21A
11. County Road 85B/ County Road 21A
12. Country Villa Estates/ County Road 21A
13. Fremont Street/ County Road 21A
14. SR-16/ County Road 89
15. SR-16/ I-505 SB Ramps
16. SR-16/ 1-505 NB Ramps
17. SR-16/ Wildwing Drive
18. SR-16/ County Road 94B
19. SR-16/ County Road 95
20. SR-16/ County Road 98
21. County Road 98/ W. Kentucky Avenue

Study intersections include those analyzed in a previous Tribal EIR which evaluated a much larger potential casino expansion.[3] Additional intersections were selected for evaluation in this study based on public comments received during the previous process as well as comments received from Caltrans and Yolo County following issuance of the Notice of Preparation (NOP) for the Proposed Project.

[2] *State Route 16 Transportation Concept Report*, Caltrans District 3 Office of Advance and System Planning, December 2004.
[3] *Cache Creek Destination Resort Project Traffic Impact Study*, Abrams Associates, April 2008.

Roadway Segments Included in Analysis

The following off-reservation roadway segments were selected in consultation with Yolo County and Caltrans and were evaluated in this study and can been seen in **Figure 4**.

- SR-16 between CCCR and County Road 85
- SR-16 between County Road 85 and Esparto Town Limits
- SR-16 through the Town of Esparto
- SR-16 between Esparto Town limits and County Road 89
- SR-16 between County Road 89 and I-505
- SR-16 between I-505 and County Road 98
- County Road 21A between County Road 85B and SR-16
- County Road 23 between County Road 85B and County Road 89 (Existing conditions only)
- County Road 27 between County Road 89 and I-5 (Existing conditions only)
- County Road 85B between SR-16 and County Road 21A
- County Road 85B between County Road 21A and County Road 23 (Existing conditions only)
- County Road 89 between County Road 23 and County Road 27 (Existing conditions only)

Other off-reservation roadway segments were considered for evaluation but were determined to not have sufficient background or casino traffic to justify evaluation in this study[4]. Roadway segments include those analyzed in a previous Tribal EIR which evaluated a much larger potential casino expansion.[5] Additional segments were selected for evaluation based on public comments received during the previous process as well as comments received from Caltrans and Yolo County following issuance of the Notice of Preparation (NOP) for the Proposed Project. A description of off-reservation segments that were considered but not analyzed follows.

- **CR-14 between CR-85 and I-505:** Approximately 2% to 4% of project traffic uses this segment depending on the location. This equates to as much as 8 PM peak trips and 22 peak vehicles during an event. Volumes at these levels do not justify including the segment in the analysis for any scenario.

- **CR-85 between CR-14 and SR-16:** Approximately 2% of project traffic uses this segment which equates to 4 PM peak trips and 11 peak vehicles during an event.

[4] Friday and Saturday PM peak hour conditions without a major event at CCCR represent typical trip generation conditions. County roads that receive less than 10 project trips during the PM peak hour are not required to be studied per the *Yolo County Transportation Impact Study Guidelines* (February 2010). A review of a 2010 traffic study in the City of Woodland showed that intersections and roadway segments with less than 50 peak hour trips are not typically studied.

[5] *Cache Creek Destination Resort Project Traffic Impact Study*, Abrams Associates, April 2008.

Volumes at these levels do not justify including the segment in the analysis for any scenario.

- **CR-87 between CR-14 and SR-16:** Approximately 2% of project traffic uses this segment which equates to 4 PM peak trips and 11 peak vehicles during an event. Volumes at these levels do not justify including the segment in the analysis for any scenario.

- **CR-89 between SR-16 and CR-23:** Less than 1% of casino traffic may use the segment. Volumes at these levels do not justify including the segment in the analysis for any scenario.

- **Main Street in Woodland between CR-98 and I-5:** Casino customers generally avoid Main Street because of the 18 uncoordinated traffic signals through town[6]. Approximately 7% of casino traffic uses this segment which equates to 14 PM peak trips and 39 peak vehicles during an event. Volumes at these levels do not justify including the segment in the analysis for any scenario.

EXISTING CONDITIONS

Existing Site Uses

The existing Cache Creek Casino Resort currently provides approximately 95,000 square feet of gaming floor area, 2,400 slot machines, approximately 1,120 table game seats, a 200-room hotel, a spa, a 729-seat event center (Club 88), eight restaurants, and roughly 3,800 parking spaces.

Existing Uses in Vicinity of Site

Land areas north, south and west of the existing Cache Creek Casino Resort are principally used for rural agricultural purposes and are not expected to change in the next 20 years. Directly north of the site is the Brooks Fire Station and US Post Office. East of the site is the Yocha Dehe Golf Club.

Existing Roadways

Below is a description of the off-reservation roadway facilities and roadway segments included in this study.

Off-Reservation Roadway Facilities

Capay Street – is a two lane roadway with curbs and gutters and parking. The road runs east-west connecting Alpha Street and Omega Street. Capay Street is located within the town limits of Esparto.

[6] Based on existing CCCR customer and employee data provided by CCCR.

Country Villa Estates – is a two lane roadway. The road runs north-south connecting residential housing to County Road 21A.

County Road 21A (CR-21A) – is a major two lane undivided county road. It runs east-west connecting County Road 85B and State Route 16.

County Road 85 (CR-85) – is a minor two lane undivided county road. It runs north-south connecting County Road 8 and State Route 16.

County Road 85B (CR-85B) – is a major two lane undivided county road between State Route 16 and County Road 21A and a minor two lane undivided county road between County Road 21A and County Road 23. It runs north-south connecting County Road 23 and State Route 16.

County Road 89 (CR-89) – is a minor two lane undivided county road. It runs north-south connecting State Route 16 and the City of Winters.

County Road 94B (CR-94B) – is a minor two lane undivided county road. It runs north-south connecting County Road 19 and County Road 24.

County Road 95 (CR-95) – is a minor two lane undivided county road. It runs north-south connecting State Route 16 and County Road 31.

County Road 98 (CR-98) – is a two lane undivided roadway. The road is classified as a principal arterial and is designated as a truck route in the City of Woodland's General Plan. It is classified as a major two lane county road south of the City of Woodland.

Fremont Street – is a two lane roadway. The road runs north-south connecting State Route 16 to County Road 21A. Fremont Street is located within the city limits of Esparto.

Interstate 505 (I-505) – is a four lane freeway running north and south connecting Interstate 5 in the north near the Yolo County and Colusa County line and Interstate 5 in Vacaville to the south. Interstate 505 passes through the city of Winters.

Madison Street – is a two lane roadway with curbs, gutters and on-street parking. The road runs east-west connecting Alpha Street and Omega Street and is directly north of Esparto High School. Madison Street is located within the town limits of Esparto.

Plainfield Street – is a two lane roadway with curbs, gutters and on-street parking. The road runs east-west connecting Alpha Street and Omega Street and is directly north of Esparto Middle School. Plainfield Street is located within the town limits of Esparto.

State Route 16 (SR-16) – is a rural two lane highway connecting State Route 20 to the northwest and Interstate 5 to the east. This highway passes through Cache Creek Regional Park, several towns including Brooks, Capay, Esparto and Madison, and the city of Woodland. The posted speed limit on SR-16 is generally 55 mph, but is as low as 25 mph through town limits.

West Kentucky Avenue – is a two lane undivided roadway near the study area. The road is classified as a minor arterial in the City of Woodland's General Plan. West Kentucky Avenue, east of CR-98, is classified as a truck route in the City of Woodland's General Plan. West of CR-98, West Kentucky Avenue becomes CR-20.

Wildwing Drive – is a two lane roadway with curbs and gutters. The road runs north-south providing access to the Wildwing neighborhood and golf course from State Route 16.

Off-Reservation Roadway Segments

SR-16 between CCCR and County Road 85 – is one lane in each direction with no median and a two foot shoulder for the majority of the segment. It is a Class I Highway with rolling terrain for a portion of the segment. The posted speed limit is 55 mph for the majority of the segment.

SR-16 between County Road 85 and Esparto Town Limits – is one lane in each direction with no median and a two foot shoulder for the majority of the segment. It is a Class II Highway with level terrain for a majority of the segment. The posted speed limit is 35 mph for the majority of the segment.

SR-16 through the Town of Esparto – is one lane in each direction with no median and a two foot shoulder for the majority of the segment. It is a Class II Highway with level terrain for the majority of the segment. The posted speed limit is 35 mph for the majority of the segment.

SR-16 between Esparto Town limits and County Road 89 – is one lane in each direction with no median and a four foot shoulder for the majority of the segment. It is a Class I Highway with level terrain for the majority of the segment. The posted speed limit is 50 mph for the majority of the segment.

SR-16 between County Road 89 and I-505 – is one lane in each direction with no median and a four foot shoulder for the majority of the segment. It is a Class I Highway with level terrain for the majority of the segment. The posted speed limit is 55 mph for the majority of the segment.

SR-16 between to I-505 and County Road 98 – is one lane in each direction with no median and a two foot shoulder for the majority of the segment. It is a Class I Highway with level terrain for the majority of the segment. The posted speed limit is 55 mph.

County Road 21A between County Road 85B and SR-16 – is one lane in each direction with no median and a two foot shoulder for the majority of the segment. It is a Class II Highway on level terrain for the majority of the segment. The posted speed limit is 35 mph for the majority of the segment.

County Road 23 between County Road 85B and County Road 89 – is one lane in each direction with no median and a two foot shoulder for the majority of the segment. It is a Class II Highway with level terrain for the majority of the segment. There is no posted speed limit.

County Road 27 between County Road 89 and I-5 – is one lane in each direction with no median and a four foot shoulder for the majority of the segment. It is a Class II Highway with level terrain for the majority of the segment. There is no posted speed limit.

County Road 85B between SR-16 and County Road 21A – is one lane in each direction with no median and a two foot shoulder for the majority of the segment. It is a Class II Highway with rolling terrain for a portion of the segment. There is no posted speed limit.

County Road 85B between County Road 21A and County Road 23 – is one lane in each direction with no median and a two foot shoulder for the majority of the segment. It is a Class II Highway with rolling terrain for a portion of the segment. There is no posted speed limit.

County Road 89 between County Road 23 and County Road 27 – is one lane in each direction with no median and a four foot shoulder for the majority of the segment. It is a Class II Highway with level terrain for the majority of the segment. There is no posted speed limit.

Existing Off-Reservation Lane Configurations and Traffic Control

Existing off-reservation intersection lane configurations and traffic control at study intersections are illustrated in **Figure 2**. Traffic signals are located at four of the study intersections. The figure also shows the right and left turn bays when present.

Existing Off-Reservation Traffic Turning Movement Volumes

Friday and Saturday off-reservation intersection turning movement volumes were manually collected in January 2010 at all project study area intersections and are shown in **Figure 3**. Volumes were collected during the PM peak periods of the day from 5:00 PM to 7:00 PM on both days. These times were selected as the periods when the

combination of background and casino traffic would be at their highest combined levels[7].

Off-reservation traffic volume data sheets are included in the **Appendix**.

Existing Off-Reservation Pedestrian and Bicycle Facilities

There are currently no existing off-reservation bicycle facilities in the project study area.

According to the Yolo County General Plan, Class II bicycle lanes are planned for SR-16 between I-505 and Esparto, as well as on CR-89 from south of SR-16 to Winters, on CR-90 from south of SR-16 to CR-24, and on CR-24 from CR-90 to CR-98. A Class III bikeway (i.e. signed bike route) is also planned along SR-16 from Esparto to north of the casino.

According to the Woodland General Plan, West Kentucky Avenue west of CR-98 is designated as a Class III bike route.

Existing Transit Service

Transit service is provided by the Yolo County Transportation District (YCTD). YCTD operates the YoloBus, connecting the communities of Woodland, Madison, Esparto, Capay, and Brooks to the Cache Creek Casino Resort on State Route 16 by YCTD Route 215. Buses operate from approximately 5 AM to 10 AM in the morning, 1 PM to 6 PM in the afternoon, and 9 PM to 1 AM at night. Headways[8] are roughly 50 to 60 minutes, but at around 7 AM, 3 PM, and 11 PM there is an additional bus added to the schedule with a headway of 10 minutes prior to the next scheduled bus. YoloBus also has routes providing service to both Sacramento County and Solano County.

Paratransit service is also provided by YCTD through the YoloBus Special. YoloBus Special provides service door-to-door for the elderly and disabled.

In addition to YCTD service, Cache Creek Casino Resort sponsors daily charter bus service between the casino and large population areas in northern California. These charter buses originate from areas including Sacramento, Oakland, San Francisco, Pittsburg, San Mateo, and San Jose. The average number of patrons is 45 per bus with the average number of buses per day ranging as noted below[9]:

- Monday – 28
- Tuesday – 18

[7] Seasonal variation information was not available from Caltrans, however, traffic counts collected for this study were compared to the counts collected in August 2007 for the Abrams Associates report. The average volume for the intersections and study segments differed by less than 1%, and therefore, no seasonal adjustment was deemed necessary.
[8] Headways are defined as the time between successive buses servicing the same stop.
[9] Information provided by Cache Creek Casino Resort, March 2010.

- Wednesday – 20
- Thursday – 12
- Friday – 14
- Saturday – 21
- Sunday – 15

The robust charter bus service removes approximately 8,862 vehicles from the local road system each month.[10] With the Proposed Project, the number of buses will remain the same or increase slightly to accommodate the proportionate increase in gaming customers associated with the Proposed Project.

Existing Farm Vehicle Movement

SR-16 is a principle route for the transportation of farm-related vehicles and provides connections to a County network of agricultural truck transportation corridors that facilitate farm-to-market connectivity.

The Yolo County General Plan identifies three purposes of the County road network in relation to farming which include:

- Movement of produce from farm-to-market
- Movement of harvesting equipment
- Movement of farm workers

Within the project study area the following roadways are intended to facilitate farm-to-market transport.

- County Road 21A
- County Road 23
- County Road 27
- County Road 85
- County Road 85B
- County Road 89
- County Road 94B
- County Road 95

The majority of the project study roadways also function as the main trucking corridors throughout the County.

According to Policy CI-7.3 of the General Plan, “By attracting truck trips to targeted corridors, other roadways throughout the County are more available for movement of

[10] Total of 23,040 charter passengers based on 128 buses per week times 4 weeks per month times 45 passengers per bus. Charter bus passenger count converted to passenger vehicle based on 23,040 divided by 2.6 passengers per personal vehicle.

agricultural vehicles (including over-sized and slower moving equipment critical to harvest) and farm workers thus supporting more efficient and safe agricultural operations countywide."

Existing County Road Maintenance

The existing county roads are in various conditions. Based on field observations, SR-16 throughout the study area is in good condition. According to the Yolo County General Plan, the following roadways are farm-to-market trucking corridors and are on the priority list for improvements:

- County Road 21A
- County Road 23
- County Road 27
- County Road 85
- County Road 85B
- County Road 89
- County Road 94B
- County Road 95

Existing Car and Van Pool Service

Cache Creek Casino Resort also sponsors and encourages employees to drive together using car and van pools. Currently there are 153 car/van pool groups with 352 participants from small and big cities in northern California to the casino. These ride-share commuter groups remove thousands of additional personal vehicles from the roads each month[11].

Existing Off-Reservation Collision History

California Highway Patrol provided Kimley-Horn with a computer generated report summarizing off-reservation accidents that occurred between 2007 and 2009 at the project study intersections. The report provided information about each accident, including the direction of travel and the time of day. The data is helpful in determining any trends that may exist in the traffic accidents that have occurred over the three-year reporting period. The identification of such trends is crucial for an initial analysis of potential improvements to an off-reservation intersection.

Because individual collision reports were not readily available, the summary data has limitations when recommending improvements to the study intersections in that only a finite amount of data is provided. To that end, the recommendations below are

[11] Information provided by Cache Creek Casino Resort, March 2010.

reflective of the analysis of the data provided to Kimley-Horn and our field observations at each study intersection and roadway segment.

Study Intersections

SR-16/County Road 85.

Accident Type	Number of Accidents
Pedestrian/Vehicle	0
Bicycle/Vehicle	0
Vehicle/Vehicle	6
	6

The accident trend at this intersection are rear end accidents caused by unsafe speed and the lack of an eastbound left turn lane.

SR-16/County Road 85B.

Accident Type	Number of Accidents
Pedestrian/Vehicle	0
Bicycle/Vehicle	0
Vehicle/Vehicle	1
	1

There was one broadside accident at this intersection caused by right-of-way violation.

SR-16/Woodland Avenue.

Accident Type	Number of Accidents
Pedestrian/Vehicle	0
Bicycle/Vehicle	0
Vehicle/Vehicle	5
Vehicle/Other	2
	7

The prevailing accident trends are rear-end and broadside accidents at this intersection caused by traveling at unsafe speeds or improper turning due to the three-way stop-controlled operation of the intersection.

SR-16/Capay Street.

Accident Type	Number of Accidents
Pedestrian/Vehicle	1
Bicycle/Vehicle	0
Vehicle/Vehicle	0
	1

There was one pedestrian violation accident at this intersection.

SR-16/Madison Street.

Accident Type	Number of Accidents
Pedestrian/Vehicle	0
Bicycle/Vehicle	0
Vehicle/Vehicle	1
	1

There was one rear end accident at this intersection caused by traveling at unsafe speed.

SR-16/Plainfield Street.

Accident Type	Number of Accidents
Pedestrian/Vehicle	0
Bicycle/Vehicle	0
Vehicle/Vehicle	1
	1

There was a head-on accident at this intersection caused by right-of-way violation.

SR-16/County Road 21A.

Accident Type	Number of Accidents
Pedestrian/Vehicle	0
Bicycle/Vehicle	0
Vehicle/Vehicle	6
Vehicle/Other	6
	12

The accident trends are rear-end and broadside accidents caused by traveling at unsafe speeds and failure to comply with traffic signs.

Fremont Street/County Road 21A.

Accident Type	Number of Accidents
Pedestrian/Vehicle	0
Bicycle/Vehicle	0
Vehicle/Vehicle	0
Vehicle/Other	1
	1

There was one hit object accident caused by driver acceleration/deceleration at this intersection.

SR-16/County Road 89.

Accident Type	Number of Accidents
Pedestrian/Vehicle	0
Bicycle/Vehicle	0
Vehicle/Vehicle	4
Vehicle/Other	1
	5

The prevailing accident trend at this intersection is rear-end collisions caused by traveling at unsafe speeds.

SR-16/I-505 SB Ramps.

Accident Type	Number of Accidents
Pedestrian/Vehicle	0
Bicycle/Vehicle	0
Vehicle/Vehicle	2
	2

The accident trends are rear-end and head on collisions resulting from driver acceleration/deceleration and automobile right-of-way violation.

SR-16/County Road 94B.

Accident Type	Number of Accidents
Pedestrian/Vehicle	0
Bicycle/Vehicle	0
Vehicle/Vehicle	1
	1

There was a rear-end accident that was caused by traveling at unsafe speeds and the lack of eastbound and westbound left turn lanes.

SR-16/County Road 95.

Accident Type	Number of Accidents
Pedestrian/Vehicle	0
Bicycle/Vehicle	0
Vehicle/Vehicle	1
	1

There was one broadside accident at this intersection caused by failure to comply with traffic signs.

SR-16/County Road 98.

Accident Type	Number of Accidents
Pedestrian/Vehicle	0
Bicycle/Vehicle	0
Vehicle/Vehicle	3
	3

The prevailing accident trend is rear-end accidents at this intersection caused by traveling at unsafe speeds.

There were no reported accidents at the following intersections during the three years reported:

- SR-16/North Casino Entrance
- SR-16/Central Casino Entrance
- SR-16/South Casino Entrance
- County Road 85B/County Road 21A
- Country Villa Estates/County Road 21A
- SR-16/I-505 NB Ramps
- SR-16/Wildwing Drive
- SR-16/W. Kentucky Avenue

In addition to the collisions reported at study intersections on SR-16, the following additional collisions were reported on SR-16 roadway segments during the 3-year period.

SR-16 between Cache Creek Casino and County Road 85.

Accident Type	Number of Accidents
Pedestrian/Vehicle	1
Bicycle/Vehicle	0
Vehicle/Vehicle	16
Vehicle/Other	26
	43

The prevailing accident trends are rear-end and hit object accidents as well as overturned vehicles in this segment caused by traveling at unsafe speeds and improper turning.

SR-16 between County Road 85 and the Esparto Town Limits.

Accident Type	Number of Accidents
Pedestrian/Vehicle	0
Bicycle/Vehicle	0
Vehicle/Vehicle	5
Vehicle/Other	1
	6

The prevailing accident trends are rear-end and sideswipe accidents in this segment caused by traveling at unsafe speeds and driver acceleration/ deceleration.

SR-16 through the Town of Esparto.

Accident Type	Number of Accidents
Pedestrian/Vehicle	0
Bicycle/Vehicle	0
Vehicle/Vehicle	4
Vehicle/Other	7
	11

The prevailing accident trends are broadside, rear-end and hit object accidents in this segment caused by traveling at unsafe speeds and improper turning.

SR-16 between Esparto Town Limits and County Road 89.

Accident Type	Number of Accidents
Pedestrian/Vehicle	0
Bicycle/Vehicle	0
Vehicle/Vehicle	14
Vehicle/Other	5
	19

The prevailing accident trends are rear-end, hit object, and sideswipe accidents in this segment caused by traveling at unsafe speeds as well as improper turning and passing.

SR-16 between County Road 89 and I-505.

Accident Type	Number of Accidents
Pedestrian/Vehicle	0
Bicycle/Vehicle	0
Vehicle/Vehicle	3
Vehicle/Other	3
	6

The prevailing accident trends are rear-end and hit object accidents in this segment caused by traveling at unsafe speeds and improper turning.

SR-16 between I-505 and County Road 98.

Accident Type	Number of Accidents
Pedestrian/Vehicle	0
Bicycle/Vehicle	0
Vehicle/Vehicle	18
Vehicle/Other	26
	44

The prevailing accident trends are rear-end and hit object accidents in this segment caused by traveling at unsafe speeds, improper turning and driver acceleration/deceleration.

County Road 21A between County Road 85B and SR-16

Accident Type	Number of Accidents
Pedestrian/Vehicle	0
Bicycle/Vehicle	0
Vehicle/Vehicle	3
Vehicle/Other	7
	10

The prevailing accident trends are rear-end and hit object accidents in this segment caused by traveling at unsafe speeds and improper turning.

There were no reported accidents on the roadway segment of County Road 85B between SR-16 and County Road 21A during the three years reported.

There were no reported collisions on any of the study segments or intersections that included farm machinery or vehicles colliding with other highway traffic.

Off-Reservation Existing Levels of Service at Study Intersections

Traffic operations were evaluated under existing traffic conditions. As noted previously, LOS D or better is established as the criteria for satisfactory operation at off-reservation intersections along SR-16, with the exception of the following study area intersections that are permitted to operate at LOS E as shown in **Table 3**.

- #6 – SR-16/Woodland Avenue
- #7 – SR-16/Capay Street
- #8 – SR-16/Madison Street
- #9 – SR-16/Plainfield Street

LOS C or better is established as the criteria for satisfactory operation at off-reservation intersections within Yolo County which applies to the following intersections.

- #11 – County Road 85B/County Road 21A
- #12 – Country Villa Estates/County Road 21A
- #13 – Fremont Street/County Road 21A

Off-reservation project intersections currently operating below the county standard are considered to be potentially significantly impacted if the average delay per vehicle increases as a result of the Proposed Project.

Results of the analysis are presented in **Table 4**, along with the jurisdictional standard for acceptable level of service (as previously described in Operating Conditions and Criteria). The method of intersection control is listed as Signal for a signalized intersection, AWSC for an all-way stop-controlled intersection, and TWSC for a two-way stop-controlled intersection. The overall level of service is reported for signalized intersections and all-way stop-controlled intersections. Two-way stop-controlled (TWSC) intersections may operate acceptably overall but only the worst approach is reported in the table per the methodology of the *Highway Capacity Manual*. Additional detail of the analysis is provided in the **Appendix**. Results of the analysis indicate that one of the existing study area intersections currently operates at unacceptable levels of service based on established significance criteria. (Results shown as bold in the table do not meet operational standards.)

Table 4 – Existing Intersection Level of Service Summary

	Intersection	Intersection Control	Criteria	Friday PM Peak		Saturday PM Peak	
				LOS	Delay	LOS	Delay
1	SR-16/ North Casino Entrance	Signal	D	A	7.3	A	6.3
2	SR-16/ Central Casino Entrance	Uncontrolled	D	A	0.0	A	0.0
3	SR-16/ South Casino Entrance	TWSC	D	B	14.4	C	22.1
4	SR-16/ County Road 85	TWSC	D	C	16.6	B	12.5
5	SR-16/ County Road 85B	TWSC	D	B	14.5	B	14.0
6	SR-16/ Woodland Avenue	AWSC	E	A	3.3	A	5.7
7	SR-16/ Capay Street	TWSC	E	B	13.7	B	15.0
8	SR-16/ Madison Street	TWSC	E	B	12.6	B	11.8
9	SR-16/ Plainfield Street	TWSC	E	C	16.2	C	20.2
10	SR-16/ County Road 21A	AWSC	D	B	11.0	B	11.6
11	County Road 85B/ County Road 21A	TWSC	C	A	9.2	A	9.1
12	Country Villa Estates/ County Road 21A	TWSC	C	A	9.7	A	9.8
13	Fremont Street/ County Road 21A	TWSC	C	B	10.2	B	10.2
14	SR-16/ County Road 89	AWSC	D	D	27.6	**E**	**45.3**
15	SR-16/ I-505 SB Ramps	TWSC	D	B	12.5	B	14.7
16	SR-16/ I-505 NB Ramps	Signal	D	A	9.6	B	10.7
17	SR-16/ Wildwing Drive	TWSC	D	B	14.6	B	13.1
18	SR-16/ County Road 94B	TWSC	D	C	16.6	B	14.7
19	SR-16/ County Road 95	TWSC	D	C	18.5	B	14.8
20	SR-16/ County Road 98	Signal	D	C	25.6	C	24.2
21	SR-16/ W. Kentucky Avenue	AWSC	D	A	9.8	A	8.9

Note: Locations operating unacceptably are bolded.

The following off-reservation intersection is currently not meeting standards in the Existing condition:

- #14 – SR-16/CR-89 (Saturday PM peak only)

Existing Conditions Traffic Signal Warrant Analysis

Traffic signals may be justified when traffic operations fall below acceptable thresholds and when one or more signal warrants are satisfied.

Existing off-reservation traffic volumes at the unsignalized study intersections were compared against the peak hour warrant in the *California Manual of Uniform Traffic Control Devices*, September 26, 2006. Traffic Signal Warrant #3 – Peak Hour Volume Warrant is satisfied when traffic volumes on the major and minor approaches exceed thresholds for one hour of the day.

This warrant is generally the first warrant to be satisfied. The warrant applies to off-reservation traffic conditions during a one hour peak that are sufficiently high such that

minor street traffic experiences excessive delay in entering and crossing the main street due to the high traffic volumes on the main street. The results of a signal warrant analysis are not indicative of impacts, but are provided as information. When intersections satisfy the peak hour volume warrant, it does not necessarily mean that a signal will or should be installed. For example, in some instances, the intersection may operate at an acceptable level even though volumes satisfy one or more signal warrants such as at a right in/out driveway.

Results of the analysis show that the following intersections currently satisfy Warrant #3:

- #5 – SR-16/CR-85B
- #6 – SR-16/Woodland Avenue
- #10 – SR-16/CR-21A

Other warrants such as for minimum vehicle volumes, interruption of continuous traffic, and traffic progression were not evaluated because they generally require higher traffic volumes to be satisfied. A copy of the analysis summary for Warrant #3 is included in the **Appendix**.

Existing Levels of Service on Study Roadway Segments

Existing traffic volumes on the off-reservation roadway segments in the study area were collected at intersections on either end of the roadway segments in January and March 2010 when schools were in session, representing a typical day and are shown in **Figure 4**. The two-lane highway classifications used were provided by Caltrans[12].

Traffic analyses were completed to evaluate the existing PM peak hour of Friday and Saturday operation of the study segments. Results of the analyses are presented in **Table 5**.

[12] Email from Arthur Murray, Transportation Planner, March 29, 2010.

Table 5 – Existing Roadway Segment Level of Service Summary

Roadway Segment	Highway Class	Criteria	Existing					
			Friday PM Peak			Saturday PM Peak		
		LOS	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)
SR-16 between Cache Creek Casino and CR-85	I	D	D	72.5	41.1	D	73.1	41.0
SR-16 between CR-85 and Esparto Town Limits	II	D	D	73.0	-	D	72.9	-
SR-16 through the Town of Esparto	II	E	C	64.5	-	C	69.3	-
SR-16 between Esparto Town limits and CR-89	I	D	D	72.2	42.5	D	75.3	41.6
SR-16 between CR-89 and I-505	I	D	D	70.4	42.7	D	74.4	41.6
SR-16 between I-505 and CR-98	I	D	D	68.9	41.7	D	62.1	43.2
County Road 21A between CR-85B and SR-16	II	C	A	38.6	-	A	37.1	-
County Road 23 between CR-85B and CR-89	II	C	A	21.6	-	A	21.0	-
County Road 27 between CR-89 and I-5	II	C	A	11.8	-	A	10.1	-
County Road 85B between SR-16 and CR-21A	II	C	B	47.5	-	B	46.2	-
County Road 85B between SR-21A and CR-23	II	C	A	35.7	-	A	32.1	-
County Road 89 between CR-23 and CR-27	II	C	A	16.0	-	A	24.5	-

Note: Locations operating unacceptably are bolded.

Results of the analysis indicate that all of the study roadway segments currently operate at acceptable levels of service based on established significance criteria. In addition, four of the study segments evaluated in the Existing condition have low background traffic, operate at LOS A, and are not expected to attract significant amounts of Proposed Project traffic; thus, additional analysis of these intersections under near-term and long-term conditions is not justified[13]. A more detailed explanation follows.

- **CR-23 between CR-85B and CR-89:** The existing two-way volume on this section of roadway is 159 vehicles during the Friday PM peak hour and 134 vehicles during the Saturday PM peak hour. The existing levels of service on this roadway segment are acceptable LOS A during both peak hours. The project only adds 12 to 34 vehicles to this roadway segment depending on whether or not there is an event. Although the roadway is located in an area where farm vehicles may frequently travel, potential conflicts with the Proposed Project are not expected due to the low existing traffic volumes and typical nighttime events (which occur when farm equipment is not on this segment). Analysis is only completed on this segment for Existing conditions because of the low traffic volumes, small project impact, and high level of service.

- **CR-27 between CR-89 and I-5:** The existing two-way volume on this section of roadway is 86 vehicles during the Friday PM peak hour and 71 vehicles during the Saturday PM peak hour. The existing levels of service on this roadway segment are acceptable LOS A during both peak hours. The project only adds 12 to 34 vehicles to this roadway segment depending on whether or not there is an event. Although the roadway is located in an area where farm vehicles may

[13] Segments currently operating at LOS A with less than 50 peak project trips will not degrade LOS to unacceptable levels under future conditions.

frequently travel, potential conflicts with the Proposed Project are not expected due to the low existing traffic volumes and typical nighttime events (which occur when farm equipment is not on this segment). Analysis is only completed on this segment for Existing conditions because of the low traffic volumes, small project impact, and high level of service.

- **CR-85B between CR-21A and CR-23:** The existing two-way volume on this section of roadway is 100 vehicles during the Friday PM peak hour and 76 vehicles during the Saturday PM peak hour. The existing levels of service on this roadway segment are acceptable LOS A during both peak hours. The project only adds 12 to 34 vehicles to this roadway segment depending on whether or not there is an event. Although the roadway is located in an area where farm vehicles may frequently travel, potential conflicts with the Proposed Project are not expected due to the low existing traffic volumes and typical nighttime events (which occur when farm equipment is not on this segment). Analysis is only completed on this segment for Existing conditions because of the low traffic volumes, small project impact, and high level of service.

- **CR-89 between CR-23 and CR-27:** The existing two-way volume on this section of roadway is 236 vehicles during the Friday PM peak hour and 181 vehicles during the Saturday PM peak hour. The existing levels of service on this roadway segment are acceptable LOS A during both peak hours. The project only adds 12 to 34 vehicles to this roadway segment depending on whether or not there is an event. Although the roadway is located in an area where farm vehicles may frequently travel, potential conflicts with the Proposed Project are not expected due to the low existing traffic volumes and typical nighttime events (which occur when farm equipment is not on this segment). Analysis is only completed on this segment for Existing conditions because of the low traffic volumes, small project impact, and high level of service.

NO ACTION ALTERNATIVE (BASELINE CONDITIONS)

The No Action Alternative represents the evaluation of off-reservation traffic conditions without the Proposed Project. Off-reservation traffic conditions were evaluated for the Near-Term (2013) and the Long-Term (2030). Year 2013 analysis corresponds with the proposed opening year of the Proposed Project. Year 2030 analysis represents cumulative off-reservation traffic conditions for the area based upon available traffic forecasts from the Yolo County travel forecast model included in the Yolo County General Plan.

The No Action Alternative serves as a baseline for comparison to each of the project alternatives, including the Proposed Project (Alternative A).

Proposed Roadway Projects in Vicinity of Site

Several projects are planned in the future that may affect traffic conditions in the study area.. These projects are planned to be completed regardless of the Proposed Project.

The intersection of SR-16/West Kentucky Avenue is planned to be signalized. At the time the Existing conditions analysis contained in this study was prepared the traffic signal was installed but the signal was not activated. The signal is planned to be activated by December 2012[14] and is included in the Near-Term 2013 scenarios as well as the Long-Term 2030 scenarios.

Per discussions with Caltrans, the improvements included in the *State Route 16 Safety Improvement Project*[15] (SIP) in Segments 2 through 6 will be completed by 2030[16]. As stated in the SR-16 SIP, some improvements have already been made to Segment 1 which has reduced the number of collisions in that segment. Due to a reduction of collisions along Segment 1 in the last few years, safety improvements are no longer warranted in that segment. Therefore, Caltrans no longer plans to implement the Segment 1 improvements[17]. There are no specific improvements to study intersections in SIP Segments 2 through 4. In Segment 5, the SIP improvements include realigning CR-85B to the east to improve site distance and safety as well as adding a northbound left turn lane at the intersection of SR-16/CR-85B. In Segment 6, SIP improvements include signalizing the intersection of SR-16/CR-89 and making the following additional improvements at that intersection:

- Widen the southbound approach to be a left lane and a through-shared-right lane

[14] Email from Arthur Murray, Transportation Planner, Caltrans, February 25, 2010.
[15] *State Route 16 Safety Improvement Project Final Environmental Impact Report/Environmental Assessment with Finding of No Significant Impact*, Caltrans, December 2009.
[16] Meeting with Caltrans, March 10, 2010.
[17] *State Route 16 Safety Improvement Project Final Environmental Impact Report/Environmental Assessment with Finding of No Significant Impact*, Caltrans, December 2009, page 2.

- Widen the eastbound approach to be a left lane, a through lane, and a through-shared-right lane
- Widen the westbound approach to be a left lane, a through lane, and a through-shared-right lane
- Restripe the northbound approach to be a left lane and a through-shared-right lane

Segment 6 would conform to the existing SR-16 alignment at the east end of the SR-16 SIP project near I-505.

Approved and Pending Development Projects in Vicinity of Site

A number of development projects in the study area are in various stages of planning, approval, or development. Projects considered for this traffic study were identified by Yolo County, the City of Woodland, and the Tribe as having been approved (but not yet completed or fully occupied), or having a development application submitted, or being otherwise reasonably foreseeable at the time the Proposed Project is proposed to open in early 2013. Based on foreclosures, declines in real estate values, and financing restrictions, only portions of the following projects were included with agreement from Yolo County[18]. There are no proposed development projects in the City of Woodland expected to be completed by early 2013[19]. These projects are listed in **Table 6**.

Table 6 – Proposed Development Projects

Project	Size[1]
Capay Homes	2 DU
Madison Homes	2 DU
Orciuoli Homes (Castle Homes) – Esparto	18 DU
E. Parker Homes (Emerald Homes) – Esparto	6 DU
Storey Homes (Emerald Homes) – Esparto	8 DU
Lopez Subdivision (YS Ventures LLC) – Esparto	14 DU
Yocha Dehe Tribal Lands (N/O CCCR on SR-16)	25 DU[2] 84.6 KSF Office

[1]DU = Dwelling Units, KSF = Thousand Square Feet
[2]Although residential development will be phased, all units are considered to be occupied by 2013 for this analysis.

Approved and pending projects assumed in this analysis scenario are presented in **Table 6**, and their locations relative to the project site are illustrated in **Figure 6**. Trip generation assumptions for these approved projects based on the land use information provided are included in the **Appendix**.

[18] Patrick Blacklock (Yolo County) letter to Pete Bontadelli (AES), February 12, 2010.
[19] Email communication with Katie Wurzel, City of Woodland, February 5, 2010.

Near-Term Off-Reservation Lane Configurations and Traffic Control

As discussed above, off-reservation roadway improvements are planned for some study intersections. Some off-reservation improvements are anticipated to be in place before or at approximately the same time as the proposed opening year of the CCCR Event Center Project. **Figure 5** illustrates the off-reservation roadway geometry and traffic control expected to be in place in 2013 regardless of the project.

Near-Term Off-Reservation Traffic Volumes (No Action Alternative)

Near-term off-reservation traffic volumes (No Action Alternative) were generated by growing existing traffic volumes by 1.5% per year[20] (between 2010 and 2013) and combining them with vehicle trips expected to be generated by the approved and pending development projects discussed previously. **Figure 7** shows the Near-Term off-reservation (No Action Alternative) traffic volumes at the study intersections. These volumes represent anticipated traffic levels in the year 2013, regardless of the proposed project. **Figure 8** shows the Near-Term (No Action Alternative) two-way roadway segment volumes.

Long-Term Off-Reservation Lane Configurations and Traffic Control

Additional off-reservation roadway improvements are expected within the project study area by the year 2030 including the signalization of the intersection of SR-16/CR-89. **Figure 9** illustrates the intersection geometry and traffic control assumed in the Long-Term analysis.

Long-Term Forecast (No Action Alternative)

Additional development projects in the study area are expected to be completed by the year 2030 and will contribute to a cumulative increase in off-reservation background traffic regardless of the project. The Long-Term forecast for this study is based on the year 2030 two-way link off-reservation volumes included in the Yolo County General Plan[21] and off-reservation volumes from the City of Woodland's travel forecast model. The Yolo County General Plan includes the planned expansion at CCCR based on the *Cache Creek Destination Resort Project Final TEIR* (AES, September 2008), which was a much larger Proposed Project. To generate the long-term without project off-reservation volumes, the previously proposed expansion was removed from the 2030 two-way link volumes. Information from the City of Woodland's travel forecast model was also used for the two study intersections located within the City. Approach volumes were then converted to turning movement volumes using a Furness process. Lastly, some turn movements were manually adjusted to balance traffic between intersections

[20] Year 2010 counts collected for this study were compared to counts collected in August 2007 and showed that average volume for study intersections decreased by less than 1%. Although average change in volume has been negative between 2007 and 2010, a growth rate of 1.5% per year was conservatively applied to the existing traffic volumes to cover any possible additional development not anticipated to occur.

[21] Provided by Yolo County via email on March 24, 2010.

or correct for forecast model inconsistencies. **Figure 10** shows the long-term traffic volumes. **Figure 11** shows the Long-Term (No Action Alternative) two-way roadway segment volumes.

LOS Conditions and Impacts at Intersections

Off-reservation traffic operations were evaluated under the following development conditions:

- Near-Term conditions without Proposed Project (year 2013)
- Long-Term conditions without Proposed Project (year 2030)

Results of the analysis are presented in **Table 7**. The method of intersection control is listed as Signal for a signalized intersection, AWSC for an all-way stop-controlled intersection, and TWSC for a two-way stop-controlled intersection. Two-way stop-controlled (TWSC) intersections may operate acceptably overall but only the worst approach is reported in the table. The overall level of service is reported for signalized intersections. Additional detail is provided in the **Appendix**. As seen in the results, the following off-reservation intersections and approaches will fail to meet acceptable level of service thresholds based on established significance criteria, regardless of the project. (Results shown as bold in the table do not meet operational standards.)

2013 Results

- #14 – SR-16/CR-89

2030 Results

- #3 – SR-16/South Casino Entrance (Saturday PM peak only)
- #5 – SR-16/CR-85B
- #14 – SR-16/CR-89
- #15 – SR-16/I-505 SB Ramps
- #16 – SR-16/I-505 NB Ramps
- #17 – SR-16/Wildwing Drive
- #18 – SR-16/CR-94B
- #19 – SR-16/CR-95

It should be noted that at the intersection of SR-16/County Road 89, between near-term and long-term, the level of service improves as a result of the installation of a traffic signal at the intersection as proposed in the SIP.

Traffic Signal Warrant Analysis

Near-Term and Long-Term off-reservation traffic volumes (No Action Alternative) at unsignalized study intersections were compared against the peak hour warrant in the *2006 California Manual on Uniform Traffic Control Devices (MUTCD)*.

Results of the analysis showed that the following off-reservation intersections will satisfy traffic signal Warrant #3 by the year 2013 and 2030, regardless of the proposed project.

- #3 – SR-16/South Casino Entrance (2030)
- #4 – SR-16/CR-85 (2030)
- #5 – SR-16/CR-85B (2013 and 2030)
- #6 – SR-16/Woodland Avenue (2013 and 2030)
- #10 – SR-16/CR-21A (2013 and 2030)
- #15 – SR-16/I-505 SB Ramps (2030)
- #17 – SR-16/Wildwing Drive (2030)
- #19 – SR-16/CR-95 (2030)

Other warrants such as minimum vehicle volumes, interruption of continuous traffic, and traffic progression were not evaluated because they generally require higher traffic volumes to be satisfied. A copy of the analysis summary for Warrant #3 is included in the **Appendix**.

Table 7 – No Action Intersection Level of Service Summary

	Intersection	Intersection Control	Criteria	Existing				Near-Term (2013)				Long-Term (2030)			
				Friday PM Peak		Saturday PM Peak		Friday PM Peak		Saturday PM Peak		Friday PM Peak		Saturday PM Peak	
				LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1	SR-16/ North Casino Entrance	Signal	D	A	7.3	A	6.3	A	9.1	A	9.2	B	10.3	A	9.8
2	SR-16/ Central Casino Entrance	Uncontrolled	D	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0
3	SR-16/ South Casino Entrance	TWSC	D	B	14.4	C	22.1	C	15.6	D	25.5	C	22.4	**E**	**42.9**
4	SR-16/ County Road 85	TWSC	D	C	16.6	B	12.5	C	18.7	B	13.0	D	26.1	C	16.6
5	SR-16/ County Road 85B	TWSC	D	B	14.5	B	14.0	C	16.4	C	15.6	**F**	**52.1**	**E**	**42.8**
6	SR-16/ Woodland Avenue	AWSC	E	A	3.3	A	5.7	A	4.7	A	6.0	A	5.4	A	9.4
7	SR-16/ Capay Street	TWSC	E	B	13.7	B	15.0	B	14.9	C	16.4	C	21.2	C	21.1
8	SR-16/ Madison Street	TWSC	E	B	12.6	B	11.8	B	13.7	B	12.6	C	15.3	C	17.8
9	SR-16/ Plainfield Street	TWSC	E	C	16.2	C	20.2	C	18.1	C	22.8	D	25.8	D	30.8
10	SR-16/ County Road 21A	AWSC	D	B	11.0	B	11.6	B	12.1	B	13.0	C	19.1	D	28.8
11	County Road 85B/ County Road 21A	TWSC	C	A	9.2	A	9.1	A	9.3	A	9.2	B	10.4	B	10.5
12	Country Villa Estates/ County Road 21A	TWSC	C	A	9.7	A	9.8	A	9.8	A	9.9	B	11.6	B	12.5
13	Fremont Street/ County Road 21A	TWSC	C	B	10.2	B	10.2	B	10.5	B	10.4	B	12.4	B	12.8
14	SR-16/ County Road 89	AWSC[1]	D	D	27.6	**E**	**45.3**	**E**	**42.9**	**F**	**67.8**	**E**	**56.4**	**F**	**134.6**
15	SR-16/ I-505 SB Ramps	TWSC	D	B	12.5	B	14.7	B	13.2	C	15.7	**F**	**246.0**	**F**	**344.3**
16	SR-16/ I-505 NB Ramps	Signal	D	A	9.6	B	10.7	A	9.8	B	11.2	**F**	**115.8**	**F**	**146.7**
17	SR-16/ Wildwing Drive	TWSC	D	B	14.6	B	13.1	C	16.0	B	14.2	**F**	**80.2**	**E**	**41.2**
18	SR-16/ County Road 94B	TWSC	D	C	16.6	B	14.7	C	18.4	C	15.8	**F**	**162.6**	**F**	**51.5**
19	SR-16/ County Road 95	TWSC	D	C	18.5	B	14.8	C	20.5	C	15.9	**F**	**99.4**	**F**	**65.7**
20	SR-16/ County Road 98	Signal	D	C	25.6	C	24.2	C	26.2	C	24.7	D	53.4	C	32.8
21	SR-16/ W. Kentucky Avenue	AWSC[2]	D	A	9.8	A	8.9	B	17.7	B	17.4	C	20.7	C	28.0

Note: Locations operating unacceptably are bolded.

[1]Signalized in the Long-Term (2030)

[2]Signalized in the Near-Term (2013)

Off-Reservation LOS Conditions and Impacts on Roadway Segments

Year 2013 and year 2030 off-reservation roadway segment volumes were determined from the turning movement approach volumes at the study intersections within the study area.

Results of the analyses are presented in **Table 8**. (Results shown as bold in the table do not meet operational standards.)

As shown in the table, all of the off-reservation roadway segments are expected to operate at acceptable levels of service based on established significance criteria in the Near-Term. In the Long-Term condition, the following off-reservation segments operate at unacceptable levels of service regardless of the project.

- SR-16 between CCCR and CR-85
- SR-16 between the Esparto Town Limits and CR-89
- SR-16 between CR-89 and I-505
- SR-16 between I-505 and CR-98

Table 8 – No Action Alternative Roadway Segment Level of Service Summary

Roadway Segment	Highway Class	Criteria	Near-Term (2013)						Long-Term (2030)					
			Friday PM Peak			Saturday PM Peak			Friday PM Peak			Saturday PM Peak		
		LOS	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)
SR-16 between Cache Creek Casino and CR-85	I	D	D	74.6	40.5	D	75.0	40.4	**E**	**79.7**	**38.7**	**E**	**79.1**	**39.0**
SR-16 between CR-85 and Esparto Town Limits	II	D	D	75.0	-	D	75.0	-	D	80.7	-	D	78.1	-
SR-16 through the Town of Esparto	II	E	C	67.1	-	D	71.9	-	D	72.2	-	D	77.6	-
SR-16 between Esparto Town limits and CR-89	I	D	D	74.8	41.7	D	77.5	40.9	**E**	**87.4**	**36.0**	**E**	**90.9**	**33.1**
SR-16 between CR-89 and I-505	I	D	D	73.4	41.9	D	76.6	41.0	**E**	**93.5**	**30.1**	**F**	**96.4**	**26.0**
SR-16 between I-505 and CR-98	I	D	D	71.2	41.2	D	64.6	42.7	**E**	**84.5**	**36.1**	**E**	**79.6**	**38.5**
County Road 21A between CR-85B and SR-16	II	C	B	40.4	-	A	38.9	-	B	52.4	-	B	53.3	-
County Road 85B between SR-16 and CR-21A	II	C	B	48.5	-	B	47.3	-	C	62.0	-	C	62.5	-

Note: Locations operating unacceptably are bolded.

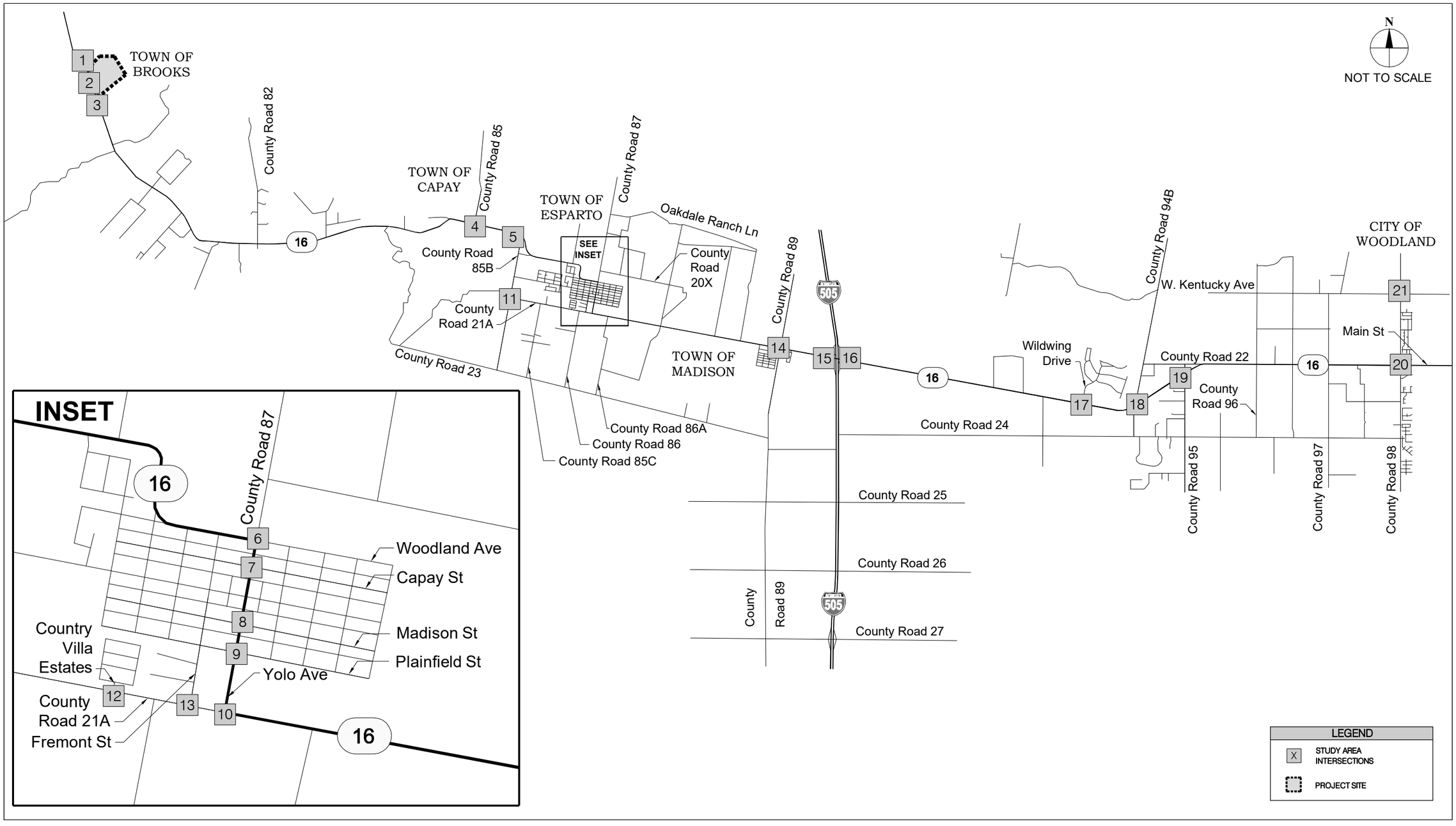

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FIGURE 1
PROJECT LOCATION AND STUDY INTERSECTIONS
CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

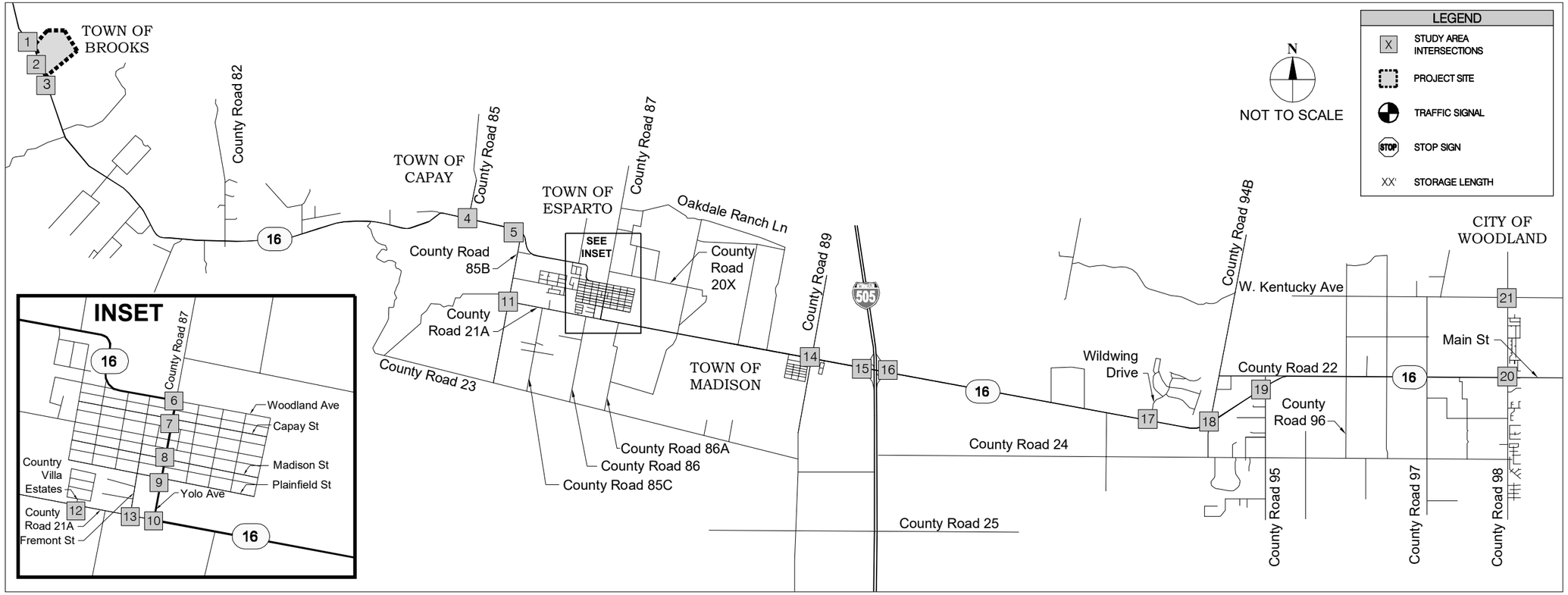

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FIGURE 2
EXISTING LANE GEOMETRY AND TRAFFIC CONTROL

CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

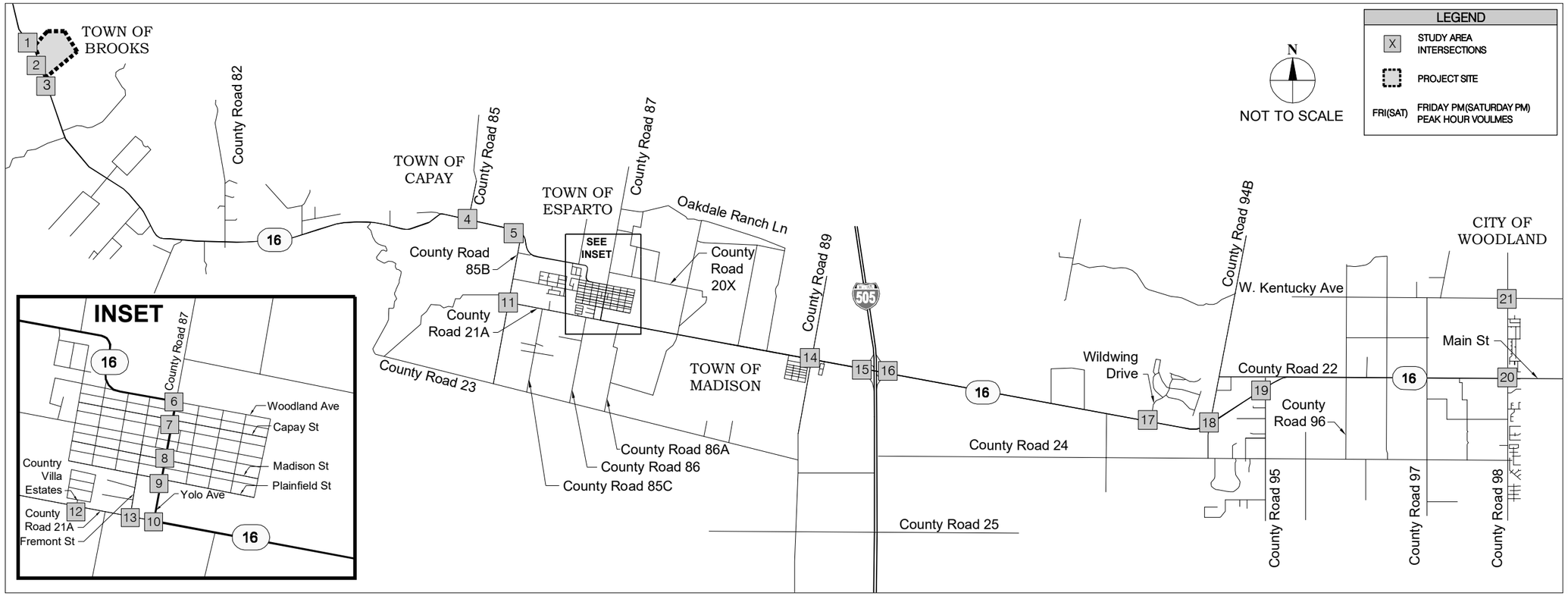

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FIGURE 3
EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES

CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

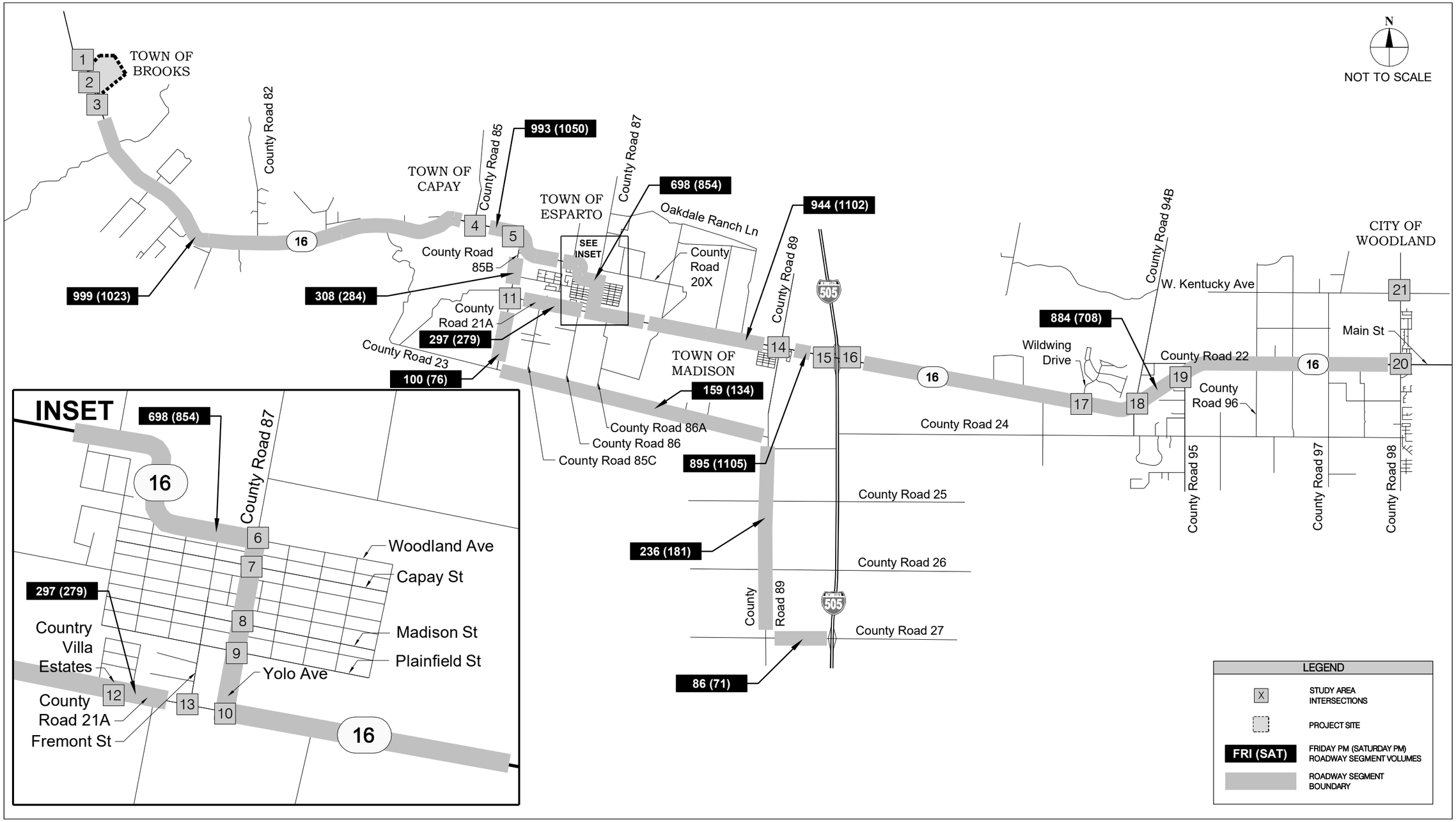

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FIGURE 4
EXISTING PEAK HOUR TWO-WAY ROADWAY SEGMENT TRAFFIC VOLUMES
CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

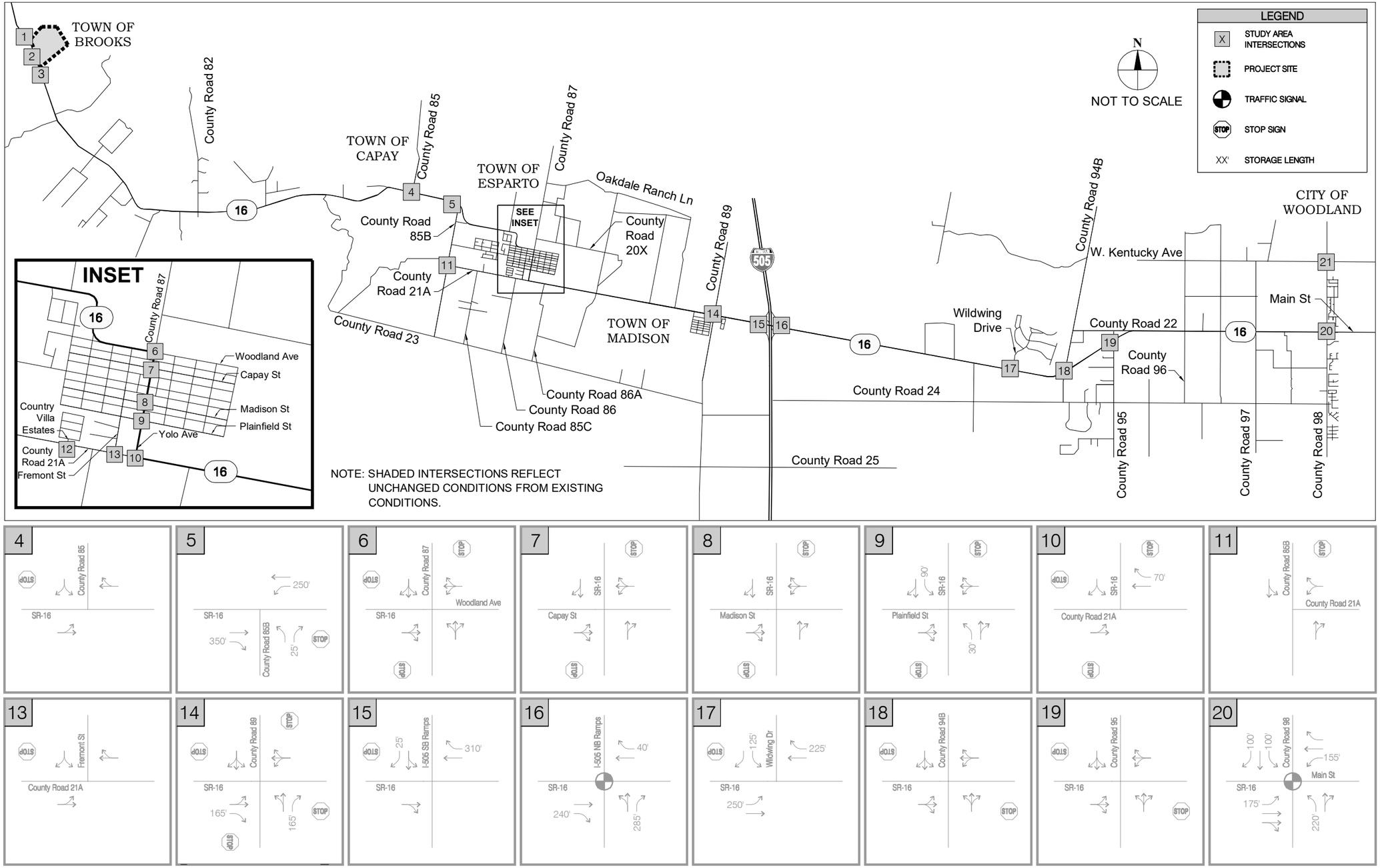

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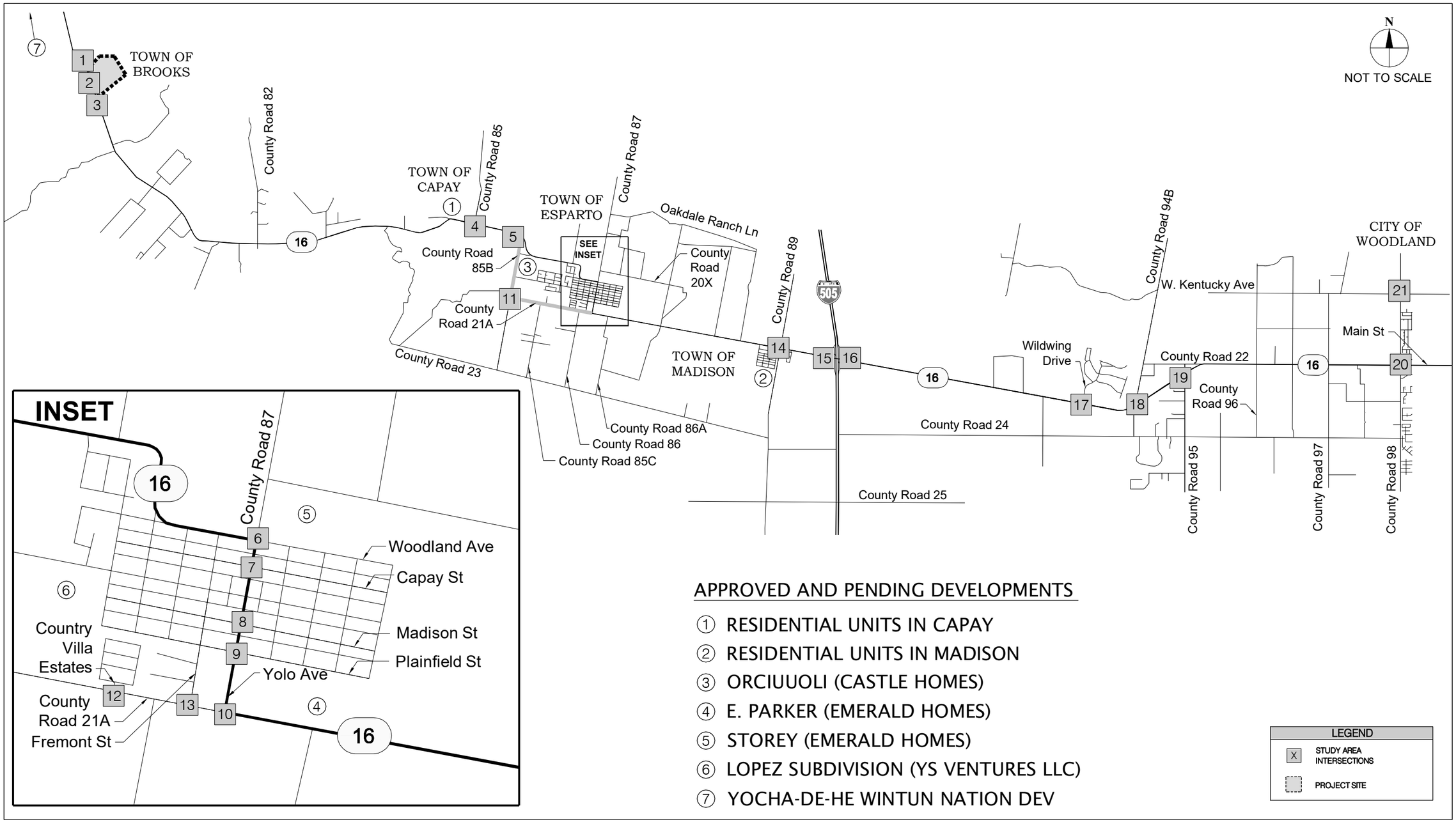
FIGURE 5
NEAR-TERM 2013 LANE GEOMETRY AND TRAFFIC CONTROL
CACHE CREEK CASINO RESORT EVENT CENTER PROJECT



APPROVED AND PENDING DEVELOPMENTS

① RESIDENTIAL UNITS IN CAPAY
② RESIDENTIAL UNITS IN MADISON
③ ORCIUUOLI (CASTLE HOMES)
④ E. PARKER (EMERALD HOMES)
⑤ STOREY (EMERALD HOMES)
⑥ LOPEZ SUBDIVISION (YS VENTURES LLC)
⑦ YOCHA-DE-HE WINTUN NATION DEV

LEGEND
X STUDY AREA INTERSECTIONS
PROJECT SITE

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FIGURE 6
APPROVED AND PENDING DEVELOPMENT LOCATIONS
CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

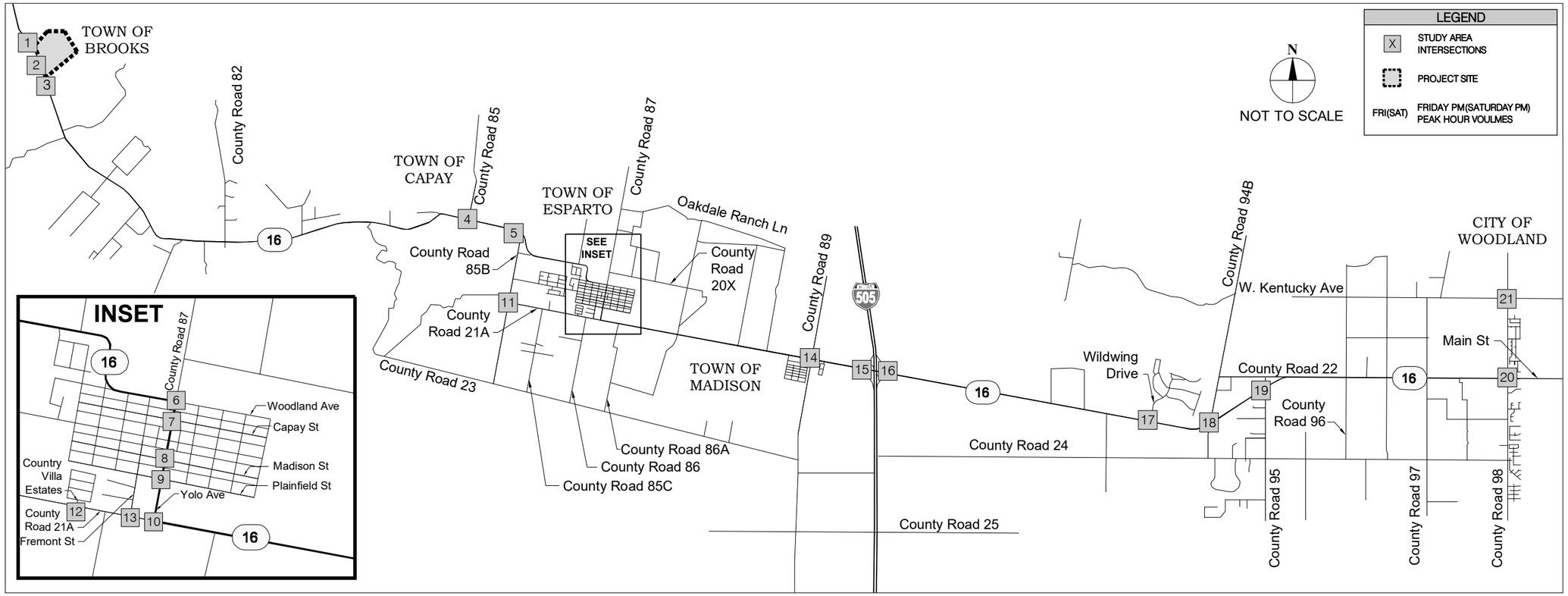

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FIGURE 7
NEAR-TERM 2013 TRAFFIC VOLUMES
CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

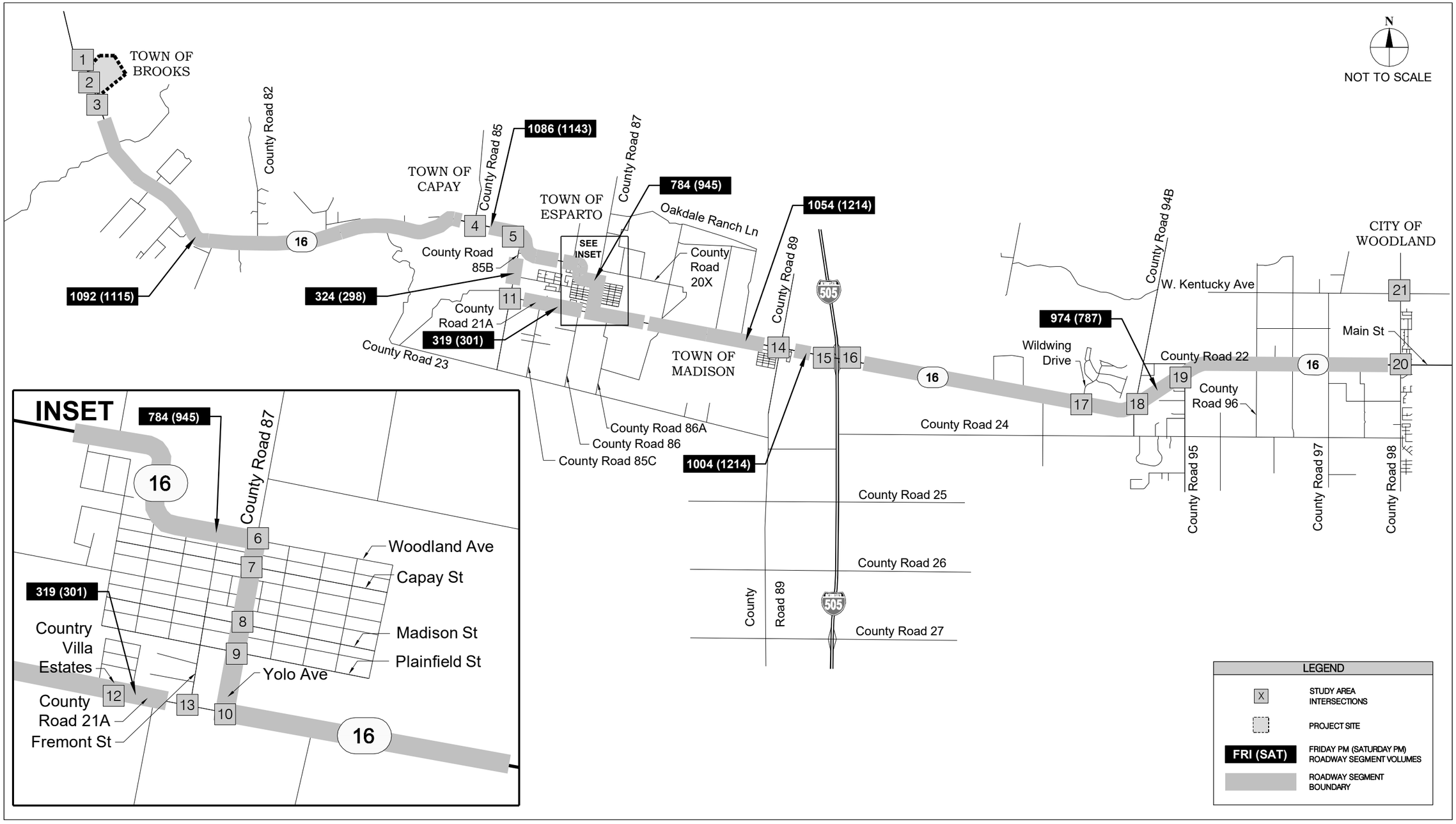

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FIGURE 8
NEAR-TERM 2013 TWO-WAY ROADWAY SEGMENT TRAFFIC VOLUMES
CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

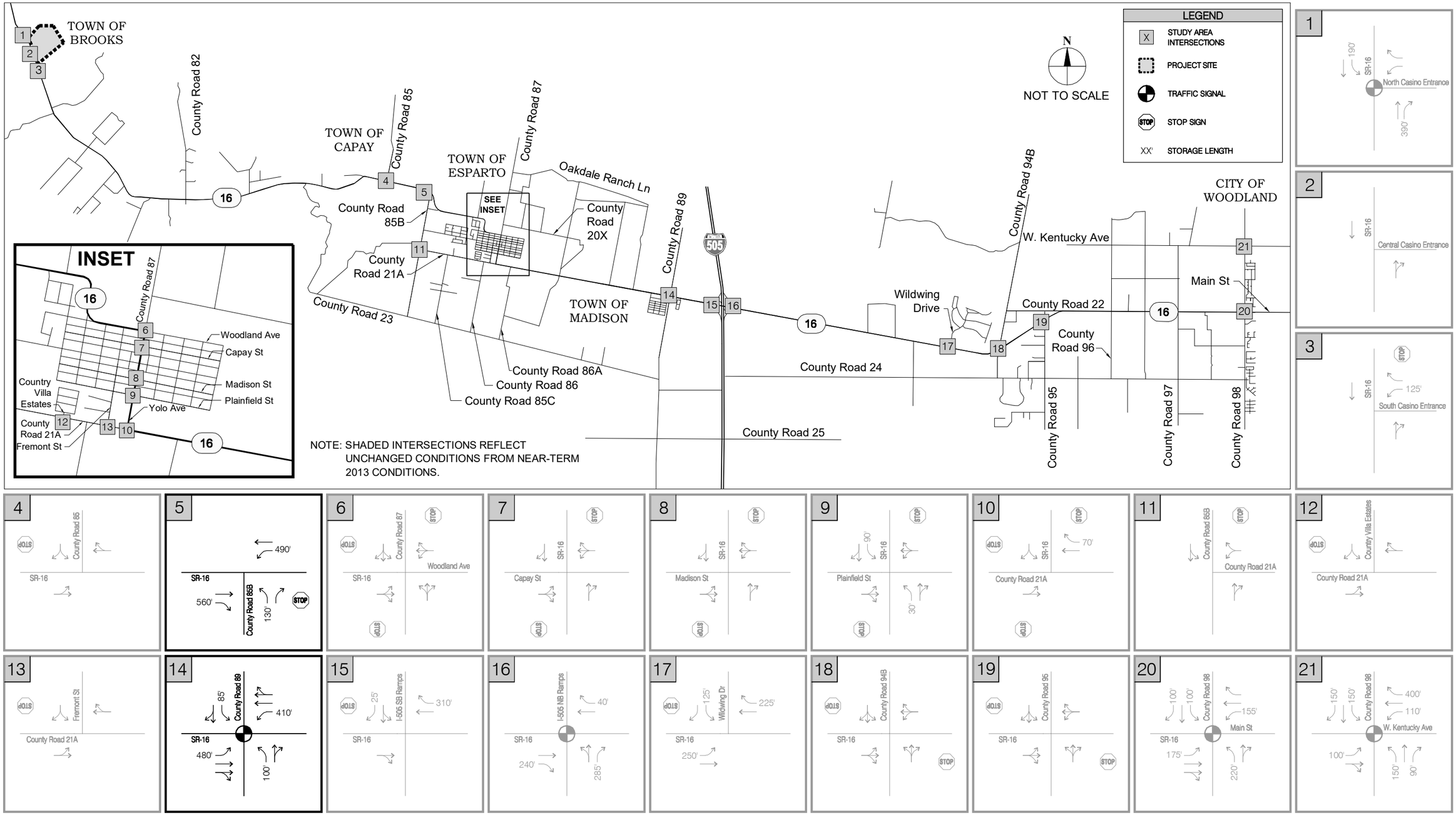

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FIGURE 9
LONG-TERM 2030 LANE GEOMETRY AND TRAFFIC CONTROL
CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

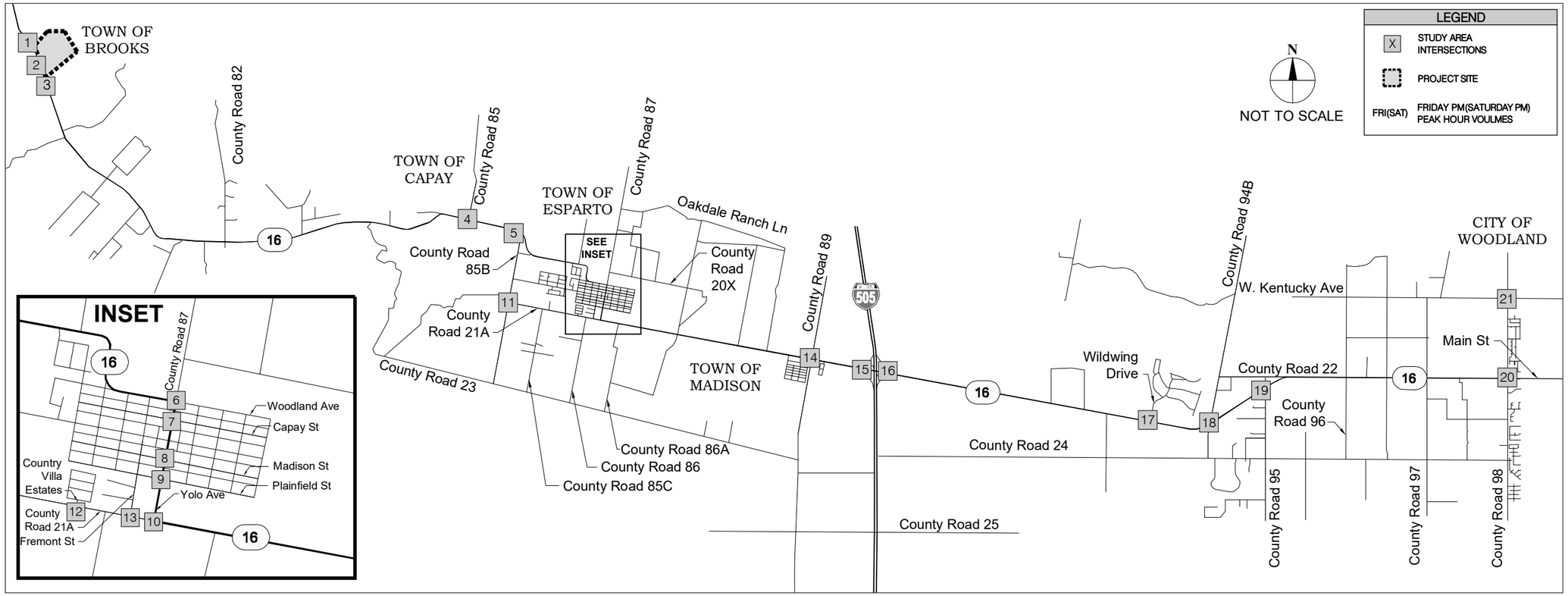

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FIGURE 10
LONG-TERM 2030 TRAFFIC VOLUMES

CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

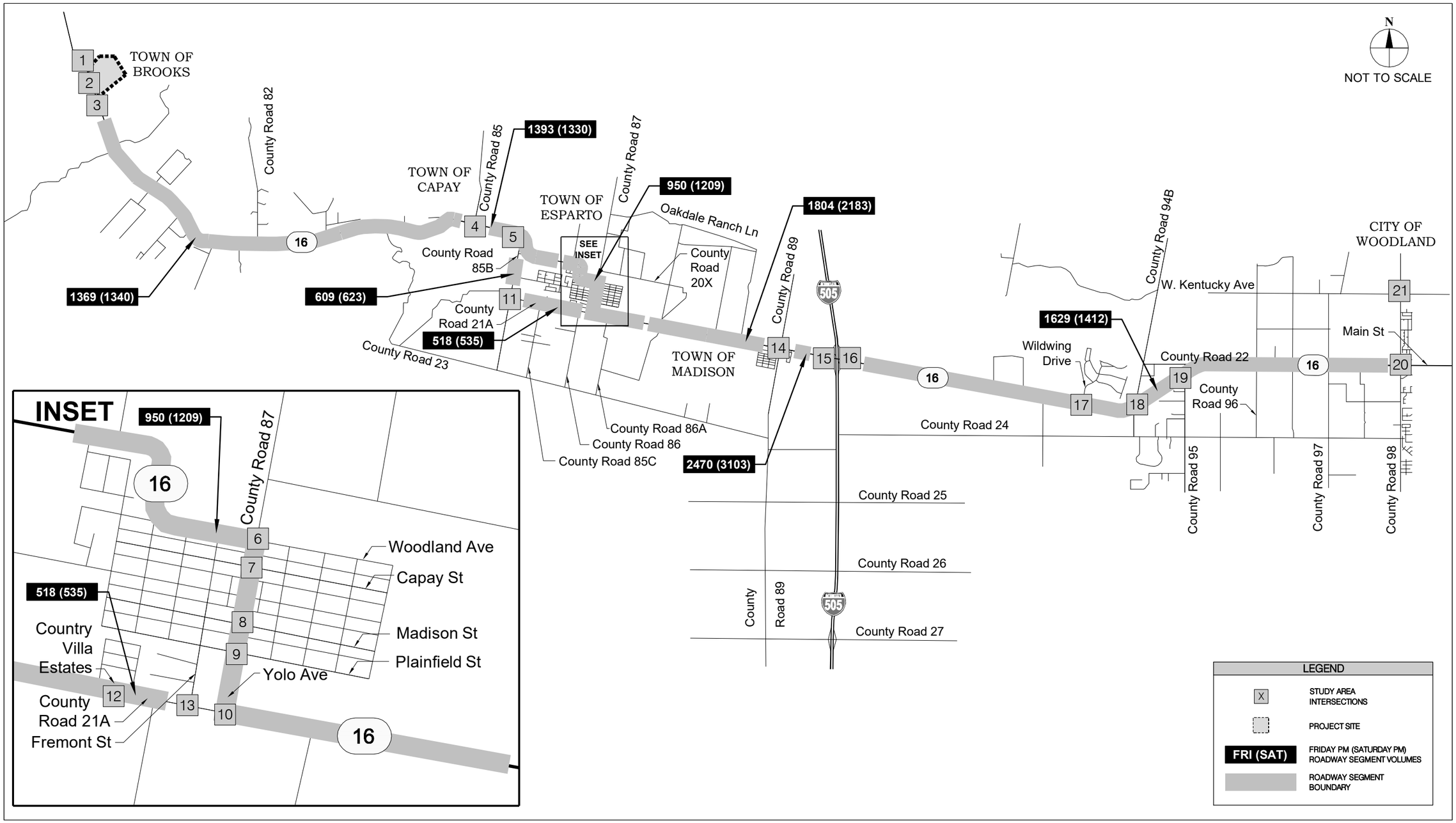

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FIGURE 11
LONG-TERM 2030 TWO-WAY ROADWAY SEGMENT TRAFFIC VOLUMES
CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

ALTERNATIVE A – CACHE CREEK CASINO RESORT EVENT CENTER PROJECT (PROPOSED PROJECT)

The site layout as shown in **Figure A1** includes an expansion of approximately 254,223 square feet for an event center with 2,300 seats, additional gaming floor area, restaurants, meeting rooms, and other ancillary functions.

A breakdown of square footage as it relates to traffic impacts is shown below:

• Event Center –	40,723 s.f.
• Meeting Room Facilities –	11,717 s.f.
• Gaming Floor –	20,497 s.f.
• Dining –	12,115 s.f.
• Miscellaneous Public Spaces –	10,531 s.f.
• Warehouse & Receiving –	28,791 s.f.
• Other Back of House –	129,849 s.f.
	254,223 s.f.

The site plan also shows supporting uses such as the proposed 6 level parking structure, parking lots, and nearby existing facilities such as the Brooks Fire Station, US Post Office, mini-mart, and gas station.

Site Access

The main access points to the project are located on SR-16. The north access at Winners Way operates as a full movement driveway with no turn limitations. The central driveway operates as an in-only driveway with a southbound left turn prohibition. The south driveway also has a southbound left turn prohibition but allows all other movements.

Only the Winners Way access is signalized.

Alternative A Scenarios

Under Alternative A there are multiple scenarios that may occur depending on whether or not there is a performance at the event center and whether traffic drives through downtown Esparto or takes an alternative bypass route. Therefore, the following scenarios will be evaluated with Alternative A:

- **Near-Term + Alternative A** – This near-term scenario includes trips associated with the casino expansion but assumes there is no performance at the event center. New off-reservation traffic follows current patterns with most traffic continuing to travel on SR-16 downtown through Esparto.

- **Long-Term + Alternative A** – This long-term scenario includes trips associated with the casino expansion but assumes there is no performance at the event center. New off-reservation traffic follows current patterns with most traffic continuing to travel on SR-16 downtown through Esparto.
- **Near-Term + Alternative A (using Esparto Bypass)** – This near-term scenario includes trips associated with the casino expansion but assumes there is no performance at the event center. Most new off-reservation traffic is assumed to use CR-21A and CR-85B to bypass downtown Esparto rather than use SR-16.
- **Long -Term + Alternative A (using Esparto Bypass)** – This long-term scenario includes trips associated with the casino expansion but assumes there is no performance at the event center. Most new off-reservation traffic is assumed to use CR-21A and CR-85B to bypass downtown Esparto rather than use SR-16.
- **Near-Term + Alternative A with a major event** – This near-term scenario includes trips associated with the casino expansion and traffic associated with a sold-out performance at the event center. New off-reservation traffic follows current patterns with most traffic continuing to travel on SR-16 downtown through Esparto.
- **Long-Term + Alternative A with a major event** – This long-term scenario includes trips associated with the casino expansion and traffic associated with a sold-out performance at the event center. New off-reservation traffic follows current patterns with most traffic continuing to travel on SR-16 downtown through Esparto.
- **Near-Term + Alternative A with a major event (using Esparto Bypass)** – This near-term scenario includes trips associated with the casino expansion and traffic associated with a sold-out performance at the event center. Most new off-reservation traffic is assumed to use CR-21A and CR-85B to bypass downtown Esparto rather than use SR-16.
- **Long-Term + Alternative A with a major event (using Esparto Bypass)** – This long-term scenario includes trips associated with the casino expansion and traffic associated with a sold-out performance at the event center. Most new off-reservation traffic is assumed to use CR-21A and CR-85B to bypass downtown Esparto rather than use SR-16.

ALTERNATIVE A

These Near-Term and Long-Term scenarios include trips associated with the casino expansion but assume there is no performance at the event center. New off-reservation traffic follows current patterns with most traffic continuing to travel on SR-16 downtown through Esparto.

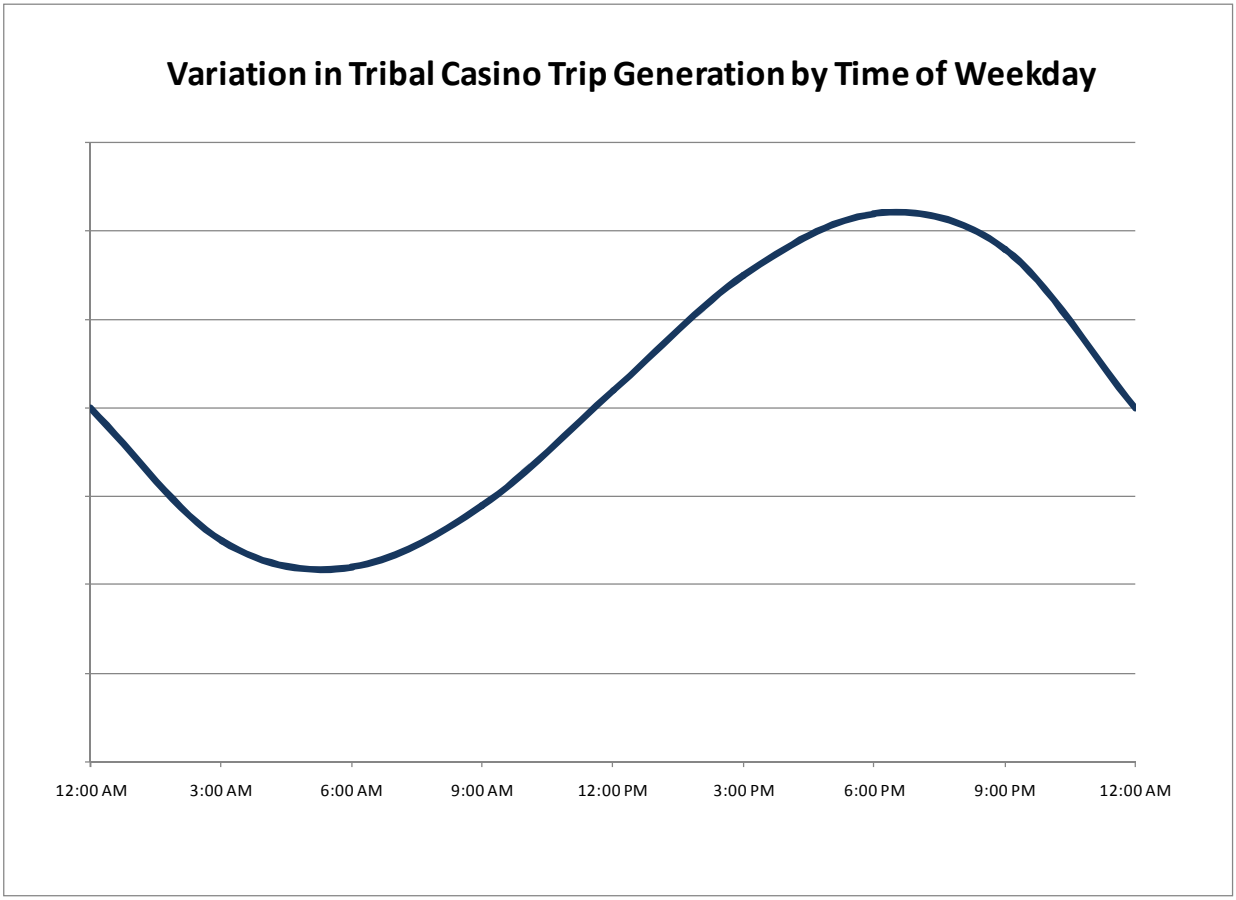
Project Trip Generation – Alternative A

Trip generation for tribal gaming facilities generally peaks on Saturday evenings; however, background traffic on adjacent streets is lower than during peak weekday

periods, making the overall number of vehicles on the road lower as well. In addition, casino facilities are open 24/7 and typically do not generate extreme peaks like other uses. Instead, casino/hotel/event center traffic follows a smoother curve that builds steadily from early morning until about 7:00 PM, after which traffic levels slowly decline. Based on existing traffic volume information and expected trip generation from the Proposed Project, it was determined that the Friday and Saturday PM peak periods represent the worst case period to evaluate. It is during these periods that the combination of background traffic and casino traffic are at the highest levels of the weekday and weekend (i.e. from 5:15 PM to 6:15 PM).

Trip generation for new development projects is typically based on rates contained in the Institute of Transportation Engineer's publication *Trip Generation, 8th Edition*. This manual is a standard reference used by jurisdictions throughout the country and is based on actual trip generation studies at numerous locations in areas of various populations. However, *Trip Generation* does not have a land use for casino and event center facilities similar to the type proposed by the Yocha Dehe Wintun Nation. *Trip Generation* only includes information for a single casino/lottery establishment in South Dakota which does not include the same elements as CCCR or the Proposed Project.

Because the casino is operational, trip generation was calculated based on existing trips to and from the site. Traffic counts were collected at the three project driveways during the PM peak hour from 5:00 to 7:00 PM on Friday, January 29, 2010 and Saturday, January 23, 2010. Results shows that the highest volumes occurred between 5:15 PM and 6:15 PM on Friday and Saturday. During these times, all trips associated with the casino and other ancillary functions were counted and included in the determination of the existing casino trip rate.



Trip generation for casinos can be based on one or more independent variables[22] including gaming floor area or overall casino floor area. The gaming area is considered by most professionals to be a more reliable factor to determining the number of trips likely to be generated for a facility such as CCCR, rather than the entire building floor area. Gaming area is the "engine" that brings trips to CCCR. The other functions such as restaurants, hotels, and shopping are used to keep patrons at CCCR longer.

Based on the existing gaming floor area of 94,505 square feet and existing traffic counts, the Friday PM peak hour and Saturday PM peak hour trip generation rates were determined as shown in **Table A1**.

[22] Independent variable is a physical, measureable and predictable unit describing the study site or generator than can be used to predict the value of the dependent variable (in this case trip ends). *Trip Generation Users Guide*, 8th Edition, Institute of Transportation Engineers,

Table A 1 – Existing Trip Generation Rates

(per KSF Gaming Floor Area)

Friday PM Peak			Saturday PM Peak		
In	Out	Total	In	Out	Total
3.41	3.21	6.61	5.34	4.05	9.40

The trip generation rates include patrons to the slot machines and table games, as well as ancillary uses such as restaurants, bars, meeting spaces, back-of-house, employees arriving and departing on a shift change, and all of the general activities occurring at the CCCR during the peak hour. Because all functions are included in the rates summarized in **Table A1**, separate calculations for the non-casino functions are not necessary, nor appropriate. Excluding the hotel, restaurants, and meeting space does not suggest that they do not generate trips; rather it is a statement that the methodology already incorporates the trips in the calculated rates based on gaming floor area.

Event center trip generation is also included in this evaluation. Trip generation associated with the event center is calculated separately and is based on seats rather than floor area. However, before trip generation for the event center is calculated, the percentage of patrons that attend event center functions and also participate in gaming activities must be determined to avoid double counting for patrons that do both. The following discussion outlines the process used to determine the percentage of guests that typically attend an event and game during the same visit to the casino,

The existing CCCR event center, Club 88, has a maximum seating capacity of 729. The new event center facility, which is in addition to the existing Club 88, is proposed to have a maximum seating capacity of 2,300.

Ticket counts for events which occurred between October 2006 and October 2009 was provided by CCCR, as well as daily in and out person counts from March 2008 to October 2009. The person counts were collected by automatic counters at the multiple entrances to the casino facility. Only count stations at entrances to the casino facility were considered, while data collected at internal cordon entrances (e.g. hotel) were omitted to avoid double counting.

The top nineteen (19) drawing events which occurred on Saturdays were selected to represent the sample of event days. Days which experienced abnormally high guest counts (e.g. Valentine's Day and holidays) were excluded from the sampling. For each day included in the sample, daily guest counts from the automatic counters were used to calculate an average total daily guest count on event days. Of the nineteen samples, the average number of attendees at events was 723 (which roughly equates to sell-out at Club 88). This count was compared to the average guest count of a sampling of the most recent Saturdays when there was not an event at Club 88. It was assumed that if people attending Club 88 events did not participate in gaming activities during their same visit, the increase in the daily guest count on event days would be equal to the

average attendance at the Club 88 events considered. However, the actual difference in person counts on event days verses non-event days was 381. This indicates that a large percentage of the patrons are both attending the event and gaming. The difference, which amounts to 47%, represents the proportion of guests who attended the event and participated in gaming activities. The remaining 53% represent new trips to only the event center and which would not be expected to participate in gaming during their visit.

As stated in the Abrams Associates[23] report, vehicle occupancy of 2.6 passengers per vehicle was assumed based on surveys of event patrons of CCCR. Based on feedback received from CCCR staff, it was agreed that this vehicle occupancy ratio is appropriate and reliable for the casino. It was conservatively assumed that of the remaining 53% trips for the event center, 40% of the patrons would arrive in the PM peak hour before the event would start, leaving 13% of the patrons to arrive after the PM peak hour just prior the start of the event.

It is noted that the existing casino has a back-of-house area that is undersized for the current CCCR operations. Thus, the Proposed Project includes a large expansion of the back-of-house facilities (that initially may appear to be disproportionately large in relation to the expansion of the casino floor area) to resize the back-of-house so that it is appropriately sized for the entire CCCR.

Sometimes developments also attract trips that are already on the road that stop as they pass by the site. These are not new vehicle trips but are considered to be pass-by trips. Although some trips to the site will be pass-by trips, no empirical data was readily available to determine a reasonable pass-by rate. Therefore, pass-by trips are conservatively not assumed in the analysis.

Furthermore, development projects also attract diverted link trips. These are also trips that are already on the road but change their route to access to the site. These trips originate from adjacent freeways, highways, or local streets. Although some trips to the Proposed Project site will be diverted link trips, no empirical data was readily available to determine a reasonable rate. Therefore, diverted link trips are conservatively not assumed in the analysis.

It is recognized that some incidental trips may occur in relation to the Proposed Project such as wine tasting tours and other nearby attractions; however, because of the nature of the casino trip generation rate assumptions, these incidental trips are accounted for in the trip generation calculations.

Trip generation for the casino expansion was calculated based on the previous discussions and is reported in **Table A2**. Additional trip generation calculations are contained in the **Appendix**. As seen in the table Alternative A is expected to generate

[23] *Cache Creek Destination Resort Project Traffic Impact Study*, Abrams Associates, April 2008.

138 new trips in the Friday PM peak hour and 196 new trips in the Saturday PM peak hour.

Table A 2 – Alternative A Project Trip Generation

LAND USE	Trips					
	Friday PM Peak Hour			Saturday PM Peak Hour		
	Entering	Exiting	Total	Entering	Exiting	Total
Casino Gaming Floor Area 20,497 s.f.	72	66	138	111	85	196
Net New Vehicle Trips	72	66	138	111	85	196

Project Trip Distribution and Assignment

In preparation of the traffic distribution, Kimley-Horn reviewed the project's use in proximity to the surrounding population centers. Because of the nature of the project, customers and employees are expected to travel from nearby locations and beyond. Much of the trips are expected to travel to/from I-505 and I-5. The location of the San Francisco Bay Area population in relation to the project site, as well as peak hour turning movement volumes at the study intersections, the likely customer and employee base for the site, major connections to highways, and potential access limitations, were evaluated in order to estimate the likely distribution of project traffic.

Trip generation and distribution for the project includes a mixture of passenger cars, trucks, and RVs and was evaluated based on the assumption that five percent[24] of the vehicles on roads accessing the site would be trucks or RVs. The trip distribution for each alternative is discussed further in the Proposed Project and RIA sections.

Based on the factors discussed above it was determined that approximately 31% of the project traffic would be distributed to destinations north of the site, with the remaining 69% distributed south of the site. To be conservative, only a nominal percentage of project traffic was assumed to be generated or attracted in the immediate vicinity of the project site. The project traffic distribution is shown in **Figure A2. Figure A3** illustrates project off-reservation traffic assigned to the study intersections based on the assumed trip distribution.

[24] Caltrans Traffic and Vehicle Data System, http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/, 2008 Truck Traffic reports 7.8% heavy vehicles with 3+ axles. For the peak hours evaluated, 5% heavy vehicles were assumed because the percentage of heavy vehicles is typically less during the peak hours.

Near-Term Plus Alternative A Off-Reservation Traffic Volumes

Near-Term 2013 off-reservation traffic volumes were combined with vehicle trips expected to be generated by Alternative A (assuming there is no performance at the event center). **Figure A4** illustrates the Near-Term + Alternative A off-reservation turning movement volumes at the study intersections. **Figure A5** illustrates the Near-Term + Alternative A two-way roadway segment off-reservation traffic volumes.

Long-Term Plus Alternative A Off-Reservation Traffic Volumes

Long-Term 2030 off-reservation traffic volumes were combined with vehicle trips expected to be generated by Alternative A (assuming there is no performance at the event center). **Figure A6** illustrates the Long-Term + Alternative A off-reservation turning movement volumes at the study intersections. **Figure A7** illustrates the Long-Term + Alternative A two-way roadway segment off-reservation traffic volumes.

Alternative A Off-Reservation LOS Conditions and Impacts at Intersections

Off-reservation traffic operations were evaluated under the following development conditions:

- Near-Term conditions plus Alternative A (year 2013)
- Long-Term conditions plus Alternative A (year 2030)

Results of the analysis are presented in **Table A3**. (Results shown as bold in the table do not meet operational standards and significant project impacts are highlighted.) The method of intersection control is listed as Signal for signalized intersections, AWSC for all-way stop-controlled intersections and TWSC for two-way stop-controlled intersections. Two-way stop-controlled (TWSC) intersections may operate acceptably overall but only the worst approach is reported in the table. The overall level of service is reported for signalized and all-way stop-controlled intersections. Additional detail is provided in the **Appendix**. As shown in the results, the following off-reservation intersections and approaches will fail to meet acceptable level of service thresholds based on established significance criteria and with the addition of project-related traffic create a potentially significant impact. Significant congestion is expected with the project principally in the side street approaches that have difficulty in turning into or crossing the heavy traffic stream traveling along SR-16.

2013 Results

- #3 – SR-16/South Casino Entrance (Saturday PM peak only) – not an impact because the unacceptable LOS occurs on-reservation
- #14 – SR-16/CR-89

2030 Results

- #3 – SR-16/South Casino Entrance (Saturday PM peak only) – not an impact because the unacceptable LOS occurs on-reservation
- #5 – SR-16/CR-85B
- #10 – SR-16/CR-21A (Saturday PM peak only)
- #14 – SR-16/CR-89
- #15 – SR-16/I-505 SB Ramps
- #16 – SR-16/I-505 NB Ramps
- #17 – SR-16/Wildwing Drive
- #18 – SR-16/CR-94B
- #19 – SR-16/CR-95
- #20 – SR-16/CR-98 (Friday PM peak only)

Alternative A Traffic Signal Warrant Analysis

Alternative A, Near-Term and Long-Term, off-reservation traffic volumes at unsignalized study intersections were compared against the peak hour warrant in the *2006 California Manual on Uniform Traffic Control Devices (MUTCD)*.

Results of the analysis showed that the following off-reservation intersections will satisfy traffic signal Warrant #3 by year 2013 and 2030.

- #3 – SR-16/South Casino Entrance (2013 and 2030)
- #4 – SR-16/CR-85 (2030)
- #5 – SR-16/CR-85B (2013 and 2030)
- #6 – SR-16/Woodland Avenue (2013 and 2030)
- #9 – SR-16/Plainfield Street (2030)
- #10 – SR-16/CR-21A (2013 and 2030)
- #15 – SR-16/I-505 SB Ramps (2030)
- #17 – SR-16/Wildwing Drive (2030)
- #19 – SR-16/CR-95 (2030)

Other warrants such as for minimum vehicle volumes, interruption of continuous traffic, and traffic progression were not evaluated because they generally require higher traffic volumes to be satisfied. A copy of the analysis summary for Warrant #3 is included in the **Appendix**.

Table A 3 – Alternative A Intersection Level of Service Summary

	Intersection	Intersection Control	Criteria	Near-Term (2013)				Near-Term + Alt A				Long-Term (2030)				Long-Term + Alt A			
				Friday PM Peak		Saturday PM Peak		Friday PM Peak		Saturday PM Peak		Friday PM Peak		Saturday PM Peak		Friday PM Peak		Saturday PM Peak	
				LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1	SR-16/ North Casino Entrance	Signal	D	A	9.1	A	9.2	A	9.3	A	9.6	B	10.3	A	9.8	B	10.3	A	10.0
2	SR-16/ Central Casino Entrance	Uncontrolled	D	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0
3	SR-16/ South Casino Entrance[3]	TWSC	D	C	15.6	D	25.5	C	18.3	**E**	**40.3**	C	22.4	**E**	**42.9**	D	27.8	**F**	**84.9**
4	SR-16/ County Road 85	TWSC	D	C	18.7	B	13.0	C	20.7	B	14.4	D	26.1	C	16.6	D	32.6	C	19.6
5	SR-16/ County Road 85B	TWSC	D	C	16.4	C	15.6	C	23.3	C	23.8	**F**	**52.1**	**E**	**42.8**	**F**	**94.9**	**F**	**99.1**
6	SR-16/ Woodland Avenue	AWSC	E	A	4.7	A	6.0	A	5.2	A	7.1	A	5.4	A	9.4	A	7.7	A	9.1
7	SR-16/ Capay Street	TWSC	E	B	14.9	C	16.4	C	16.2	C	18.4	C	21.2	C	21.1	C	23.7	C	24.2
8	SR-16/ Madison Street	TWSC	E	B	13.7	B	12.6	B	14.8	B	14.4	C	15.3	C	17.8	C	16.6	C	20.0
9	SR-16/ Plainfield Street	TWSC	E	C	18.1	C	22.8	C	20.3	D	27.1	D	25.8	D	30.8	D	30.1	E	37.8
10	SR-16/ County Road 21A	AWSC	D	B	12.1	B	13.0	B	13.6	C	15.1	C	19.1	D	28.8	C	23.7	**E**	**42.0**
11	County Road 85B/ County Road 21A	TWSC	C	A	9.3	A	9.2	A	9.4	A	9.3	B	10.4	B	10.5	B	10.6	B	10.8
12	Country Villa Estates/ County Road 21A	TWSC	C	A	9.8	A	9.9	A	10.0	B	10.1	B	11.6	B	12.5	B	11.8	B	12.9
13	Fremont Street/ County Road 21A	TWSC	C	B	10.5	B	10.4	B	10.7	B	10.8	B	12.4	B	12.8	B	12.7	B	13.3
14	SR-16/ County Road 89	AWSC[1]	D	**E**	**42.9**	**F**	**67.8**	**F**	**65.0**	**F**	**110.7**	**E**	**56.4**	**F**	**134.6**	**E**	**59.0**	**F**	**139.9**
15	SR-16/ I-505 SB Ramps	TWSC	D	B	13.2	C	15.7	B	14.0	C	17.0	**F**	**246.0**	**F**	**344.3**	**F**	**312.6**	**F**	**460.7**
16	SR-16/ I-505 NB Ramps	Signal	D	A	9.8	B	11.2	B	10.5	B	12.1	**F**	**115.8**	**F**	**146.7**	**F**	**131.6**	**F**	**168.5**
17	SR-16/ Wildwing Drive	TWSC	D	C	16.0	B	14.2	C	16.8	C	15.1	**F**	**80.2**	**E**	**41.2**	**F**	**91.0**	**E**	**47.2**
18	SR-16/ County Road 94B	TWSC	D	C	18.4	C	15.8	C	19.3	C	16.8	**F**	**162.6**	**F**	**51.5**	**F**	**192.4**	**F**	**58.6**
19	SR-16/ County Road 95	TWSC	D	C	20.5	C	15.9	C	21.6	C	16.8	**F**	**99.4**	**F**	**65.7**	**F**	**120.1**	**F**	**80.8**
20	SR-16/ County Road 98	Signal	D	C	26.2	C	24.7	C	26.5	C	25.0	D	53.4	C	32.8	**E**	**55.0**	C	33.5
21	SR-16/ W. Kentucky Avenue	AWSC[2]	D	B	17.7	B	17.4	B	17.7	B	17.4	C	20.7	C	28.0	C	20.8	C	27.7

Note: Locations operating unacceptably are bolded and significant project impacts are highlighted.

[1]Signalized in the Long-Term (2030)

[2]Signalized in the Near-Term (2013)

[3] Increased delay occurs on reservation land and therefore does not represent a potentially significant off-reservation impact

Alternative A Off-Reservation LOS Conditions and Impacts on Roadway Segments

Project trips generated by the Proposed Project were added to the year 2013 and 2030 forecast off-reservation roadway segment volumes.

Traffic analyses were completed to evaluate the operation of the study roadway segments in the year 2013 and 2030, with the addition of the project.

Results of the analyses are presented in **Tables A4 and A5**. (Results shown as bold in the table do not meet operational standards and potentially significant project impacts are highlighted.)

As shown in the table, project traffic will add to the background congestion on the off-reservation roadway segments. In the Near-Term condition, the off-reservation segment of SR-16 between Cache Creek Casino and CR-85 will operate unacceptably with the addition of the project.

In the Long-Term condition, the following off-reservation segments operate at unacceptable levels of service with the addition of the project.

- SR-16 between CCCR and CR-85
- SR-16 between the Esparto Town Limits and CR-89
- SR-16 between CR-89 and I-505
- SR-16 between I-505 and CR-98

Table A 4 – Alternative A Near-Term Roadway Segment Level of Service Summary

Roadway Segment	Highway Class	Criteria	Near-Term (2013)						Near-Term + Alt A					
			Friday PM Peak			Saturday PM Peak			Friday PM Peak			Saturday PM Peak		
		LOS	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)
SR-16 between Cache Creek Casino and CR-85	I	D	D	74.6	40.5	D	75.0	40.4	**E**	**76.9**	**39.8**	**E**	**78.4**	**39.3**
SR-16 between CR-85 and Esparto Town Limits	II	D	D	75.0	-	D	75.0	-	D	77.3	-	D	78.1	-
SR-16 through the Town of Esparto	II	E	C	67.1	-	D	71.9	-	C	69.9	-	D	74.8	-
SR-16 between Esparto Town limits and CR-89	I	D	D	74.8	41.7	D	77.5	40.9	D	77.1	41.0	D	80.6	39.7
SR-16 between CR-89 and I-505	I	D	D	73.4	41.9	D	76.6	41.0	D	75.9	41.2	D	79.6	39.9
SR-16 between I-505 and CR-98	I	D	D	71.2	41.2	D	64.6	42.7	D	72.3	40.9	D	66.5	42.3
County Road 21A between CR-85B and SR-16	II	C	B	40.4	-	A	38.9	-	B	42.6	-	B	42.2	-
County Road 85B between SR-16 and CR-21A	II	C	B	48.5	-	B	47.3	-	B	50.8	-	B	51.2	-

Note: Locations operating unacceptably are bolded and significant project impacts are highlighted.

Table A 5 – Alternative A Long-Term Roadway Segment Level of Service Summary

Roadway Segment	Highway Class	Criteria	Long-Term (2030)						Long-Term + Alt A					
			Friday PM Peak			Saturday PM Peak			Friday PM Peak			Saturday PM Peak		
		LOS	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)
SR-16 between Cache Creek Casino and CR-85	I	D	**E**	**79.7**	38.7	**E**	**79.1**	39.0	**E**	**82.1**	**37.7**	**E**	**82.5**	**37.5**
SR-16 between CR-85 and Esparto Town Limits	II	D	D	80.7	-	D	78.1	-	D	83.0	-	D	81.5	-
SR-16 through the Town of Esparto	II	E	D	72.2	-	D	77.6	-	D	74.2	-	D	79.8	-
SR-16 between Esparto Town limits and CR-89	I	D	**E**	**87.4**	36.0	**E**	**90.9**	33.1	**E**	**88.7**	**35.1**	**E**	**92.0**	**31.8**
SR-16 between CR-89 and I-505	I	D	**E**	**93.5**	30.1	**F**	**96.4**	26.0	**F**	**94.4**	**29.1**	**F**	**97.1**	**24.8**
SR-16 between I-505 and CR-98	I	D	**E**	**84.5**	36.1	**E**	**79.6**	38.5	**E**	**85.1**	**35.8**	**E**	**80.8**	**38.0**
County Road 21A between CR-85B and SR-16	II	C	B	52.4	-	B	53.3	-	B	53.7	-	B	54.9	-
County Road 85B between SR-16 and CR-21A	II	C	C	62.0	-	C	62.5	-	C	62.7	-	C	63.5	-

Note: Locations operating unacceptably are bolded and significant project impacts are highlighted.

Alternative A Mitigations

The evaluation disclosed that the following off-reservation intersection and roadway segment improvements as shown in **Table A6** are needed in the Near-Term (2013) and Long-Term (2030) to mitigate project impacts and are described below.

Off-Reservation Intersections

Off-reservation intersections with levels of service below established thresholds were investigated to determine the role of the Alternative A traffic in the projected operating conditions at those intersections.

Impact #1 – Near-Term: SR-16/CR-89 – Intersection #14

The SR-16/CR-89 intersection will operate at LOS E and LOS F during the Friday PM and Saturday PM peak hours under the Near-Term traffic condition without Alternative A and will experience an increase in delay due to the Proposed Project. Since the project traffic results in an increase in delay at an intersection which operates at unacceptable service levels without Alternative A, this is a potentially significant impact. A signal is not warranted at this intersection in the Near-Term + Alternative A condition when this impact occurs.

Mitigation #1

To mitigate the Proposed Project impacts expected to occur in the Near-Term, eastbound and westbound left turn lanes should be added at this intersection and the eastbound and westbound approaches should be widened to two lanes in each direction as is planned by 2030 as part of Caltrans' SIP. Because the project does not trigger the impact but adds to the unacceptable operation, the project would be responsible for a proportionate share of the mitigation costs. Modifying the intersection under this proposed mitigation will reduce the impact to less than significant and improve the intersection to operate at acceptable LOS C during the Friday PM and Saturday PM peak hours (see **Table A7**).

Impact #2 – Long-Term: SR-16/CR-85B – Intersection #5

The SR-16/CR-85B intersection will operate at LOS F and LOS E on the side street during the Friday PM and Saturday PM peak hours under the Long-Term traffic condition without Alternative A and will experience an increase in delay due to the Proposed Project and the intersection will further degrade to LOS F during the Saturday PM peak hour with the addition of the Proposed Project. Since the project traffic results in an increase in delay at an intersection which operates at unacceptable service levels without Alternative A, this is a potentially significant impact. A signal warrant is met at this intersection in the Existing condition as well as in the Long-Term + Alternative A condition when this impact occurs.

Mitigation #2

To mitigate the Proposed Project impacts expected to occur in the Long-Term, the intersection should be signalized. Because the project does not trigger the

impact but adds to the unacceptable operation, the project would be responsible for a proportionate share of the mitigation costs if and when the impact occurs. Modifying the intersection as proposed in this mitigation will reduce the impact to less than significant and improve the intersection to operate at acceptable LOS C and LOS B during the Friday PM and Saturday PM peak hours (see **Table A8**).

Impact #3 – Long-Term: SR-16/CR-21A – Intersection #10

The SR-16/CR-85B intersection will operate at acceptable LOS D during the Saturday PM peak hour under the Long-Term traffic condition without Alternative A. The intersection will degrade to LOS E with the addition of the Proposed Project. Since the project traffic results in an unacceptable level of service at an intersection, this is a potentially significant impact. A signal warrant is met at this intersection in the Existing condition as well as in the Long-Term + Alternative A condition when this impact occurs.

Mitigation #3

To mitigate the Proposed Project impacts expected to occur in the Long-Term, the intersection should be signalized. The project's percentage of the mitigation costs will be determined in consultation with Caltrans. Modifying the intersection as proposed in this mitigation will reduce the impact to less than significant and improve the intersection to operate at acceptable LOS C during the Saturday PM peak hour (see **Table A8**).

Impact #4 – Long-Term: SR-16/CR-89 – Intersection #14

The SR-16/CR-89 intersection will operate at LOS E and LOS F during the Friday PM and Saturday PM peak hours under the Long-Term traffic condition without Alternative A and will experience an increase in delay due to the Proposed Project. Since the project traffic results in an increase in delay at an intersection which operates at unacceptable service levels without Alternative A, this is a potentially significant impact.

Mitigation #4

To mitigate the Proposed Project impacts expected to occur in the Long-Term, an exclusive eastbound right turn lane should be added, the eastbound through-shared-right lane should be restriped to a through lane, and an eastbound right turn overlap phase should be added at this intersection. (These improvements would be in addition/modification of the planned Caltrans SIP improvements.) Because the project does not trigger the impact but adds to the unacceptable operation, the project would be responsible for a proportionate share of the mitigation costs if and when the impact occurs. Modifying the intersection as proposed in this mitigation will reduce the impact to less than significant and improve the intersection to operate at acceptable LOS C during the Friday PM peak hour and better than Long-Term (No Action Alternative) LOS E during the Saturday PM peak hour (see **Table A8**).

Impact #5 – Long-Term: SR-16/I-505 SB Ramps – Intersection #15
The SR-16/I-505 SB Ramps intersection will operate at LOS F on the side street during the Friday PM and Saturday PM peak hours under the Long-Term traffic condition without Alternative A and will experience an increase in delay due to the project. Since the Proposed Project traffic results in an increase in delay at an intersection which operates at unacceptable service levels without Alternative A, this is a potentially significant impact. A signal is warranted in the Long-Term (No Action Alternative) condition as well as the Long-Term + Alternative A condition when this impact occurs.

Mitigation #5
To mitigate the Proposed Project impacts expected to occur in the Long-Term, SR-16 should be widened to two lanes in each direction between the I-505 NB Ramps and Tutt Street west of CR-89. Because the project does not trigger the impact but adds to the unacceptable operation, the project would be responsible for a proportionate share of the mitigation costs when the impact occurs. Modifying the intersection as proposed in this mitigation will reduce the impact to less than significant and improve the intersection to operate at better than Long-Term (No Action Alternative) LOS F on the side street during the Friday PM and Saturday PM peak hours (see **Table A8**).

Impact #6 – Long-Term: SR-16/I-505 NB Ramps – Intersection #16
The SR-16/I-505 NB Ramps intersection will operate at LOS F during the Friday PM and Saturday PM peak hours under the Long-Term traffic condition without Alternative A and will experience an increase in delay due to the Proposed Project. Since the project traffic results in an increase in delay at an intersection which operates at unacceptable service levels without Alternative A, this is a potentially significant impact.

Mitigation #6
To mitigate the Proposed Project impacts expected to occur in the Long-Term, a second northbound left turn lane should be added at this intersection. Because the project does not trigger the impact but adds to the unacceptable operation, the project would be responsible for a proportionate share of the mitigation costs if and when the impact occurs. Modifying the intersection as proposed in this mitigation will reduce the impact to less than significant and improve the intersection to operate at LOS D during the Friday PM and Saturday PM peak hours (see **Table A8**).

Impact #7 – Long-Term: SR-16/Wildwing Drive – Intersection #17
The SR-16/Wildwing Drive intersection will operate at LOS F and LOS E on the side street during the Friday PM and Saturday PM peak hours under the Long-Term traffic condition without Alternative A and will experience an increase in delay due to the Proposed Project. Since the project traffic results in an increase in delay at an intersection which operates at unacceptable service levels without Alternative A, this is a potentially significant impact. A signal is warranted in the Long-Term (No Action

Alternative) condition as well as the Long-Term + Alternative A condition when this impact occurs.

Mitigation #7
To mitigate the Proposed Project impacts expected to occur in the Long-Term, the intersection should be signalized. Because the project does not trigger the impact but adds to the unacceptable operation, the project would be responsible for a proportionate share of the mitigation costs if and when the impact occurs. Modifying the intersection as proposed in this mitigation will reduce the impact to less than significant and improve the intersection to operate at LOS B during the Friday PM and Saturday PM peak hours (see **Table A8**).

Impact #8 – Long-Term: SR-16/CR-94B – Intersection #18
The SR-16/CR-94B intersection will operate at LOS F on the side street during the Friday PM and Saturday PM peak hours under the Long-Term traffic condition without Alternative A and will experience an increase in delay due to the Proposed Project. Since the project traffic results in an increase in delay at an intersection which operates at unacceptable service levels without Alternative A, this is a potentially significant impact. A signal is not warranted under the Long-Term + Alternative A condition when this impact occurs.

Mitigation #8
To mitigate the Proposed Project impacts expected to occur in the Long-Term, the northbound and southbound approaches should be restriped to a left and a through-shared-right lane at this intersection. Because the project does not trigger the impact but adds to the unacceptable operation, the project would be responsible for a proportionate share of the mitigation costs if and when the impact occurs. Modifying the intersection as proposed in this mitigation will reduce the impact to less than significant and improve the intersection to operate at better than Long-Term (No Action Alternative) LOS F on the side street during the Friday PM and Saturday PM peak hours (see **Table A8**).

Impact #9 – Long-Term: SR-16/CR-95 – Intersection #19
The SR-16/CR-95 intersection will operate at LOS F on the side street during the Friday PM and Saturday PM peak hours under the Long-Term traffic condition without Alternative A and will experience an increase in delay due to the Proposed Project. Since the project traffic results in an increase in delay at an intersection which operates at unacceptable service levels without Alternative A, this is a potentially significant impact. A signal is warranted under the Long-Term (No Action Alternative) condition as well as the Long-Term + Alternative A condition when this impact occurs.

Mitigation #9
To mitigate the Proposed Project impacts expected to occur in the Long-Term, the northbound approach should be restriped to a left and a through-shared-right lane at this intersection. Because the project does not trigger the impact but

adds to the unacceptable operation, the project would be responsible for a proportionate share of the mitigation costs when the impact occurs. Modifying the intersection as proposed in this mitigation will reduce the impact to less than significant and improve the intersection to operate at better than Long-Term (No Action Alternative) LOS F on the side street during the Friday PM and Saturday PM peak hours (see **Table A8**).

Impact #10 – Long-Term: SR-16/CR-98 – Intersection #20
The SR-16/CR-98 intersection will operate at acceptable LOS D during the Friday PM peak hour under the Long-Term traffic condition without Alternative A and will degrade to LOS E with the addition of the Proposed Project. Since the project traffic results in an unacceptable level of service at an intersection, this is a potentially significant impact.

Mitigation #10

To mitigate the Proposed Project impacts expected to occur in the Long-Term, the westbound right turn lane should be restriped to a through-shared-right lane at this intersection and the north side of SR-16 should be widened to two lanes west of CR-98. The impact is triggered by the Proposed Project. The project's percentage of the mitigation costs will be determined in consultation with Caltrans. Modifying the intersection as proposed in this mitigation will reduce the impact to less than significant and improve the intersection to operate at LOS D during the Friday PM peak hour (see **Table A8**).

Tables A7 and A8 summarize the expected intersection levels of service with the proposed mitigation in the Near-Term + Alternative A and Long-Term + Alternative A conditions, respectively.

As mentioned previously, the method of intersection control is listed as Signal for signalized intersections, AWSC for all-way stop-controlled intersections and TWSC for two-way stop-controlled intersections. Two-way stop-controlled (TWSC) intersections may operate acceptably overall but only the worst approach is reported in the table. The overall level of service is reported for signalized and AWSC intersections. **Figures A8 and A9** illustrate the recommended mitigated off-reservation lane geometry and traffic control in the Near-Term + Alternative A and Long-Term + Alternative A conditions. Modification to any interchanges requires review and approval from Caltrans' Department Headquarters Division of Design.

Off-Reservation Roadway Segments

Off-reservation roadway segments with levels of service below established thresholds were investigated to determine the role of the Alternative A traffic in the projected operating conditions at those roadway segments.

Impact #11 – Near-Term: SR-16 between CCCR and CR-85

The roadway segment of SR-16 between the CCCR and CR-85 will operate at acceptable LOS D during the Friday PM and Saturday PM peak hours under the Near-Term traffic condition without Alternative A and will degrade to LOS E with the addition of the Proposed Project. Since the project traffic results in an unacceptable level of service on this roadway segment, this is a potentially significant impact.

Mitigation #11

To mitigate the Proposed Project impacts expected to occur in the Near-Term, a slow vehicle turnout should be installed in each direction on SR-16 between CCCR and CR-85. The project's percentage of the mitigation costs will be determined in consultation with Caltrans. Modifying the roadway segment as proposed in this mitigation will reduce the impact to less than significant and improve the roadway segment to operate at better than the No Action Alternative conditions during the Friday PM and Saturday PM peak hours (see **Table A9**).

Table A 6 – Alternative A Summary of Mitigations

Mitigation #	Location	Impacted Scenario	Jurisdiction	Mitigation	Fair Share
1	#14 - SR-16/CR 89	Near-Term (2013) + Alternative A	Caltrans	Eastbound and westbound left turn lanes should be added at this intersection and the eastbound and westbound approaches on SR-16 should be widened to two lanes in each direction as is planned by 2030 as part of Caltrans' SIP.	7%
2	#5 - SR-16/CR 85B	Long-Term (2030) + Alternative A	Caltrans	The intersection should be signalized.	45%
3	#10 - SR-16/CR 21A	Long-Term (2030) + Alternative A	Caltrans	The intersection should be signalized.	TBD in consultation w/ Caltrans
4	#14 - SR-16/CR 89	Long-Term (2030) + Alternative A	Caltrans	An exclusive eastbound right turn lane should be added, the eastbound through-shared-right lane should be restriped to a through lane, and an eastbound right turn overlap phase should be added.(These improvements would be in addition/modification of the planned Caltrans SIP improvements.)	7%
5	#15 - SR-16/ I-505 SB Ramps	Long-Term (2030) + Alternative A	Caltrans	SR-16 should be widened to two lanes in each direction between the I-505 NB Ramps and Tutt Street west of CR 89.	7%
6	#16 - SR-16/ I-505 NB Ramps	Long-Term (2030) + Alternative A	Caltrans	A second northbound left turn lane should be added.	7%
7	#17 - SR-16/ Wildwing Drive	Long-Term (2030) + Alternative A	Caltrans	The intersection should be signalized.	7%
8	#18 - SR-16/CR 94B	Long-Term (2030) + Alternative A	Caltrans	The northbound and southbound approaches should be restriped to a left and a through-shared-right lane.	7%
9	#19 - SR-16/CR 95	Long-Term (2030) + Alternative A	Caltrans	The northbound approach should be restriped to a left and a through-shared-right lane.	8%
10	#20 - SR-16/CR 98	Long-Term (2030) + Alternative A	Caltrans	The westbound right turn lane should be restriped to a through-shared-right lane and the north side of SR-16 should be widened to two lanes west of CR 98.	TBD in consultation w/ Caltrans
11	SR-16 between Cache Creek Casino and CR 85	Near-Term (2013) + Alternative A	Caltrans	Add a slow vehicle turnout in each direction.	TBD in consultation w/ Caltrans
12	SR-16 between Cache Creek Casino and CR 85	Long-Term (2030) + Alternative A	Caltrans	Add a slow vehicle turnout in each direction. (This is the same as Mitigation 11.)	TBD in consultation w/ Caltrans
13	SR-16 between Esparto Town limits and CR 89	Long-Term (2030) + Alternative A	Caltrans	SR-16 should be widened to two lanes in each direction between the I-505 NB Ramps and Tutt Street west of CR 89.	TBD in consultation w/ Caltrans
14	SR-16 between CR 89 and I-505	Long-Term (2030) + Alternative A	Caltrans	SR-16 should be widened to two lanes in each direction between the I-505 NB Ramps and Tutt Street west of CR 89. (This is the same as Mitigation 13.)	TBD in consultation w/ Caltrans
15	SR-16 between I-505 and CR 98	Long-Term (2030) + Alternative A	Caltrans	SR-16 should be widened to two lanes in each direction between approximately from one mile east of I-505 to the I-505 NB Ramps.	TBD in consultation w/ Caltrans

Table A 7 – Near-Term + Alternative A Mitigated Intersection Level of Service Summary

	Intersection	Intersection Control	Criteria	Near-Term (2013)				Near-Term + Alt A				Near-Term + Alt A (Mitigated)			
				Friday PM Peak		Saturday PM Peak		Friday PM Peak		Saturday PM Peak		Friday PM Peak		Saturday PM Peak	
				LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1	SR-16/ North Casino Entrance	Signal	D	A	9.1	A	9.2	A	9.3	A	9.6	A	9.3	A	9.6
2	SR-16/ Central Casino Entrance	Uncontrolled	D	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0
3	SR-16/ South Casino Entrance[1]	TWSC	D	C	15.6	D	25.5	C	18.3	**E**	**40.3**	C	18.3	**E**	**40.3**
4	SR-16/ County Road 85	TWSC	D	C	18.7	B	13.0	C	20.7	B	14.4	C	20.7	B	14.4
5	SR-16/ County Road 85B	TWSC	D	C	16.4	C	15.6	C	23.3	C	23.8	C	23.3	C	23.8
6	SR-16/ Woodland Avenue	AWSC	E	A	4.7	A	6.0	A	5.2	A	7.1	A	5.2	A	7.1
7	SR-16/ Capay Street	TWSC	E	B	14.9	C	16.4	C	16.2	C	18.4	C	16.2	C	18.4
8	SR-16/ Madison Street	TWSC	E	B	13.7	B	12.6	B	14.8	B	14.4	B	14.8	B	14.4
9	SR-16/ Plainfield Street	TWSC	E	C	18.1	C	22.8	C	20.3	D	27.1	C	20.3	D	27.1
10	SR-16/ County Road 21A	AWSC	D	B	12.1	B	13.0	B	13.6	C	15.1	B	13.6	C	15.1
11	County Road 85B/ County Road 21A	TWSC	C	A	9.3	A	9.2	A	9.4	A	9.3	A	9.4	A	9.3
12	Country Villa Estates/ County Road 21A	TWSC	C	A	9.8	A	9.9	A	10.0	B	10.1	A	10.0	B	10.1
13	Fremont Street/ County Road 21A	TWSC	C	B	10.5	B	10.4	B	10.7	B	10.8	B	10.7	B	10.8
14	SR-16/ County Road 89	AWSC	D	**E**	**42.9**	**F**	**67.8**	**F**	**65.0**	**F**	**110.7**	C	15.8	C	20.6
15	SR-16/ I-505 SB Ramps	TWSC	D	B	13.2	C	15.7	B	14.0	C	17.0	B	14.0	C	17.0
16	SR-16/ I-505 NB Ramps	Signal	D	A	9.8	B	11.2	B	10.5	B	12.1	B	10.5	B	12.1
17	SR-16/ Wildwing Drive	TWSC	D	C	16.0	B	14.2	C	16.8	C	15.1	C	16.8	C	15.1
18	SR-16/ County Road 94B	TWSC	D	C	18.4	C	15.8	C	19.3	C	16.8	C	19.3	C	16.8
19	SR-16/ County Road 95	TWSC	D	C	20.5	C	15.9	C	21.6	C	16.8	C	21.6	C	16.8
20	SR-16/ County Road 98	Signal	D	C	26.2	C	24.7	C	26.5	C	25.0	C	26.5	C	25.0
21	SR-16/ W. Kentucky Avenue	Signal	D	B	17.7	B	17.4	B	17.7	B	17.4	B	17.7	B	17.4

Note: Locations operating unacceptably are bolded and significant project impacts are highlighted.

[1] Increased delay occurs on reservation land and therefore does not represent a potentially significant off-reservation impact

Table A 8 – Long-Term + Alternative A Mitigated Intersection Level of Service Summary

	Intersection	Intersection Control	Criteria	Long-Term (2030)				Long-Term + Alt A				Long-Term + Alt A (Mitigated)			
				Friday PM Peak		Saturday PM Peak		Friday PM Peak		Saturday PM Peak		Friday PM Peak		Saturday PM Peak	
				LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1	SR-16/ North Casino Entrance	Signal	D	B	10.3	A	9.8	B	10.3	A	10.0	B	10.3	A	10.0
2	SR-16/ Central Casino Entrance	Uncontrolled	D	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0
3	SR-16/ South Casino Entrance[1]	TWSC	D	C	22.4	**E**	**42.9**	D	27.8	**F**	**84.9**	D	27.8	**F**	**84.9**
4	SR-16/ County Road 85	TWSC	D	D	26.1	C	16.6	D	32.6	C	19.6	D	32.6	C	19.6
5	SR-16/ County Road 85B	TWSC	D	**F**	**52.1**	**E**	**42.8**	**F**	**94.9**	**F**	**99.1**	C	27.3	B	15.2
6	SR-16/ Woodland Avenue	AWSC	E	A	5.4	A	9.4	A	7.7	A	9.1	A	7.7	A	9.1
7	SR-16/ Capay Street	TWSC	E	C	21.2	C	21.1	C	23.7	C	24.2	C	23.7	C	24.2
8	SR-16/ Madison Street	TWSC	E	C	15.3	C	17.8	C	16.6	C	20.0	C	16.6	C	20.0
9	SR-16/ Plainfield Street	TWSC	E	D	25.8	D	30.8	D	30.1	E	37.8	D	30.1	E	37.8
10	SR-16/ County Road 21A	AWSC	D	C	19.1	D	28.8	C	23.7	**E**	**42.0**	B	19.0	C	20.3
11	County Road 85B/ County Road 21A	TWSC	C	B	10.4	B	10.5	B	10.6	B	10.8	B	10.6	B	10.8
12	Country Villa Estates/ County Road 21A	TWSC	C	B	11.6	B	12.5	B	11.8	B	12.9	B	11.8	B	12.9
13	Fremont Street/ County Road 21A	TWSC	C	B	12.4	B	12.8	B	12.7	B	13.3	B	12.7	B	13.3
14	SR-16/ County Road 89	Signal	D	**E**	**56.4**	**F**	**134.6**	**E**	**59.0**	**F**	**139.9**	C	31.6	**E**	**70.6**
15	SR-16/ I-505 SB Ramps	TWSC	D	**F**	**246.0**	**F**	**344.3**	**F**	**312.6**	**F**	**460.7**	**F**	**79.4**	**F**	**100.8**
16	SR-16/ I-505 NB Ramps	Signal	D	**F**	**115.8**	**F**	**146.7**	**F**	**131.6**	**F**	**168.5**	D	52.1	D	42.5
17	SR-16/ Wildwing Drive	TWSC	D	**F**	**80.2**	**E**	**41.2**	**F**	**91.0**	**E**	**47.2**	B	13.0	B	10.6
18	SR-16/ County Road 94B	TWSC	D	**F**	**162.6**	**F**	**51.5**	**F**	**192.4**	**F**	**58.6**	**F**	**90.0**	**F**	**51.3**
19	SR-16/ County Road 95	TWSC	D	**F**	**99.4**	**F**	**65.7**	**F**	**120.1**	**F**	**80.8**	**F**	**80.5**	**F**	**62.2**
20	SR-16/ County Road 98	Signal	D	D	53.4	C	32.8	**E**	**55.0**	C	33.5	D	49.0	C	31.9
21	SR-16/ W. Kentucky Avenue	Signal	D	C	20.7	C	28.0	C	20.8	C	27.7	C	20.8	C	27.7

Note: Locations operating unacceptably are bolded and significant project impacts are highlighted.

[1] Increased delay occurs on reservation land and therefore does not represent a potentially significant off-reservation impact

Impact #12 – Long-Term: SR-16 between CCCR and CR-85
The roadway segment of SR-16 between the CCCR and CR-85 will operate at LOS E during the Friday PM and Saturday PM peak hours under the Long-Term traffic condition without Alternative A and will experience an increase in the percent time spent following and a decrease in average travel speed with the addition of the Proposed Project. Since the project traffic results in an increase in percent time spent following on a roadway segment which operates at unacceptable service levels without Alternative A, this is a potentially significant impact.

Mitigation #12
Completion of Mitigation #11 (i.e., installation of a slow vehicle turnout in each direction on SR-16 in the Near-Term + Alternative A) will reduce the impact to less than significant in the Long-Term + Alternative A conditions. Modifying the roadway segment as proposed in this mitigation will reduce the impact to less than significant and improve the roadway segment to operate at better than the No Action Alternative conditions during the Friday PM and Saturday PM peak hours (see **Table A10**).

Impact #13 – Long-Term: SR-16 between Esparto Town limits and CR-89
The roadway segment of SR-16 between the Esparto Town limits and CR-89 will operate at LOS E during the Friday PM and Saturday PM peak hours under the Long-Term traffic condition without Alternative A and will experience an increase in the percent time spent following and a decrease in average travel speed with the addition of the Proposed Project. Since the project traffic results in an increase in percent time spent following on a roadway segment which operates at unacceptable service levels without Alternative A, this is a potentially significant impact.

Mitigation #13
Completion of Mitigation #5 (i.e., widening of SR-16 to four lanes between the I-505 NB Ramps and Tutt Street in the Long-Term + Alternative A) will reduce the impact to less than significant in the Long-Term + Alternative A conditions. Modifying the roadway segment as proposed in this mitigation will reduce the impact to less than significant and improve the roadway segment to operate at better than the No Action Alternative conditions during the Friday PM and Saturday PM peak hours (see **Table A10**).

Impact #14 – Long-Term: SR-16 between CR-89 and I-505
The roadway segment of SR-16 between CR-89 and I-505 will operate at LOS E and LOS F during the Friday PM and Saturday PM peak hours, respectively under the Long-Term traffic condition without Alternative A and will experience a degradation from LOS E to LOS F during the Friday PM peak, an increase in the percent time spent following, and a decrease in average travel speed with the addition of the Proposed Project. Since the project traffic results in an increase in percent time spent following on a

roadway segment which operates at unacceptable service levels without Alternative A, this is a potentially significant impact.

Mitigation #14
Completion of Mitigation #5 (i.e., widening of SR-16 to four lanes between the I-505 NB Ramps and Tutt Street in the Long-Term + Alternative A) will reduce the impact to less than significant in the Long-Term + Alternative A conditions. The four lane section will operate at LOS B in each direction during the Friday PM peak hour and LOS B and LOS C in each direction during the Saturday PM peak hour.

Impact #15 – Long-Term: SR-16 between I-505 and CR-98
The roadway segment of SR-16 between the I-505 and CR-98 will operate at LOS E during the Friday PM and Saturday PM peak hours under the Long-Term traffic condition without Alternative A and will experience an increase in the percent time spent following and a decrease in average travel speed with the addition of the Proposed Project. Since the project traffic results in an increase in percent time spent following on a roadway segment which operates at unacceptable service levels without Alternative A, this is a potentially significant impact.

Mitigation #15
To mitigate the Proposed Project impacts expected to occur in the Long-Term, a one mile passing lane should be installed in each direction on SR-16 between the I-505 NB Ramps to one mile east of I-505 if and when the impact occurs. The project's percentage of the mitigation costs will be determined in consultation with Caltrans. Modifying the roadway segment as proposed in this mitigation will reduce the impact to less than significant and improve the roadway segment to operate at better than the No Action Alternative conditions during the Friday PM and Saturday PM peak hours (see **Table A10**)

Tables A9 and A10 summarize the expected roadway segment levels of service with the proposed mitigation in the Near-Term + Alternative A and Long-Term + Alternative A conditions, respectively.

Table A 9 – Near-Term + Alternative A Mitigated Roadway Segment Level of Service Summary

Roadway Segment	Highway Class	Criteria	Near-Term + Alt A						Near-Term + Alt A (Mitigated)					
			Friday PM Peak			Saturday PM Peak			Friday PM Peak			Saturday PM Peak		
		LOS	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)
SR-16 between Cache Creek Casino and CR-85	I	D	**E**	**76.9**	**39.8**	**E**	**78.4**	**39.3**	*	*	*	*	*	*
SR-16 between CR-85 and Esparto Town Limits	II	D	D	77.3	-	D	78.1	-	D	77.3	-	D	78.1	-
SR-16 through the Town of Esparto	II	E	C	69.9	-	D	74.8	-	C	69.9	-	D	74.8	-
SR-16 between Esparto Town limits and CR-89	I	D	D	77.1	41.0	D	80.6	39.7	D	77.1	41.0	D	80.6	39.7
SR-16 between CR-89 and I-505	I	D	D	75.9	41.2	D	79.6	39.9	D	75.9	41.2	D	79.6	39.9
SR-16 between I-505 and CR-98	I	D	D	72.3	40.9	D	66.5	42.3	D	72.3	40.9	D	66.5	42.3
County Road 21A between CR-85B and SR-16	II	C	B	42.6	-	B	42.2	-	B	42.6	-	B	42.2	-
County Road 85B between SR-16 and CR-21A	II	C	B	50.8	-	B	51.2	-	B	50.8	-	B	51.2	-

Note: Locations operating unacceptably are bolded and significant project impacts are highlighted.
* Adding a slow vehicle turnout will improve the percent time spent following and the average travel speed and reduce the impact to a less-than-significant level.

Table A 10 – Long-Term + Alternative A Mitigated Roadway Segment Level of Service Summary

Roadway Segment	Direction	Highway Class	Criteria	Long-Term + Alt A						Long-Term + Alt A (Mitigated)					
				Friday PM Peak			Saturday PM Peak			Friday PM Peak			Saturday PM Peak		
			LOS	LOS	% Time Spent Following	Average Travel Speed	LOS	% Time Spent Following	Average Travel Speed	LOS	% Time Spent Following	Average Travel Speed	LOS	% Time Spent Following	Average Travel Speed
SR-16 between Cache Creek Casino and CR-85	Both	I	D	**E**	**82.1**	**37.7**	**E**	**82.5**	**37.5**	*	*	*	*	*	*
SR-16 between CR-85 and Esparto Town Limits	Both	II	D	D	83.0	-	D	81.5	-	D	83.0	-	D	81.5	-
SR-16 through the Town of Esparto	Both	II	E	D	74.2	-	D	79.8	-	D	74.2	-	D	79.8	-
SR-16 between Esparto Town limits and CR-89	EB	I	D	**E**	**88.7**	**35.1**	**E**	**92.0**	**31.8**	**E**	**85.0**	**35.5**	**E**	**88.1**	**32.2**
	WB									**E**	**65.0**	**36.5**	**E**	**67.4**	**33.1**
SR-16 between CR-89 and I-505	EB	I	D	**F**	**94.4**	**29.1**	**F**	**97.1**	**24.8**	A	10.6**	-	B	13.6**	-
	WB									C	18.6**	-	C	20.9**	-
SR-16 between I-505 and CR-98	EB	I	D	**E**	**85.1**	**35.8**	**E**	**80.8**	**38.0**	D	70.1	72.3	D	66.2	76.4
	WB									**E**	**81.2**	**36.2**	**E**	**77.1**	**38.5**
County Road 21A between CR-85B and SR-16	Both	II	C	B	53.7	-	B	54.9	-	B	53.7	-	B	54.9	-
County Road 85B between SR-16 and CR-21A	Both	II	C	C	62.7	-	C	63.5	-	C	62.7	-	C	63.5	-

Note: Locations operating unacceptably are bolded and significant project impacts are highlighted.
* Adding a slow vehicle turnout will improve the percent time spent following and the average travel speed and reduce the impact to a less-than-significant level.
** Units are in passenger cars per mile per lane in this four-lane mitigated roadway segment.

ALTERNATIVE A WITH TRAFFIC USING ESPARTO BYPASS

A sub-area analysis was completed to analyze the effect on the off-reservation study intersections of Proposed Project traffic being encouraged to use the Esparto bypass instead of traveling through downtown when going to or leaving from CCCR. The following sections summarize the analysis.

Trip Generation – Alternative A

Trip generation with project traffic using the Esparto bypass is the same as was calculated in the Trip Generation – Alternative A section above and is reported in **Table A2**.

Project Trip Distribution and Assignment

The same project trip distribution discussed above and seen in **Figure A2** was used in this analysis, with the exception of assuming more of the project traffic uses the Esparto Bypass. In the Existing condition, 80% of vehicles travelling westbound on SR-16 drive through downtown Esparto and 20% of vehicles travel westbound on CR-21A to CR-85B to connect back to SR-16. In the eastbound direction, 70% of vehicles travelling eastbound on SR-16 drive through downtown Esparto and 30% of vehicles travel southbound on CR-85B to CR-21A to connect back to SR-16.

An alternate analysis was completed to evaluate what the effects would be if most new project off-reservation traffic used the Esparto bypass. The trip percentages were assumed to be reversed from the Existing condition and 20% of vehicles travelling westbound on SR-16 were assumed to drive through downtown Esparto and 80% of vehicles were assumed to travel westbound on CR-21A to CR-85B to connect back to SR-16. In the eastbound direction, 30% of vehicles travelling eastbound on SR-16 were assumed to drive through downtown Esparto and 70% of vehicles were assumed to travel southbound on CR-85B to CR-21A to connect back to SR-16. **Figure A10** illustrates project traffic assigned to the off-reservation study intersections based on the trip distribution using the Esparto bypass at the intersections that are affected by the change in trip assignment.

Near-Term Plus Project Off-Reservation Traffic Volumes

Near-Term 2013 off-reservation traffic volumes were combined with vehicle trips expected to be generated by Alternative A using the Esparto bypass. **Figure A11** illustrates Near-Term + Alternative A using the Esparto bypass off-reservation turning movement volumes at the study intersections. **Figure A12** illustrates Near-Term + Alternative A using the Esparto bypass two-way roadway segment off-reservation traffic volumes.

Long-Term Plus Project Off-Reservation Traffic Volumes

Long-term 2030 off-reservation traffic volumes were combined with vehicle trips expected to be generated by Alternative A using the Esparto bypass. **Figure A13** illustrates Long-Term + Alternative A using the Esparto bypass off-reservation turning movement volumes at the study intersections. **Figure A14** illustrates Long-Term + Alternative A using the Esparto bypass two-way roadway segment off-reservation traffic volumes.

Alternative A Off-Reservation LOS Conditions and Impacts at Intersections

Off-reservation traffic operations were evaluated under the following development conditions:

- Near-Term conditions plus Alternative A using the Esparto bypass (year 2013)
- Long-Term conditions plus Alternative A using the Esparto bypass (year 2030)

Results of the analysis are presented in **Tables A11 and A12**. (Results shown as bold in the table do not meet operational standards and potentially significant project impacts are highlighted.) The method of intersection control is listed as Signal for signalized intersections, AWSC for all-way stop-controlled intersections and TWSC for two-way stop-controlled intersections. Two-way stop-controlled (TWSC) intersections may operate acceptably overall but only the worst approach is reported in the table. The overall level of service is reported for signalized and all-way stop-controlled intersections. Additional detail is provided in the **Appendix**. As shown in the results, there are no off-reservation intersections or approaches that will fail to meet acceptable level of service thresholds based on established significance criteria with the addition of project-related traffic and create a new potentially significant impact not already identified in the Alternative A LOS Conditions above.

2013 Results

- #3 – SR-16/South Casino Entrance (Saturday PM peak only) – not an impact because the unacceptable LOS occurs on-reservation
- #14 – SR-16/CR-89

2030 Results

- #3 – SR-16/South Casino Entrance (Saturday PM peak only) – not an impact because the unacceptable LOS occurs on-reservation
- #5 – SR-16/CR-85B
- #10 – SR-16/CR-21A (Saturday PM peak only)
- #14 – SR-16/CR-89
- #15 – SR-16/I-505 SB Ramps
- #16 – SR-16/I-505 NB Ramps

- #17 – SR-16/Wildwing Drive
- #18 – SR-16/CR-94B
- #19 – SR-16/CR-95
- #20 – SR-16/CR-98 (Friday PM peak only)

Table A 11 – Near-Term + Alternative A Intersection Level of Service Summary Using Esparto Bypass

	Intersection	Intersection Control	Criteria	Near-Term + Alt A				Near-Term + Alt A (using Bypass)			
				Friday PM Peak		Saturday PM Peak		Friday PM Peak		Saturday PM Peak	
				LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1	SR-16/ North Casino Entrance	Signal	D	A	9.3	A	9.6	No change from Near-Term + Alt A			
2	SR-16/ Central Casino Entrance	Uncontrolled	D	A	0.0	A	0.0				
3	SR-16/ South Casino Entrance[1]	TWSC	D	C	18.3	**E**	**40.3**				
4	SR-16/ County Road 85	TWSC	D	C	20.7	B	14.4				
5	SR-16/ County Road 85B	TWSC	D	C	23.3	C	23.8	C	24.1	D	28.2
6	SR-16/ Woodland Avenue	AWSC	E	A	5.2	A	7.1	A	5.1	A	6.2
7	SR-16/ Capay Street	TWSC	E	C	16.2	C	18.4	C	15.3	C	16.9
8	SR-16/ Madison Street	TWSC	E	B	14.8	B	14.4	B	14.0	B	13.6
9	SR-16/ Plainfield Street	TWSC	E	C	20.3	D	27.1	C	18.8	C	24.0
10	SR-16/ County Road 21A	AWSC	D	B	13.6	C	15.1	B	13.6	C	15.1
11	County Road 85B/ County Road 21A	TWSC	C	A	9.4	A	9.3	A	9.5	A	9.6
12	Country Villa Estates/ County Road 21A	TWSC	C	A	10.0	B	10.1	B	10.4	B	10.8
13	Fremont Street/ County Road 21A	TWSC	C	B	10.7	B	10.8	B	11.1	B	11.5
14	SR-16/ County Road 89	AWSC	D	**F**	**65.0**	**F**	**110.7**	No change from Near-Term + Alt A			
15	SR-16/ I-505 SB Ramps	TWSC	D	B	14.0	C	17.0				
16	SR-16/ I-505 NB Ramps	Signal	D	B	10.5	B	12.1				
17	SR-16/ Wildwing Drive	TWSC	D	C	16.8	C	15.1				
18	SR-16/ County Road 94B	TWSC	D	C	19.3	C	16.8				
19	SR-16/ County Road 95	TWSC	D	C	21.6	C	16.8				
20	SR-16/ County Road 98	Signal	D	C	26.5	C	25.0				
21	SR-16/ W. Kentucky Avenue	Signal	D	B	17.7	B	17.4				

Note: Locations operating unacceptably are bolded and significant project impacts are highlighted.

[1] Increased delay occurs on reservation land and therefore does not represent a potentially significant off-reservation impact

Table A 12 – Long-Term + Alternative A Intersection Level of Service Summary Using Esparto Bypass

	Intersection	Intersection Control	Criteria	Long-Term + Alt A				Long-Term + Alt A (using Bypass)			
				Friday PM Peak		Saturday PM Peak		Friday PM Peak		Saturday PM Peak	
				LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1	SR-16/ North Casino Entrance	Signal	D	B	10.3	A	10.0	No change from Long-Term + Alt A			
2	SR-16/ Central Casino Entrance	Uncontrolled	D	A	0.0	A	0.0				
3	SR-16/ South Casino Entrance[1]	TWSC	D	D	27.8	**F**	**84.9**				
4	SR-16/ County Road 85	TWSC	D	D	32.6	C	19.6				
5	SR-16/ County Road 85B	TWSC	D	**F**	**94.9**	**F**	**99.1**	**F**	**108.8**	**F**	**111.6**
6	SR-16/ Woodland Avenue	AWSC	E	A	7.7	A	9.1	A	6.9	B	10.6
7	SR-16/ Capay Street	TWSC	E	C	23.7	C	24.2	C	22.0	C	21.9
8	SR-16/ Madison Street	TWSC	E	C	16.6	C	20.0	C	15.7	C	18.5
9	SR-16/ Plainfield Street	TWSC	E	D	30.1	E	37.8	D	27.1	D	32.5
10	SR-16/ County Road 21A	AWSC	D	C	23.7	**E**	**42.0**	C	23.9	**E**	**41.3**
11	County Road 85B/ County Road 21A	TWSC	C	B	10.6	B	10.8	B	10.8	B	11.4
12	Country Villa Estates/ County Road 21A	TWSC	C	B	11.8	B	12.9	B	12.4	B	14.0
13	Fremont Street/ County Road 21A	TWSC	C	B	12.7	B	13.3	B	13.4	B	14.4
14	SR-16/ County Road 89	Signal	D	**E**	**59.0**	**F**	**139.9**	No change from Long-Term + Alt A			
15	SR-16/ I-505 SB Ramps	TWSC	D	**F**	**312.6**	**F**	**460.7**				
16	SR-16/ I-505 NB Ramps	Signal	D	**F**	**131.6**	**F**	**168.5**				
17	SR-16/ Wildwing Drive	TWSC	D	**F**	**91.0**	**E**	**47.2**				
18	SR-16/ County Road 94B	TWSC	D	**F**	**192.4**	**F**	**58.6**				
19	SR-16/ County Road 95	TWSC	D	**F**	**120.1**	**F**	**80.8**				
20	SR-16/ County Road 98	Signal	D	**E**	**55.0**	C	33.5				
21	SR-16/ W. Kentucky Avenue	Signal	D	C	20.8	C	27.7				

Note: Locations operating unacceptably are bolded and significant project impacts are highlighted.

[1] Increased delay occurs on reservation land and therefore does not represent a potentially significant off-reservation impact

Alternative A Traffic Signal Warrant Analysis

Alternative A using the Esparto Bypass, Near-Term and Long-Term, off-reservation traffic volumes at unsignalized study intersections were compared against the peak hour warrant in the *2006 California Manual on Uniform Traffic Control Devices (MUTCD)*.

Results of the analysis showed that the following off-reservation intersections will satisfy traffic signal Warrant #3 by year 2013 and 2030 with project traffic using the Esparto bypass. The location shown in bold only meets a signal warrant with project traffic using the Esparto bypass.

- #3 – SR-16/South Casino Entrance (2013 and 2030)
- #4 – SR-16/CR-85 (2030)
- #5 – SR-16/CR-85B (2013 and 2030)
- #6 – SR-16/Woodland Avenue (2013 and 2030)
- #9 – SR-16/Plainfield Street (2030)
- #10 – SR-16/CR-21A (2013 and 2030)
- **#11 – CR-85B/CR-21A (2030)**

- #15 – SR-16/I-505 SB Ramps (2030)
- #17 – SR-16/Wildwing Drive (2030)
- #19 – SR-16/CR-95 (2030)

Other warrants such as for minimum vehicle volumes, interruption of continuous traffic, and traffic progression were not evaluated because they generally require higher traffic volumes to be satisfied. A copy of the analysis summary for Warrant #3 is included in the **Appendix**.

Alternative A Off-Reservation LOS Conditions and Impacts on Roadway Segments

Trips generated by the Proposed Project were added to the year 2013 and 2030 forecast off-reservation roadway segment volumes.

Traffic analyses were completed to evaluate the operation of the study roadway segments in the year 2013 and 2030, with the addition of the project using the Esparto Bypass.

Results of the analyses are presented in **Tables A13 and A14**. (Results shown as bold in the table do not meet operational standards and potentially significant project impacts are highlighted.) As shown in the table, project traffic will add to the background congestion on the off-reservation roadway segments. In the Near-Term condition, the off-reservation segment of SR-16 between CCCR and CR-85 will operate unacceptably with the addition of the project. It should be noted that no additional segments operate unacceptably with project traffic using the Esparto bypass.

In the Long-Term condition, the following off-reservation segments operate at unacceptable levels of service with the addition of the project. It should be noted that no additional off-reservation segments operate unacceptably with project traffic using the Esparto bypass.

- SR-16 between CCCR and CR-85
- SR-16 between the Esparto Town Limits and CR-89
- SR-16 between CR-89 and I-505
- SR-16 between I-505 and CR-98

Table A 13 – Near-Term + Alternative A Roadway Segment Level of Service Summary Using Esparto Bypass

Roadway Segment	Highway Class	Criteria	Near-Term + Alt A						Near-Term + Alt A (using Bypass)					
			Friday PM Peak			Saturday PM Peak			Friday PM Peak			Saturday PM Peak		
		LOS	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)
SR-16 between Cache Creek Casino and CR-85	I	D	**E**	**76.9**	**39.8**	**E**	**78.4**	**39.3**	No change from Near-Term + Alt A					
SR-16 between CR-85 and Esparto Town Limits	II	D	D	77.3	-	D	78.1	-						
SR-16 through the Town of Esparto	II	E	C	69.9	-	D	74.8	-	C	68.1	-	D	73.0	-
SR-16 between Esparto Town limits and CR-89	I	D	D	77.1	41.0	D	80.6	39.7	No change from Near-Term + Alt A					
SR-16 between CR-89 and I-505	I	D	D	75.9	41.2	D	79.6	39.9						
SR-16 between I-505 and CR-98	I	D	D	72.3	40.9	D	66.5	42.3						
County Road 21A between CR-85B and SR-16	II	C	B	42.6	-	B	42.2	-	B	46.2	-	B	47.1	-
County Road 85B between SR-16 and CR-21A	II	C	B	50.8	-	B	51.2	-	B	54.5	-	C	56.2	-

Note: Locations operating unacceptably are bolded and significant project impacts are highlighted.

Table A 14 – Long-Term + Alternative A Roadway Segment Level of Service Summary Using Esparto Bypass

Roadway Segment	Highway Class	Criteria	Long-Term + Alt A						Long-Term + Alt A (using Bypass)					
			Friday PM Peak			Saturday PM Peak			Friday PM Peak			Saturday PM Peak		
		LOS	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)
SR-16 between Cache Creek Casino and CR-85	I	D	**E**	**82.1**	**37.7**	**E**	**82.5**	**37.5**	No change from Long-Term + Alt A					
SR-16 between CR-85 and Esparto Town Limits	II	D	D	83.0	-	D	81.5	-						
SR-16 through the Town of Esparto	II	E	D	74.2	-	D	79.8	-	D	72.9	-	D	78.2	-
SR-16 between Esparto Town limits and CR-89	I	D	**E**	**88.7**	**35.1**	**E**	**92.0**	**31.8**	No change from Long-Term + Alt A					
SR-16 between CR-89 and I-505	I	D	**F**	**94.4**	**29.1**	**F**	**97.1**	**24.8**						
SR-16 between I-505 and CR-98	I	D	**E**	**85.1**	**35.8**	**E**	**80.8**	**38.0**						
County Road 21A between CR-85B and SR-16	II	C	B	53.7	-	B	54.9	-	C	56.0	-	C	57.8	-
County Road 85B between SR-16 and CR-21A	II	C	C	62.7	-	C	63.5	-	C	63.8	-	C	65.7	-

Note: Locations operating unacceptably are bolded and significant project impacts are highlighted.

Alternative A Mitigations Using Esparto Bypass

Off-reservation intersections with levels of service below established thresholds were investigated to determine the role of the Alternative A traffic using the Esparto Bypass in the projected operating conditions at those intersections. The evaluation disclosed that no additional improvements are needed in the Near-Term (2013) and Long-Term (2030) to mitigate project level of service impacts beyond what was listed in **Table A5**.

Although no new LOS impacts occur with Proposed Project traffic using the bypass, the increase in traffic along CR-21A will create a potentially significant impact to safety of school children and other pedestrians walking adjacent to the roadway. Therefore, the following mitigation is recommended and listed in **Table A15**.

Impact #16: School Pedestrians

Esparto Middle School is located along County Road 21A and some middle school students can reach the school by using interior neighborhood streets and a pedestrian connection to the school. However, some students use the shoulder on the north side of CR-21A as their most direct route to school. If Proposed Project traffic is encouraged to use CR-21A as a bypass around downtown Esparto, the addition of Proposed Project traffic increases the potential for conflict with school children walking adjacent to the roadway.

Mitigation #16

To mitigate the project impacts expected to occur, it is recommended that an asphalt walking path be installed between the school driveway and Fremont Street. Because the project triggers the impact, the project would be responsible for all of the mitigation costs. Installing the walking path will reduce the impact to less than significant.

Table A 15 – Alternative A Using Esparto Bypass Summary of Mitigations

Mitigation #	Location	Impacted Scenario	Jurisdiction	Mitigation	Fair Share
16	School Pedestrians	Near-Term (2013) + Alternative A	Yolo County	Install an asphalt walking path between the Esparto Middle School driveway and Fremont Street on CR-21A	100%

ALTERNATIVE A WITH A MAJOR EVENT

Although not expected to occur every week, there will be major events at the CCCR Event Center. In some instances the event will be sold out; therefore, a sub-area analysis was completed to identify how the surrounding street network would be affected when a major event occurs. The following sections summarize the analysis.

Trip Generation – Alternative A With Major Event

Trip generation with a major event at the Proposed Project event center was calculated based on the previous discussions and is reported in **Table A16**. Additional trip generation calculations are contained in the **Appendix**. As seen in the table Alternative A with a major event is expected to generate 502 new trips in the Friday PM peak hour and 560 new trips in the Saturday PM peak hour.

Table A 16 – Alternative A Trip Generation With Major Event

LAND USE	Trips					
	Friday PM Peak Hour			Saturday PM Peak Hour		
	Entering	Exiting	Total	Entering	Exiting	Total
Casino Gaming Floor Area 20,497 s.f.	72	66	138	111	85	196
Event Center 2,300 seats*	354	10	364	354	10	364
Net New Vehicle Trips	426	76	502	465	95	560

*Trip rate accounts for the 40% of the total trips arriving during the PM peak hour (1 hour before the event begins) with 2.6 persons/vehicle

Project Trip Distribution and Assignment

The same project trip distribution discussed above and seen in **Figure A2** was used in this analysis. **Figure A15** illustrates project traffic with a major event at the Proposed Project event center assigned to the study intersections based on the trip distribution to the study intersections.

Near-Term Plus Alternative A Off-Reservation Traffic Volumes

Near-term 2013 off-reservation traffic volumes were combined with vehicle trips expected to be generated by Alternative A with a major event. **Figure A16** illustrates Near-Term + Alternative A with a major event off-reservation turning movement volumes at the study intersections. **Figure A17** illustrates the two-way roadway segment off-reservation traffic volumes for Near-Term + Alternative A with a major event.

Long-Term Plus Alternative A Off-Reservation Traffic Volumes

Long-term 2030 off-reservation traffic volumes were combined with vehicle trips expected to be generated by Alternative A with a major event. **Figure A18** illustrates Long-Term + Alternative A with a major event off-reservation turning movement volumes at the study intersections. **Figure A19** illustrates two-way roadway segment off-reservation traffic volumes for Long-Term + Alternative A with a major event.

Alternative A Off-Reservation LOS Conditions and Impacts at Intersections

Off-reservation traffic operations were evaluated under the following development conditions:

- Near-Term conditions plus Alternative A with a major event (year 2013)
- Long-Term conditions plus Alternative A with a major event (year 2030)

Results of the analysis are presented in **Tables A17 and A18**. (Results shown as bold in the table do not meet operational standards and potentially significant project impacts are highlighted.) The method of intersection control is listed as Signal for signalized intersections, AWSC for all-way stop-controlled intersections and TWSC for two-way stop-controlled intersections. Two-way stop-controlled (TWSC) intersections may operate acceptably overall but only the worst approach is reported in the table. The overall level of service is reported for signalized and all-way stop-controlled intersections. Additional detail is provided in the **Appendix**. As shown in the results, the following off-reservation intersections or approaches will fail to meet acceptable level of service thresholds based on established significance criteria with the addition of project-related traffic and will create new potentially significant impacts.

Significant congestion is expected as a result of the project with a major event principally on the side street approaches that have difficulty in turning into or crossing the heavy traffic stream traveling along SR-16. It should be noted that the off-reservation intersections in bold operate unacceptably with project traffic only when there is a major event.

2013 Results

- #3 – SR-16/South Casino Entrance (Saturday PM peak only) – not an impact because the unacceptable LOS occurs on-reservation
- #5 – SR-16/CR-85B
- #14 – SR-16/CR-89

2030 Results

- #3 – SR-16/South Casino Entrance – not an impact because the unacceptable LOS occurs on-reservation
- **#4 – SR-16/CR-85**
- #5 – SR-16/CR-85B
- **#9 – SR-16/Plainfield Street**
- #10 – SR-16/CR-21A (Saturday PM peak only)
- #14 – SR-16/CR-89
- #15 – SR-16/I-505 SB Ramps
- #16 – SR-16/I-505 NB Ramps
- #17 – SR-16/Wildwing Drive
- #18 – SR-16/CR-94B
- #19 – SR-16/CR-95
- #20 – SR-16/CR-98 (Friday PM peak only)

Table A 17 – Near-Term + Alternative A with Major Event Intersection Level of Service Summary

	Intersection	Intersection Control	Criteria	Near-Term + Alt A				Near-Term + Alt A w/ Major Event			
				Friday PM Peak		Saturday PM Peak		Friday PM Peak		Saturday PM Peak	
				LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1	SR-16/ North Casino Entrance	Signal	D	A	9.3	A	9.6	B	10.2	B	11.2
2	SR-16/ Central Casino Entrance	Uncontrolled	D	A	0.0	A	0.0	A	0.0	A	0.0
3	SR-16/ South Casino Entrance[1]	TWSC	D	C	18.3	**E**	**40.3**	D	29.4	**F**	**118.5**
4	SR-16/ County Road 85	TWSC	D	C	20.7	B	14.4	D	30.6	C	20.2
5	SR-16/ County Road 85B	TWSC	D	C	23.3	C	23.8	**F**	**212.9**	**F**	**203.3**
6	SR-16/ Woodland Avenue	AWSC	E	A	5.2	A	7.1	A	5.9	A	7.1
7	SR-16/ Capay Street	TWSC	E	C	16.2	C	18.4	C	20.9	C	24.4
8	SR-16/ Madison Street	TWSC	E	B	14.8	B	14.4	C	18.6	C	16.8
9	SR-16/ Plainfield Street	TWSC	E	C	20.3	D	27.1	D	29.1	E	38.6
10	SR-16/ County Road 21A	AWSC	D	B	13.6	C	15.1	B	14.8	C	16.4
11	County Road 85B/ County Road 21A	TWSC	C	A	9.4	A	9.3	A	9.7	A	9.8
12	Country Villa Estates/ County Road 21A	TWSC	C	A	10.0	B	10.1	B	10.5	B	10.6
13	Fremont Street/ County Road 21A	TWSC	C	B	10.7	B	10.8	B	11.2	B	11.3
14	SR-16/ County Road 89	AWSC	D	**F**	**65.0**	**F**	**110.7**	**F**	**205.1**	**F**	**256.8**
15	SR-16/ I-505 SB Ramps	TWSC	D	B	14.0	C	17.0	C	19.6	C	22.6
16	SR-16/ I-505 NB Ramps	Signal	D	B	10.5	B	12.1	B	17.4	B	17.4
17	SR-16/ Wildwing Drive	TWSC	D	C	16.8	C	15.1	C	19.6	C	17.3
18	SR-16/ County Road 94B	TWSC	D	C	19.3	C	16.8	C	22.6	C	19.1
19	SR-16/ County Road 95	TWSC	D	C	21.6	C	16.8	C	25.0	C	18.9
20	SR-16/ County Road 98	Signal	D	C	26.5	C	25.0	C	27.6	C	25.9
21	SR-16/ W. Kentucky Avenue	Signal	D	B	17.7	B	17.4	B	18.6	B	18.1

Note: Locations operating unacceptably are bolded and significant project impacts are highlighted.

[1] Increased delay occurs on reservation land and therefore does not represent a potentially significant off-reservation impact

Table A 18 – Long-Term + Alternative A with Major Event Intersection Level of Service Summary

	Intersection	Intersection Control	Criteria	Long-Term + Alt A				Long-Term + Alt A w/ Major Event			
				Friday PM Peak		Saturday PM Peak		Friday PM Peak		Saturday PM Peak	
				LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1	SR-16/ North Casino Entrance	Signal	D	B	10.3	A	10.0	A	9.5	B	10.5
2	SR-16/ Central Casino Entrance	Uncontrolled	D	A	0.0	A	0.0	A	0.0	A	0.0
3	SR-16/ South Casino Entrance[1]	TWSC	D	D	27.8	**F**	**84.9**	**F**	**52.1**	**F**	**283.2**
4	SR-16/ County Road 85	TWSC	D	D	32.6	C	19.6	**F**	**96.7**	**E**	**35.6**
5	SR-16/ County Road 85B	TWSC	D	**F**	**94.9**	**F**	**99.1**	**F**	**503.5**	**F**	**461.6**
6	SR-16/ Woodland Avenue	AWSC	E	A	7.7	A	9.1	B	11.5	A	9.4
7	SR-16/ Capay Street	TWSC	E	C	23.7	C	24.2	D	34.1	D	34.5
8	SR-16/ Madison Street	TWSC	E	C	16.6	C	20.0	C	20.8	C	24.9
9	SR-16/ Plainfield Street	TWSC	E	D	30.1	E	37.8	**F**	**53.6**	**F**	**62.9**
10	SR-16/ County Road 21A	AWSC	D	C	23.7	**E**	**42.0**	D	27.1	**E**	**48.3**
11	County Road 85B/ County Road 21A	TWSC	C	B	10.6	B	10.8	B	11.0	B	11.6
12	Country Villa Estates/ County Road 21A	TWSC	C	B	11.8	B	12.9	B	12.5	B	13.7
13	Fremont Street/ County Road 21A	TWSC	C	B	12.7	B	13.3	B	13.5	B	14.2
14	SR-16/ County Road 89	Signal	D	**E**	**59.0**	**F**	**139.9**	**E**	**56.1**	**F**	**132.1**
15	SR-16/ I-505 SB Ramps	TWSC	D	**F**	**312.6**	**F**	**460.7**	**F**	**753.2**	**F**	**941.4**
16	SR-16/ I-505 NB Ramps	Signal	D	**F**	**131.6**	**F**	**168.5**	**F**	**218.6**	**F**	**244.7**
17	SR-16/ Wildwing Drive	TWSC	D	**F**	**91.0**	**E**	**47.2**	**F**	**131.3**	**F**	**64.2**
18	SR-16/ County Road 94B	TWSC	D	**F**	**192.4**	**F**	**58.6**	**F**	**307.3**	**F**	**76.2**
19	SR-16/ County Road 95	TWSC	D	**F**	**120.1**	**F**	**80.8**	**F**	**202.0**	**F**	**131.8**
20	SR-16/ County Road 98	Signal	D	**E**	**55.0**	C	33.5	**E**	**56.8**	C	34.3
21	SR-16/ W. Kentucky Avenue	Signal	D	C	20.8	C	27.7	C	22.3	C	28.0

Note: Locations operating unacceptably are bolded and significant project impacts are highlighted.

[1] Increased delay occurs on reservation land and therefore does not represent a potentially significant off-reservation impact

Alternative A Traffic Signal Warrant Analysis

Alternative A with a major event, Near-Term and Long-Term, off-reservation traffic volumes at unsignalized study intersections were compared against the peak hour warrant in the *2006 California Manual on Uniform Traffic Control Devices (MUTCD)*.

Results of the analysis showed that the following off-reservation intersections will satisfy traffic signal Warrant #3 by year 2013 and 2030. The location shown in bold only meets a signal warrant when there is a major event at CCCR.

- #3 – SR-16/South Casino Entrance (2013 and 2030)
- #4 – SR-16/CR-85 (2030)
- #5 – SR-16/CR-85B (2013 and 2030)
- #6 – SR-16/Woodland Avenue (2013 and 2030)
- #9 – SR-16/Plainfield Street (2030)
- #10 – SR-16/CR-21A (2013 and 2030)
- **#11 – CR-85B/CR-21A (2030)**
- #15 – SR-16/I-505 SB Ramps (2030)
- #17 – SR-16/Wildwing Drive (2030)
- #19 – SR-16/CR-95 (2030)

Other warrants such as for minimum vehicle volumes, interruption of continuous traffic, and traffic progression were not evaluated because they generally require higher traffic volumes to be satisfied. A copy of the analysis summary for Warrant #3 is included in the **Appendix**.

Alternative A Off-Reservation LOS Conditions and Impacts on Roadway Segments

Trips with a major event generated by the Proposed Project were added to the year 2013 and 2030 forecast off-reservation roadway segment volumes.

Traffic analyses were completed to evaluate the operation of the study roadway segments in the year 2013 and 2030.

Results of the analyses are presented in **Tables A19 and A20**. (Results shown as bold in the table do not meet operational standards and potentially significant project impacts are highlighted.) As shown in the table, project traffic will add to the background congestion on the off-reservation roadway segments.

In the Near-Term condition, the following off-reservation segments will operate unacceptably with the addition of the project with a major event. It should be noted that the off-reservation segment in bold operates unacceptably with project traffic only when there is a major event.

- SR-16 between CCCR and CR-85
- **SR-16 between the Esparto Town Limits and CR-89** (Saturday PM peak only)

In the Long-Term condition, the following off-reservation segments operate at unacceptable levels of service with the addition of the project with a major event. It should be noted that the off-reservation segment in bold operates unacceptably with project traffic only when there is a major event.

- SR-16 between CCCR and CR-85
- **SR-16 between CR-85 and the Esparto Town Limits**
- SR-16 between the Esparto Town Limits and CR-89
- SR-16 between CR-89 and I-505
- SR-16 between I-505 and CR-98

Table A 19 – Near-Term + Alternative A with Major Event Roadway Segment Level of Service Summary

Roadway Segment	Highway Class	Criteria	Near-Term + Alt A						Near-Term + Alt A w/ Major Event					
			Friday PM Peak			Saturday PM Peak			Friday PM Peak			Saturday PM Peak		
		LOS	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)
SR-16 between Cache Creek Casino and CR-85	I	D	**E**	**76.9**	**39.8**	**E**	**78.4**	**39.3**	**E**	**83.4**	**37.2**	**E**	**84.5**	**36.6**
SR-16 between CR-85 and Esparto Town Limits	II	D	D	77.3	-	D	78.1	-	D	83.6	-	D	84.0	-
SR-16 through the Town of Esparto	II	E	C	69.9	-	D	74.8	-	D	75.9	-	D	79.4	-
SR-16 between Esparto Town limits and CR-89	I	D	D	77.1	41.0	D	80.6	39.7	D	82.9	38.8	**E**	**85.3**	**37.4**
SR-16 between CR-89 and I-505	I	D	D	75.9	41.2	D	79.6	39.9	D	81.8	39.0	D	84.4	37.6
SR-16 between I-505 and CR-98	I	D	D	72.3	40.9	D	66.5	42.3	D	74.8	40.2	D	69.7	41.6
County Road 21A between CR-85B and SR-16	II	C	B	42.6	-	B	42.2	-	B	45.9	-	B	45.5	-
County Road 85B between SR-16 and CR-21A	II	C	B	50.8	-	B	51.2	-	C	56.3	-	C	55.5	-

Note: Locations operating unacceptably are bolded and significant project impacts are highlighted.

Table A 20 – Long-Term + Alternative A with Major Event Roadway Segment Level of Service Summary

Roadway Segment	Highway Class	Criteria	Long-Term + Alt A						Long-Term + Alt A w/ Major Event					
			Friday PM Peak			Saturday PM Peak			Friday PM Peak			Saturday PM Peak		
		LOS	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)
SR-16 between Cache Creek Casino and CR-85	I	D	**E**	**82.1**	**37.7**	**E**	**82.5**	**37.5**	**E**	**86.9**	**35.0**	**E**	**87.2**	**34.8**
SR-16 between CR-85 and Esparto Town Limits	II	D	D	83.0	-	D	81.5	-	**E**	**87.5**	-	**E**	**86.2**	-
SR-16 through the Town of Esparto	II	E	D	74.2	-	D	79.8	-	D	78.9	-	D	83.9	-
SR-16 between Esparto Town limits and CR-89	I	D	**E**	**88.7**	**35.1**	**E**	**92.0**	**31.8**	**E**	**91.4**	**32.5**	**E**	**94.3**	**29.4**
SR-16 between CR-89 and I-505	I	D	**F**	**94.4**	**29.1**	**F**	**97.1**	**24.8**	**F**	**96.3**	**26.5**	**F**	**98.3**	**22.3**
SR-16 between I-505 and CR-98	I	D	**E**	**85.1**	**35.8**	**E**	**80.8**	**38.0**	**E**	**86.6**	**34.9**	**E**	**82.7**	**37.1**
County Road 21A between CR-85B and SR-16	II	C	B	53.7	-	B	54.9	-	C	56.2	-	C	57.2	-
County Road 85B between SR-16 and CR-21A	II	C	C	62.7	-	C	63.5	-	C	64.1	-	C	65.4	-

Note: Locations operating unacceptably are bolded and significant project impacts are highlighted.

Alternative A Mitigations With Major Event

Off-reservation intersections with levels of service below established thresholds were investigated to determine the role of the Alternative A traffic with a major event in the projected operating conditions at those intersections. **Table A6** summarizes the mitigations needed for Alternative A without a major event that would also be needed with a major event. In addition, when there is a major event at CCCR, the mitigation in **Table A21** should be implemented as well. Although major events only occur occasionally, CCCR should provide special event traffic management to reduce the effects caused by the additional trips generated by the major event. As noted previously, CCCR does not intend to schedule events at Club 88 and the new special event center on the same evening. Traffic management mitigation would be needed only when the size of the special event at the Proposed Project exceeds the size of a sold out event at Club 88 (which currently occurs without the need for special traffic management measures).

Table A 21 – Alternative A With Major Event Summary of Mitigations

Mitigation #	Location	Impacted Scenario	Jurisdiction	Mitigation	Fair Share
17	Various	Near-Term (2013) + Alternative A	Caltrans	When the advanced ticket sales of an event at the new event center exceeds the existing capacity of Club 88, CCCR should work with CHP to determine what intersections would be best to have flaggers directing traffic before an event starts and when the events let out. At a minimum, there should be CHP officers directing traffic at the following intersections: • #5 – SR-16/CR-85B • #10 – SR-16/CR-21A • #14 – SR-16/CR-89 • #15 – SR-16/I-505 SB Ramps • #16 – SR-16/I-505 NB Ramps	100%

Impact #17: Major Event

When the advanced ticket sales of an event at the event center at the Proposed Project exceeds the existing capacity of Club 88, the surrounding intersections will be temporarily impacted due to the arrival and departure of patrons of the event center.

Mitigation #17

To mitigate the project impacts expected to occur with a sold out performance at the event center, CCCR should work with CHP to determine what intersections would be best to have flaggers directing traffic before an event starts and when the events let out. At a minimum, there should be CHP officers directing traffic at the following intersections:

- #5 – SR-16/CR-85B
- #10 – SR-16/CR-21A
- #14 – SR-16/CR-89
- #15 – SR-16/I-505 SB Ramps

- #16 – SR-16/I-505 NB Ramps

ALTERNATIVE A WITH MAJOR EVENT AND USING ESPARTO BYPASS

A sub-area analysis was completed to analyze the affect on the off-reservation study intersections of Proposed Project traffic with a major event being encouraged to use the Esparto bypass instead of traveling through downtown when going to or leaving from the Proposed Project when there is a major event. The following sections summarize the analysis.

Trip Generation – Alternative A With Major Event

Trip generation with a major event at the Proposed Project and project traffic using the Esparto bypass is the same as was calculated in the Trip Generation – Alternative A With a major event section above and is reported in **Table A16**.

Project Trip Distribution and Assignment

The same project trip distribution discussed above and seen in **Figure A2** was used in this analysis with the exception of assuming more of the project traffic uses the Esparto bypass. In the Existing condition, 80% of vehicles travelling westbound on SR-16 drive through downtown Esparto and 20% of vehicles travel westbound on CR-21A to CR-85B to connect back to SR-16. In the eastbound direction, 70% of vehicles travelling eastbound on SR-16 drive through downtown Esparto and 30% of vehicles travel southbound on CR-85B to CR-21A to connect back to SR-16.

An alternate analysis was completed to evaluate what the effects would be if most new project traffic used the Esparto bypass. The trip percentages were assumed to be reversed from the Existing condition and 20% of vehicles travelling westbound on SR-16 were assumed to drive through downtown Esparto and 80% of vehicles were assumed to travel westbound on CR-21A to CR-85B to connect back to SR-16. In the eastbound direction, 30% of vehicles travelling eastbound on SR-16 were assumed to drive through downtown Esparto and 70% of vehicles were assumed to travel southbound on CR-85B to CR-21A to connect back to SR-16. **Figure A20** illustrates project traffic with a major event assigned to the off-reservation study intersections based on the trip distribution using the Esparto bypass at the intersections that are affected by the change in trip assignment.

Near-Term Plus Alternative A Off-Reservation Traffic Volumes

Near-Term 2013 off-reservation traffic volumes were combined with vehicle trips expected to be generated by Alternative A with a major event using the Esparto bypass. **Figure A21** illustrates Near-Term + Alternative A with a major event using the Esparto bypass off-reservation turning movement volumes at the study intersections. **Figure**

A22 illustrates Near-Term + Alternative A with a major event using the Esparto bypass two-way roadway segment off-reservation traffic volumes.

Long-Term Plus Alternative A Off-Reservation Traffic Volumes

Long-term 2030 off-reservation traffic volumes were combined with vehicle trips expected to be generated by Alternative A with a major event using the Esparto bypass. **Figure A23** illustrates Long-Term + Alternative A with a major event using the Esparto bypass off-reservation turning movement volumes at the study intersections. **Figure A24** illustrates Long-Term + Alternative A with a major event using the Esparto bypass two-way roadway segment off-reservation traffic volumes.

Alternative A Off-Reservation LOS Conditions and Impacts at Intersections

Off-reservation traffic operations were evaluated under the following development conditions:

- Near-Term conditions plus Alternative A with a major event using Esparto bypass (year 2013)
- Long-Term conditions plus Alternative A with a major event using Esparto bypass (year 2030)

Results of the analysis are presented in **Tables A22 and A23**. (Results shown as bold in the table do not meet operational standards and potentially significant project impacts are highlighted.) The method of intersection control is listed as Signal for signalized intersections, AWSC for all-way stop-controlled intersections and TWSC for two-way stop-controlled intersections. Two-way stop-controlled (TWSC) intersections may operate acceptably overall but only the worst approach is reported in the table. The overall level of service is reported for signalized and all-way stop-controlled intersections. Additional detail is provided in the **Appendix**. As shown in the results, there are no off-reservation intersections or approaches that will fail to meet acceptable level of service thresholds based on established significance criteria with the addition of project-related traffic and create a new potentially significant impact not already identified in the Alternative A with a Major Event LOS Conditions above.

2013 Results

- #3 – SR-16/South Casino Entrance (Saturday PM peak only) – not an impact because the unacceptable LOS occurs on-reservation
- #5 – SR-16/CR-85B
- #14 – SR-16/CR-89

2030 Results

- #3 – SR-16/South Casino Entrance – not an impact because the unacceptable LOS occurs on-reservation
- #4 – SR-16/CR-85
- #5 – SR-16/CR-85B
- #10 – SR-16/CR-21A
- #14 – SR-16/CR-89
- #15 – SR-16/I-505 SB Ramps
- #16 – SR-16/I-505 NB Ramps
- #17 – SR-16/Wildwing Drive
- #18 – SR-16/CR-94B
- #19 – SR-16/CR-95
- #20 – SR-16/CR-98 (Friday PM peak only)

Table A 22 – Near-Term + Alternative A With Major Event Intersection Level of Service Summary Using Esparto Bypass

	Intersection	Intersection Control	Criteria	Near-Term + Alt A w/ Major Event				Near-Term + Alt A w/ Major Event (using Bypass)			
				Friday PM Peak		Saturday PM Peak		Friday PM Peak		Saturday PM Peak	
				LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1	SR-16/ North Casino Entrance	Signal	D	B	10.2	B	11.2	No change from Near-Term + Alt A w/ Major Event			
2	SR-16/ Central Casino Entrance	Uncontrolled	D	A	0.0	A	0.0				
3	SR-16/ South Casino Entrance[1]	TWSC	D	D	29.4	**F**	**118.5**				
4	SR-16/ County Road 85	TWSC	D	D	30.6	C	20.2				
5	SR-16/ County Road 85B	TWSC	D	**F**	**212.9**	**F**	**203.3**	**F**	**416.9**	**F**	**410.2**
6	SR-16/ Woodland Avenue	AWSC	E	A	5.9	A	7.1	A	3.8	A	6.1
7	SR-16/ Capay Street	TWSC	E	C	20.9	C	24.4	C	16.0	C	18.0
8	SR-16/ Madison Street	TWSC	E	C	18.6	C	16.8	B	14.9	B	14.1
9	SR-16/ Plainfield Street	TWSC	E	D	29.1	E	38.6	C	20.2	D	25.5
10	SR-16/ County Road 21A	AWSC	D	B	14.8	C	16.4	D	25.1	C	24.4
11	County Road 85B/ County Road 21A	TWSC	C	A	9.7	A	9.8	B	11.3	B	12.0
12	Country Villa Estates/ County Road 21A	TWSC	C	B	10.5	B	10.6	B	12.6	B	13.3
13	Fremont Street/ County Road 21A	TWSC	C	B	11.2	B	11.3	B	13.9	B	14.6
14	SR-16/ County Road 89	AWSC	D	**F**	**205.1**	**F**	**256.8**	No change from Near-Term + Alt A w/ Major Event			
15	SR-16/ I-505 SB Ramps	TWSC	D	C	19.6	C	22.6				
16	SR-16/ I-505 NB Ramps	Signal	D	B	17.4	B	17.4				
17	SR-16/ Wildwing Drive	TWSC	D	C	19.6	C	17.3				
18	SR-16/ County Road 94B	TWSC	D	C	22.6	C	19.1				
19	SR-16/ County Road 95	TWSC	D	C	25.0	C	18.9				
20	SR-16/ County Road 98	Signal	D	C	27.6	C	25.9				
21	SR-16/ W. Kentucky Avenue	Signal	D	B	18.6	B	18.1				

Note: Locations operating unacceptably are bolded and significant project impacts are highlighted.

[1] Increased delay occurs on reservation land and therefore does not represent a potentially significant off-reservation impact

Table A 23 – Long-Term + Alternative A With Major Event Intersection Level of Service Summary Using Esparto Bypass

	Intersection	Intersection Control	Criteria	Long-Term + Alt A w/ Major Event				Long-Term + Alt A w/ Major Event (using Bypass)			
				Friday PM Peak		Saturday PM Peak		Friday PM Peak		Saturday PM Peak	
				LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1	SR-16/ North Casino Entrance	Signal	D	A	9.5	B	10.5	No change from Long-Term + Alt A w/ Major Event			
2	SR-16/ Central Casino Entrance	Uncontrolled	D	A	0.0	A	0.0				
3	SR-16/ South Casino Entrance[1]	TWSC	D	**F**	**52.1**	**F**	**283.2**				
4	SR-16/ County Road 85	TWSC	D	**F**	**96.7**	**E**	**35.6**				
5	SR-16/ County Road 85B	TWSC	D	**F**	**503.5**	**F**	**461.6**	**F**	**668.8**	**F**	**541.7**
6	SR-16/ Woodland Avenue	AWSC	E	B	11.5	A	9.4	A	6.6	A	10.0
7	SR-16/ Capay Street	TWSC	E	D	34.1	D	34.5	C	23.7	C	23.8
8	SR-16/ Madison Street	TWSC	E	C	20.8	C	24.9	C	16.7	C	19.5
9	SR-16/ Plainfield Street	TWSC	E	**F**	**53.6**	**F**	**62.9**	D	30.5	E	36.2
10	SR-16/ County Road 21A	AWSC	D	D	27.1	**E**	**48.3**	**F**	**51.0**	**F**	**73.7**
11	County Road 85B/ County Road 21A	TWSC	C	B	11.0	B	11.6	B	13.3	C	16.3
12	Country Villa Estates/ County Road 21A	TWSC	C	B	12.5	B	13.7	C	15.6	C	18.1
13	Fremont Street/ County Road 21A	TWSC	C	B	13.5	B	14.2	C	17.7	C	19.4
14	SR-16/ County Road 89	Signal	D	**E**	**56.1**	**F**	**132.1**	No change from Long-Term + Alt A w/ Major Event			
15	SR-16/ I-505 SB Ramps	TWSC	D	**F**	**753.2**	**F**	**941.4**				
16	SR-16/ I-505 NB Ramps	Signal	D	**F**	**218.6**	**F**	**244.7**				
17	SR-16/ Wildwing Drive	TWSC	D	**F**	**131.3**	**F**	**64.2**				
18	SR-16/ County Road 94B	TWSC	D	**F**	**307.3**	**F**	**76.2**				
19	SR-16/ County Road 95	TWSC	D	**F**	**202.0**	**F**	**131.8**				
20	SR-16/ County Road 98	Signal	D	**E**	**56.8**	C	34.3				
21	SR-16/ W. Kentucky Avenue	Signal	D	C	22.3	C	28.0				

Note: Locations operating unacceptably are bolded and significant project impacts are highlighted.

[1] Increased delay occurs on reservation land and therefore does not represent a potentially significant off-reservation impact

Alternative A Traffic Signal Warrant Analysis

Alternative A with a major event using the Esparto bypass, Near-Term and Long-Term, off-reservation traffic volumes at unsignalized study intersections were compared against the peak hour warrant in the *2006 California Manual on Uniform Traffic Control Devices (MUTCD)*.

Results of the analysis showed that the following off-reservation intersections will satisfy traffic signal Warrant #3 by year 2013 and 2030 with a major event at the Proposed Project and project traffic using the Esparto bypass. There are no additional locations that only meet a signal warrant when there is a major event at the Proposed Project and project traffic is using the Esparto bypass.

- #3 – SR-16/South Casino Entrance (2013 and 2030)
- #4 – SR-16/CR-85 (2030)
- #5 – SR-16/CR-85B (2013 and 2030)
- #6 – SR-16/Woodland Avenue (2013 and 2030)
- #9 – SR-16/Plainfield Street (2030)
- #10 – SR-16/CR-21A (2013 and 2030)
- #11 – CR-85B/CR-21A (2030)
- #15 – SR-16/I-505 SB Ramps (2030)

- #17 – SR-16/Wildwing Drive (2030)
- #19 – SR-16/CR-95 (2030)

Other warrants such as for minimum vehicle volumes, interruption of continuous traffic, and traffic progression were not evaluated because they generally require higher traffic volumes to be satisfied. A copy of the analysis summary for Warrant #3 is included in the **Appendix**.

Alternative A Off-Reservation LOS Conditions and Impacts on Roadway Segments

Trips with a major event generated by the Proposed Project using the Esparto Bypass were added to the year 2013 and 2030 forecast off-reservation roadway segment volumes.

Traffic analyses were completed to evaluate the operation of the study roadway segments in the year 2013 and 2030, with the addition of a major event at the Proposed Project using the Esparto bypass.

Results of the analyses are presented in **Tables A24 and A25**. (Results shown as bold in the table do not meet operational standards and potentially significant project impacts are highlighted.) As shown in the table, project traffic will add to the background congestion on the roadway segments. In the Near-Term condition, the following off-reservation segments will operate unacceptably with the addition of the Proposed Project with a major event and project traffic using the Esparto bypass. It should be noted that no additional off-reservation segments operate unacceptably with a major event with project traffic using the Esparto bypass instead of traveling through downtown Esparto.

- SR-16 between CCCR and CR-85
- SR-16 between the Esparto Town Limits and CR-89

In the Long-Term condition, the following off-reservation segments operate at unacceptable levels of service with the addition of the Proposed Project with a major event. It should be noted that no additional off-reservation segments operate unacceptably with a major event with project traffic using the Esparto bypass instead of traveling through downtown Esparto.

- SR-16 between CCCR and CR-85
- SR-16 between CR-85 and the Esparto Town Limits
- SR-16 between the Esparto Town Limits and CR-89
- SR-16 between CR-89 and I-505
- SR-16 between I-505 and CR-98

Table A 24 – Near-Term + Alternative A With Major Event Roadway Segment Level of Service Summary Using Esparto Bypass

Roadway Segment	Highway Class	Criteria	Near-Term + Alt A w/ Major Event						Near-Term + Alt A w/ Major Event (using Bypass)					
			Friday PM Peak			Saturday PM Peak			Friday PM Peak			Saturday PM Peak		
		LOS	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)
SR-16 between Cache Creek Casino and CR-85	I	D	**E**	**83.4**	**37.2**	**E**	**84.5**	**36.6**	No change from Near-Term + Alt A					
SR-16 between CR-85 and Esparto Town Limits	II	D	D	83.6	-	D	84.0	-						
SR-16 through the Town of Esparto	II	E	D	75.9	-	D	79.4	-	D	70.1	-	D	74.4	-
SR-16 between Esparto Town limits and CR-89	I	D	D	82.9	38.8	**E**	**85.3**	**37.4**	No change from Near-Term + Alt A					
SR-16 between CR-89 and I-505	I	D	D	81.8	39.0	D	84.4	37.6						
SR-16 between I-505 and CR-98	I	D	D	74.8	40.2	D	69.7	41.6						
County Road 21A between CR-85B and SR-16	II	C	B	45.9	-	B	45.5	-	C	56.6	-	C	57.1	-
County Road 85B between SR-16 and CR-21A	II	C	C	56.3	-	C	55.5	-	C	63.2	-	C	63.6	-

Note: Locations operating unacceptably are bolded but there are no significant project impacts.

Table A 25 – Long-Term + Alternative A With Major Event Roadway Segment Level of Service Summary Using Esparto Bypass

Roadway Segment	Highway Class	Criteria	Long-Term + Alt A w/ Major Event						Long-Term + Alt A w/ Major Event (using Bypass)					
			Friday PM Peak			Saturday PM Peak			Friday PM Peak			Saturday PM Peak		
		LOS	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)
SR-16 between Cache Creek Casino and CR-85	I	D	**E**	**86.9**	**35.0**	**E**	**87.2**	**34.8**	No change from Long-Term + Alt A					
SR-16 between CR-85 and Esparto Town Limits	II	D	**E**	**87.5**	-	**E**	**86.2**	-						
SR-16 through the Town of Esparto	II	E	D	78.9	-	D	83.9	-	D	74.5	-	D	79.4	-
SR-16 between Esparto Town limits and CR-89	I	D	**E**	**91.4**	**32.5**	**E**	**94.3**	**29.4**	No change from Long-Term + Alt A					
SR-16 between CR-89 and I-505	I	D	**F**	**96.3**	**26.5**	**F**	**98.3**	**22.3**						
SR-16 between I-505 and CR-98	I	D	**E**	**86.6**	**34.9**	**E**	**82.7**	**37.1**						
County Road 21A between CR-85B and SR-16	II	C	C	56.2	-	C	57.2	-	C	64.3	-	C	65.7	-
County Road 85B between SR-16 and CR-21A	II	C	C	64.1	-	C	65.4	-	D	71.1	-	D	72.9	-

Note: Locations operating unacceptably are bolded but there are no significant project impacts.

Alternative A Mitigations With Major Event Using Esparto Bypass

Off-reservation intersections with levels of service below established thresholds were investigated to determine the role of Alternative A traffic with a major event using the Esparto bypass in the projected operating conditions at those intersections. **Table A6** summarizes the mitigations needed for Alternative A without a major event that would also be needed with a major event. In addition, when project traffic uses the Esparto bypass and there is a major event at the Proposed Project, the mitigations in **Tables A15 and A21** should be implemented as well.

Alternative A Potential Effects on Bicycle and Pedestrian Mobility

Due to the lack of other land uses in the vicinity of the Proposed Porject and the nature of the Proposed Project, it is unlikely that project patrons or employees will walk or bike to the site. Furthermore, the project is not expected to have a notable effect on current mobility for bicyclists and pedestrians nor will it conflict with applicable goals and policies for bicycles and pedestrians contained in the General Plan. Thus, the Proposed Project impact on off-reservation transit, pedestrian or bicycle facilities is determined to be less than significant.

Alternative A Potential Effects on Transit Mobility

As noted earlier, Yolo County Transportation District (YCTD) operates the YoloBus Route 215, connecting the communities of Woodland, Madison, Esparto, Capay, and Brooks to the Cache Creek Casino Resort.

According to the 2006 – 2008 U.S. Census American Community Survey, 3.5% of Yolo County residents use transit to travel to work. This typically represents the highest level of transit ridership during the day. If it is conservatively assumed that 3.5% of employees or customers of the Proposed Project will use transit during the peak hours of the day, it represents approximately 3 additional employees or customers during the typical weekday PM peak period and approximately 4 additional employees or customers during the Saturday PM peak period that would be riding YoloBus.

During a major event, 3.5% represents approximately 18 additional employees or customers in the weekday PM peak period and approximately 20 additional employees or customers during the Saturday PM peak period that would be riding YoloBus. However, it is not expected that this level of attendees will use the YCTD system to reach the casino. It is assumed they will drive out of convenience.

(Note: The estimated number of transit users has not been deducted from the project traffic trip generation calculations).

Data was not readily available for peak hour ridership levels on the YCTD system but during the typical weekday and weekend periods observations indicate the sufficient

capacity exists on the buses to accommodate the potential additional transit demand attributable to the Proposed Project. Furthermore, the project will not conflict with applicable goals and policies for transit contained in the General Plan. Thus, based on Kimley-Horn's professional opinion, the project impact on off-reservation transit service is determined to be less than significant.

Alternative A Potential Effects on County Road Maintenance

Pavement primarily fails due to fatigue and exponentially increases with the axle load of the vehicles traveling upon it. Therefore, large trucks and buses generate the greatest effect on pavement fatigue. The effect of passenger cars, pickups, and two-axle trucks are considered to be negligible.[25] This project is not expected to notably increase off-reservation truck or bus traffic, and in fact may actually decrease truck traffic because the expanded back-of-house area will permit more on-site storage. This in turn will reduce the frequency of trucks that currently bring supplies to the facility. Therefore, the increase in off-reservation traffic associated with the CCCR Event Center Project is considered to be less than significant on county road maintenance.

Alternative A Potential Effects on Intersection Safety

Traffic volumes generated by the project were reviewed in consideration of existing intersection collision history and the potential for increased accidents. According to collision data provided by the California Highway Patrol, accidents involving bicyclist and pedestrians are very low. Many intersections did not report any collisions of this type during the reporting period. This suggests that bicycle and pedestrian volumes are relatively low and study intersections have minimal safety hazards for individuals biking or walking. Although the project will introduce increased off-reservation traffic volumes at some intersections, bicyclists and pedestrians are expected to be able to travel through study intersections with similar levels of safety. Historically casinos do not attract a significant amount of bicycle and pedestrian traffic. Therefore, the expected amount of pedestrian and bicycle traffic attributable to the Proposed Project is nominal and a significant increase in bicycle and pedestrian accidents is unlikely.

The potential for increased collisions between motorized vehicles was also considered. Collision frequency and severity are a function of many complex factors that vary depending on the location and type of intersection or roadway segment. Factors include traffic control such as signals or stop signs, lane and shoulder widths, grades, driveway densities, roadside hazards or obstacles, presence of left and right turn lanes, sight distance, congestion, and others.

Because of the number and interrelationships of the variables, accurate crash prediction is difficult. However, the Proposed Project will increase roadway congestion, a factor

[25] Caltrans Highway Design Manual, Topic 613 – Traffic Considerations, July 1, 2008.

which could result in an increase in traffic collisions if left unmitigated. Other factors are expected to remain unaffected.

As noted previously, the purpose of this study is to address the traffic and transportation effects of the Proposed Project. This includes mitigation improvements to restore traffic operations to levels within acceptable standards or to levels as good as or better than without the project. Any potential increases in accidents due to project-related traffic would be offset by the implementation of off-reservation roadway improvements included as mitigation. Therefore, if mitigations are implemented as proposed in this study, no significant increase in daytime or nighttime collisions is expected.

The Proposed Project will increase off-reservation traffic on SR-16 and adjacent county roadways where farm vehicles operate. However, this increase in traffic will not significantly impact or significantly increase the potential conflicts with nearby farm operations for a variety of reasons:

- There were no reported collisions (in the last 3 years) that included farm machinery or vehicles colliding with other highway traffic along any of the study segments or intersections.
- The area has a history of co-existence between CCCR and farm operations.
- Farm vehicles typically operate prior to the PM peak commute period or later in the day when CCCR traffic levels are highest. Observations indicate farm workers and equipment are in the fields shortly after sunrise and are winding down most activities prior to 5 PM. Large harvesting equipment is often moved during these same times to reduce conflicts with highway traffic.
- Volumes on the roads serving CCCR and farm uses will remain within the acceptable volumes for the road classifications, or will be mitigated to a level at or less than the “before” project condition.
- Intersections will be improved, thereby ensuring that traffic, including farm equipment, can move safely and efficiently through study intersections.

As long as the traffic volumes continue to be consistent with the volumes of the roadway’s classification, it is reasonable to assume that the roads can continue to sufficiently serve the uses that they were designed to accommodate. Therefore, an increase in off-reservation traffic volume attributable to the Proposed Project alone does not render the project incompatible with the other agricultural and residential uses SR-16 serves. It is reasonable to conclude that a delay in exiting or entering a farm property does not rise to the level of a significant impact. Furthermore potential increases in traffic due to the Proposed Project traffic would be offset by the implementation of off-reservation roadway improvements included as mitigation. Therefore, if mitigations are implemented as proposed in this report, no significant increase in collisions with farm equipment is expected.

It is also noted that the future State Route 16 Safety Improvement Project (SIP) will implement improved sight distances, wider shoulders, and other improvements to increase safety on several segments of the state highway.

Esparto Middle School is located along County Road 21A approximately 0.4 miles west of SR-16. Nearly all middle school students live north of CR-21A. Some can reach the school by using interior neighborhood streets and a pedestrian connection to the school. However, some students use the shoulder on the north side of CR-21A as their most direct route to school. If the Proposed Project traffic is encouraged to use CR-21A as a bypass around downtown Esparto, the addition of that traffic increases the potential for conflict with school children walking adjacent to the roadway although the peak hour of the Proposed Project traffic will occur much later than the peak hour of Esparto Middle School foot traffic. Therefore, under this scenario it is recommended that an asphalt walking path be installed between the school driveway and Fremont Street as described in Mitigation #16 if traffic is encouraged to use the Esparto bypass.

Esparto High School is located along SR-16, just north of Plainfield Street. In this area, streets have sidewalks upon which to walk and marked crosswalks at major intersections. The Proposed Project is not expected to have a notable effect on current mobility or safety for school children in this area. Thus, the Proposed Project impact on High School students is determined to be less than significant.

Alternative A Construction Traffic Impacts

The day-to-day construction operations for the construction of the Proposed Project will include off-reservation traffic impacts related to construction workers as well as construction material exportation and importation. There are not any off-reservation traffic impacts related to excavation activities because there will be no off-site disposal. The principal activities expected to generate traffic related to the construction[26] are listed below:

- Construction import is based on the number of trucks required to deliver construction materials to the site, including building materials such as wood, steel, and masonry.
- Construction worker trips are based on the number of construction workers estimated to be on site during different points throughout the project. Each construction worker is assumed to drive to and from the site alone each day and it is assumed that 20% of the workers leave and return to the site for various purposes during the day.
- Heavy equipment is based on the number of large construction vehicles expected during the project duration. The heavy equipment expected as part of this project was provided by the Tribe.

[26] Provided by Rob Willis, Director of Development at CCCR and Tom Horgan, Civil Engineer, Laugenour and Meikle

Using the expected traffic information described above, construction related traffic generation was estimated. Each construction activity listed above will generate different volumes of traffic at different points in the project. For example, the delivery and removal of heavy equipment to the project site will happen only a few times during the construction period. The construction related off-reservation traffic is expected to remain relatively consistent throughout the Proposed Project construction.

It is estimated that it will take 24 months to complete construction of the project.

Construction Material Export and Import – It is estimated that 55,000 cubic yards of earthwork will be required to be excavated to develop the site for Alternative A. The excess excavated earth will be hauled to an unpaved area above the existing casino where it will be placed, compacted, and contoured as an extension of the hill. Because the excavation will occur entirely on-site, it will not generate any traffic on the surrounding off-reservation roadways. The grading is expected to last 12 to 15 weeks.

Once the site is graded, the project will also require the importation of construction material including, raw materials, concrete, the parking lot base and asphalt paving. This results in a material importation of approximately 50 truckloads per week from SR-16 to the east via I-5 and I-505. A full haul truck, because of its larger size and slower operating characteristics, is equivalent to approximately 4 passenger vehicles and an empty haul truck is equivalent to roughly 2 passenger vehicles. The material importation via truck equates to 40 passenger car equivalent trips in per day and 20 passenger car equivalent trips out per day. Even though the material importation trips will occur outside of the PM peak hour, for comparison, the number of construction importation trips is roughly equivalent to 6% of the Friday PM peak hour project trips and 4% of the Saturday PM peak hour project trips. In comparison to project trips with a major event, the construction importation trips are roughly equivalent to 1.6% of the Friday PM peak hour project trips with a major event and 1.4% of the Saturday PM peak hour project trips with a major event.

Because the import truck off-reservation traffic generates significantly less traffic than the project's equivalent passenger car traffic generation (even when added to employee trips described below) and the vehicle path travels through generally uncongested intersection movements, it should not significantly impact the capacity of any off-reservation study intersection. However, this level of truck traffic may have an impact on quality of life including increased perception of lower traffic safety and the track of debris and mud onto roadways may create a perceptual impact as well as a physical impact.

Construction workers – The weekday work will begin around 7:00 a.m. and end around 3:30 p.m. The construction worker arrival peak occurs between 6:00 a.m. and 7:00 a.m., and the departure peak occurs between 3:30 p.m. and 4:30 p.m. This is generally prior to the areawide commute peaks between 7:30 a.m. and 8:30 a.m. and between

4:30 p.m. and 5:30 p.m. with a period of overlap into the commute peak periods. There will be 400 construction workers at most on-site during construction and none of them are expected to be on the roadway during the peak hours. During grading, there will be approximately 100 construction workers on-site.

Workers will generate peak parking demand equivalent to roughly 400 vehicles during the peak construction period. Additionally, deliveries, visits, and other activities may generate peak non-worker parking demand of up to another 50 trucks and autos. Therefore, an approximate demand of 450 vehicle parking spaces will be required during the peak construction period for the construction employees. It is anticipated that this demand will be able to be met on site at CCCR.

The impacts of construction related employee traffic and parking are considered less than significant because the construction commute peak and the areawide commute peak will only have a brief period of overlap and the parking demand will be able to be met at CCCR.

Heavy Equipment – A total of approximately 16 pieces of heavy equipment will be used based on wide-load permits necessary at various times over the course of the construction period. Delivery and removal of heavy equipment will occur outside of the areawide commute peak and equipment will be moved in and out of the site on different days. The periodic delivery during off-peak hours constitutes a minimum disruption of traffic.

The impacts of the periodic delivery and removal of heavy equipment during off-peak hours constitutes a minimum disruption of traffic and thus is considered less than significant.

The following mitigation is recommended in relation to construction traffic and is listed in **Table A26**.

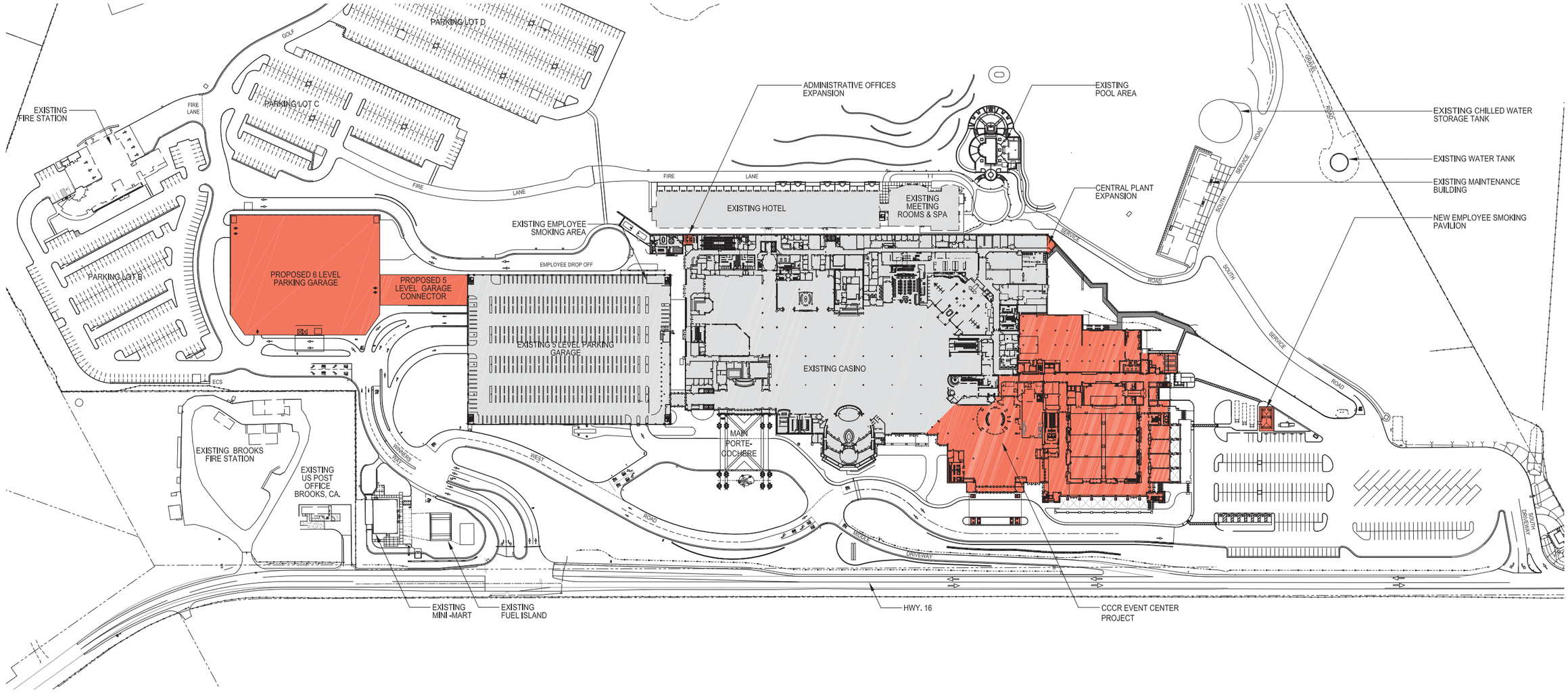
Impact #18: Construction Traffic
The worst-case construction traffic for the Proposed Project will occur for a period of time where truck traffic will generate a large number vehicle trip ends per day in addition to construction employee trips and heavy equipment delivery to the project site. The presence of large and slow moving vehicles and construction equipment on SR-16 in the project vicinity would result in potential safety hazards to motorists.

Mitigation #18
Prior to commencing each phase of project development, the applicant shall prepare a traffic control plan for construction of that phase and shall obtain approval from Caltrans for implementation of such a plan. The traffic control plan shall be prepared in accordance with Caltrans requirements and shall include information about times of construction, the haul routes, delivery times for heavy

equipment, and any other particulars as required by Caltrans. With the implementation of the traffic control plan, the impacts of project construction traffic would be reduced to less-than-significant levels.

Table A 26 – Alternative A Construction Traffic Summary of Mitigations

Mitigation #	Location	Impacted Scenario	Jurisdiction	Mitigation	Fair Share
18	Construction Traffic	Near-Term (2013) + Alternative A	Caltrans	Prepare a traffic control plan.	100%



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NOT TO SCALE

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FIGURE A1
ALTERNATIVE A PROJECT SITE PLAN
CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

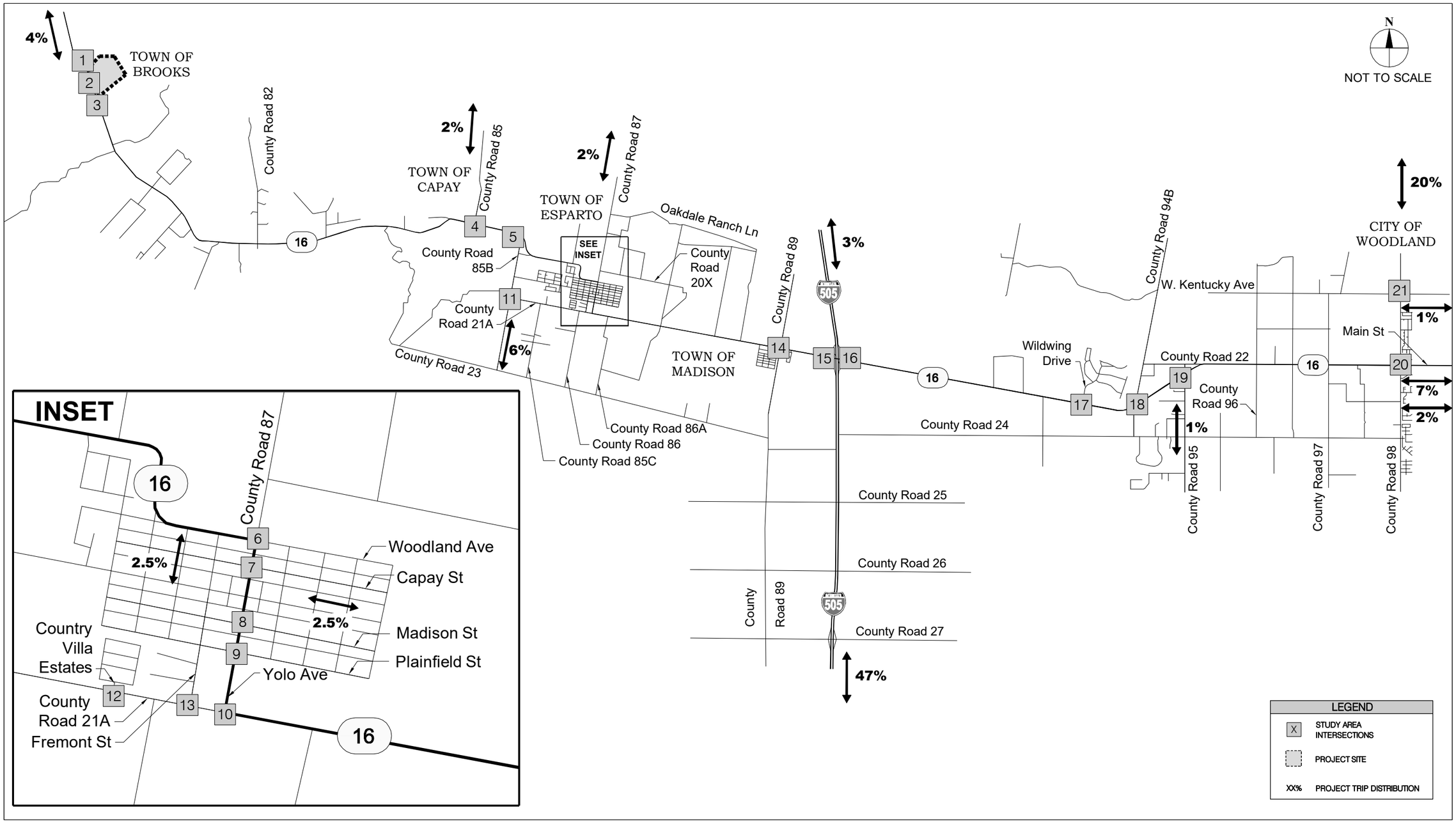

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FIGURE A2
ALTERNATIVE A PROJECT TRIP DISTRIBUTION
CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

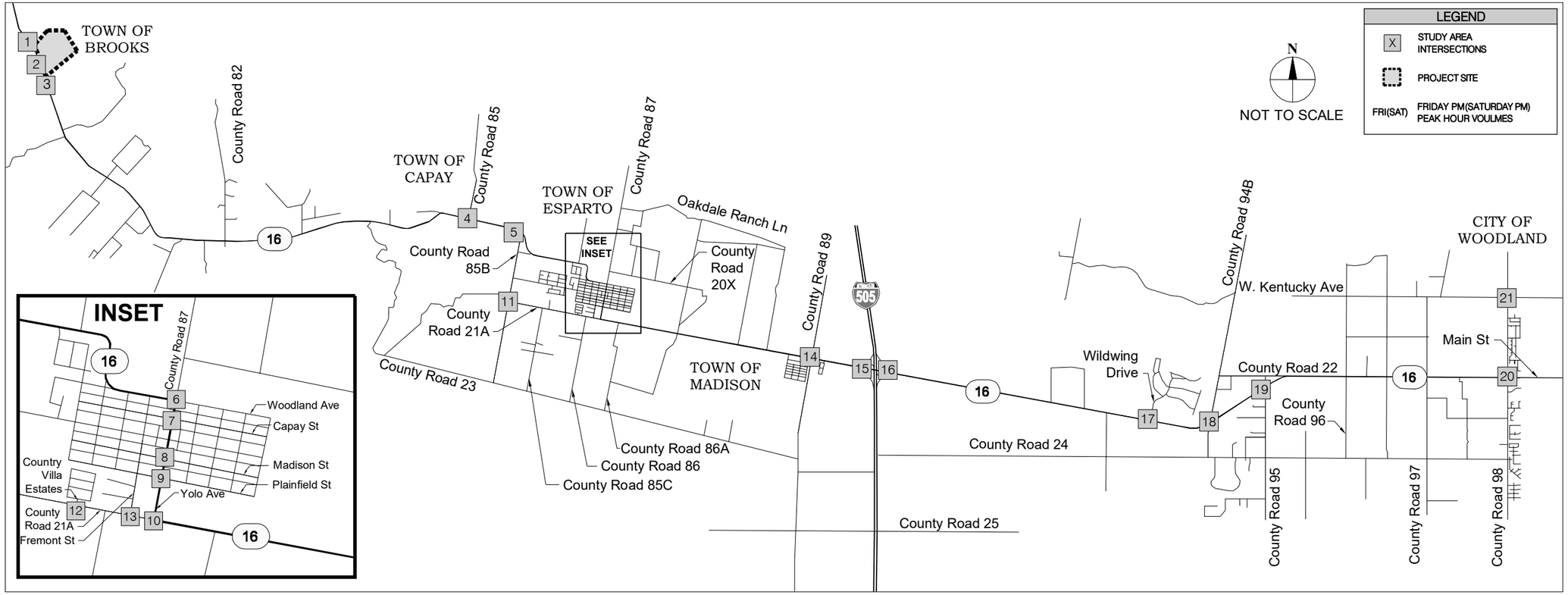

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FIGURE A3
ALTERNATIVE A PROJECT TRAFFIC VOLUMES
CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

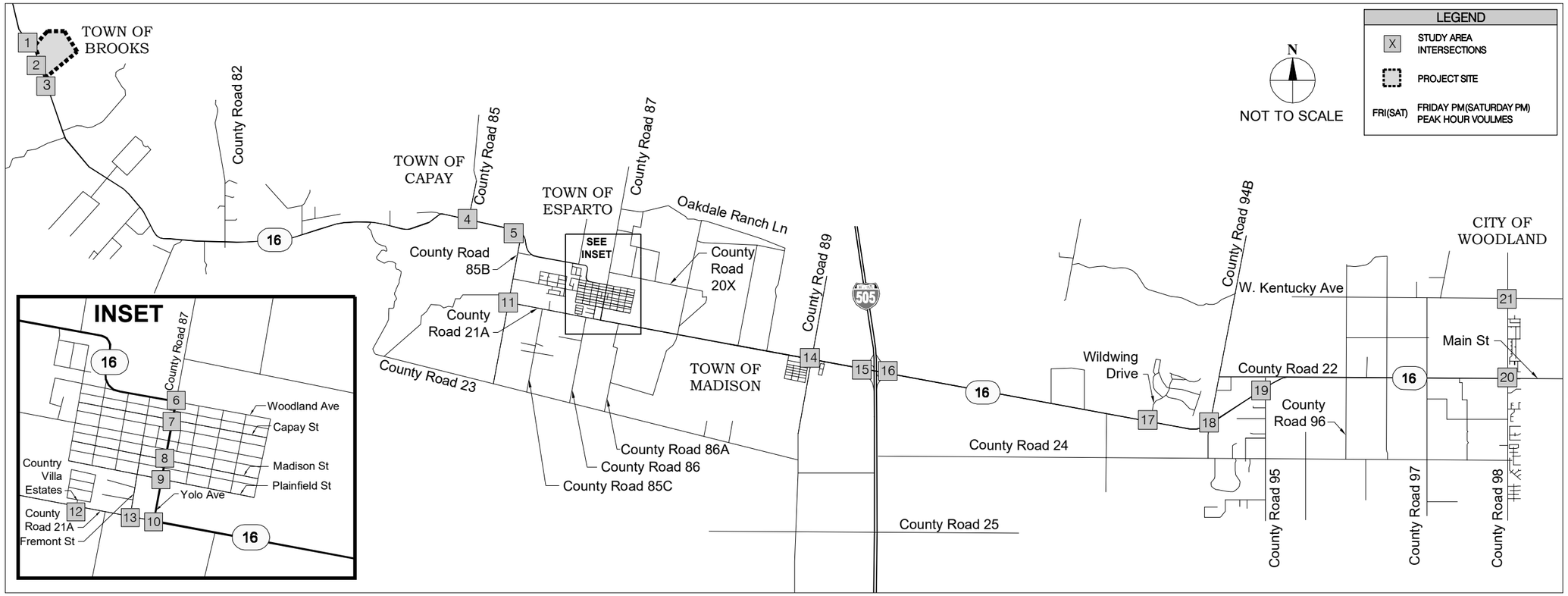

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FIGURE A4
NEAR-TERM + ALTERNATIVE A TRAFFIC VOLUMES
CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

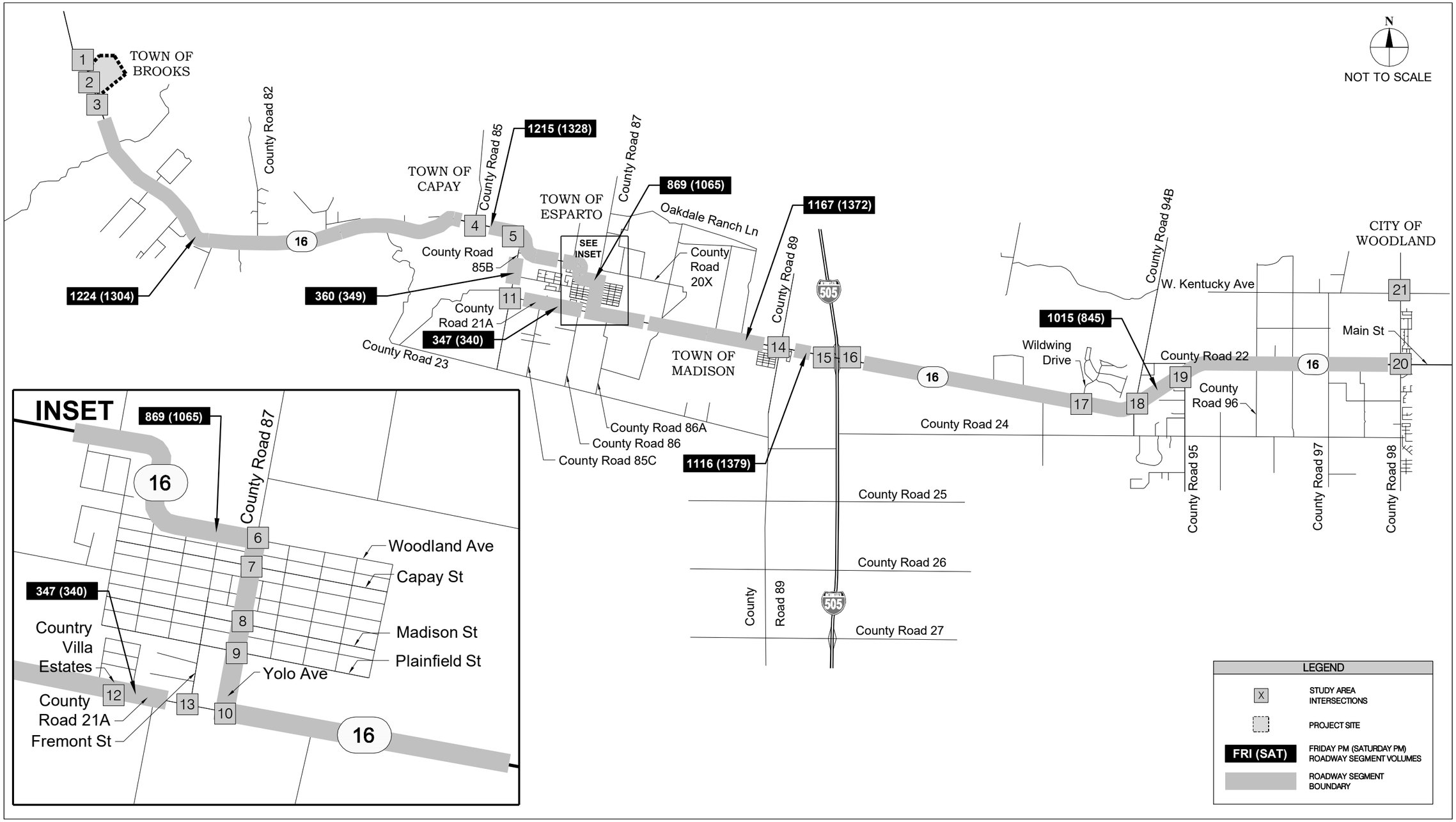

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FIGURE A5
NEAR-TERM + ALTERNATIVE A TWO-WAY ROADWAY SEGMENT TRAFFIC VOLUMES
CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

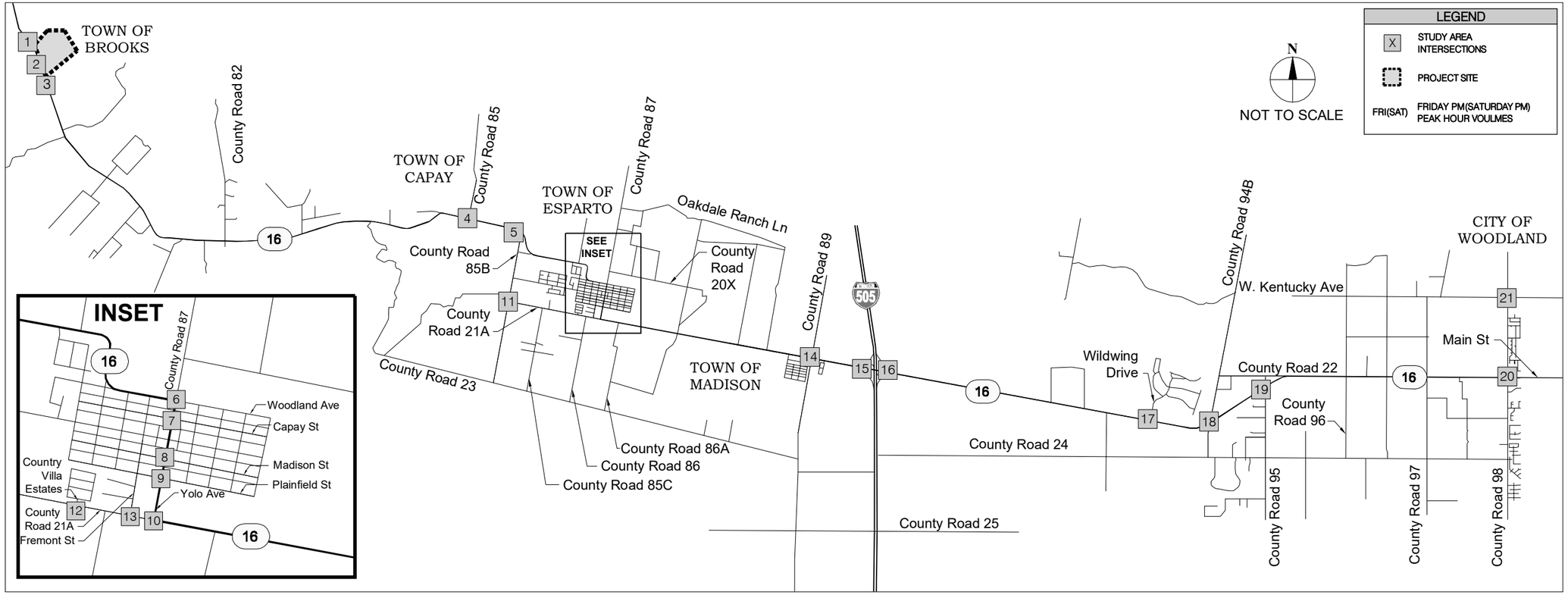

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FIGURE A6
LONG-TERM + ALTERNATIVE A TRAFFIC VOLUMES
CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

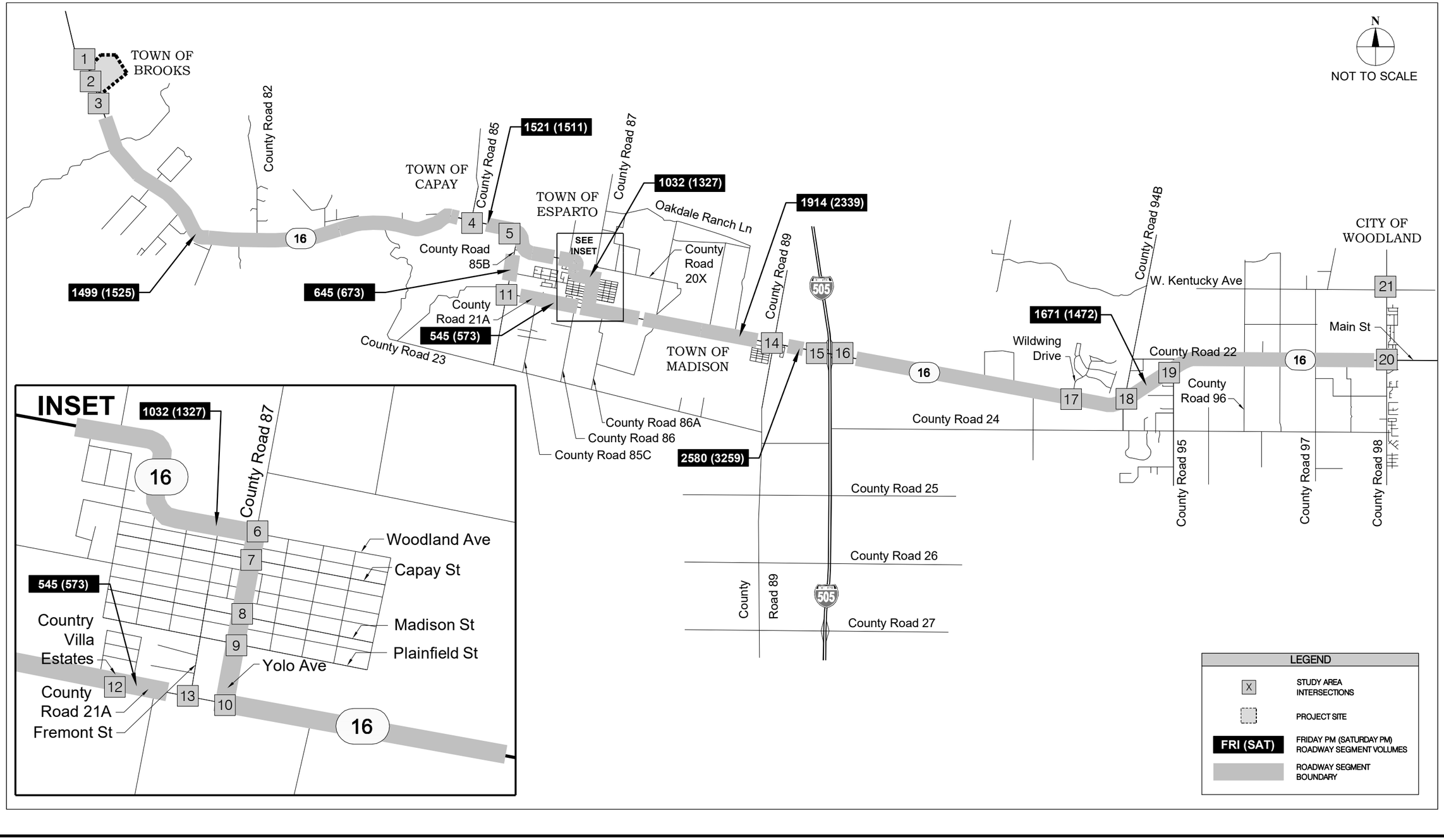

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FIGURE A7
LONG-TERM + ALTERNATIVE A TWO-WAY ROADWAY SEGMENT TRAFFIC VOLUMES
CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

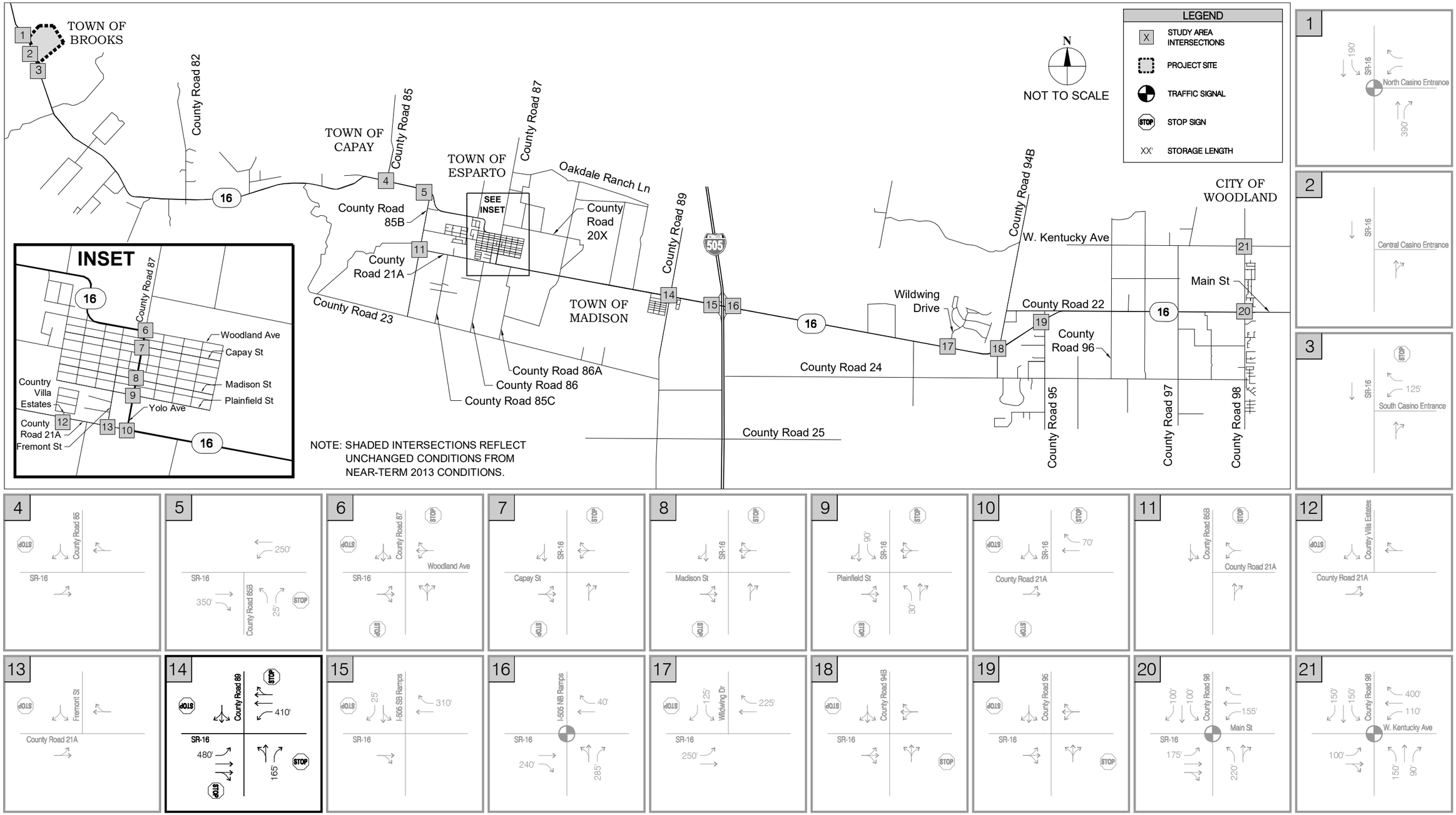

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FIGURE A8
NEAR-TERM + ALTERNATIVE A MITIGATED LANE GEOMETRY AND TRAFFIC CONTROL
CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

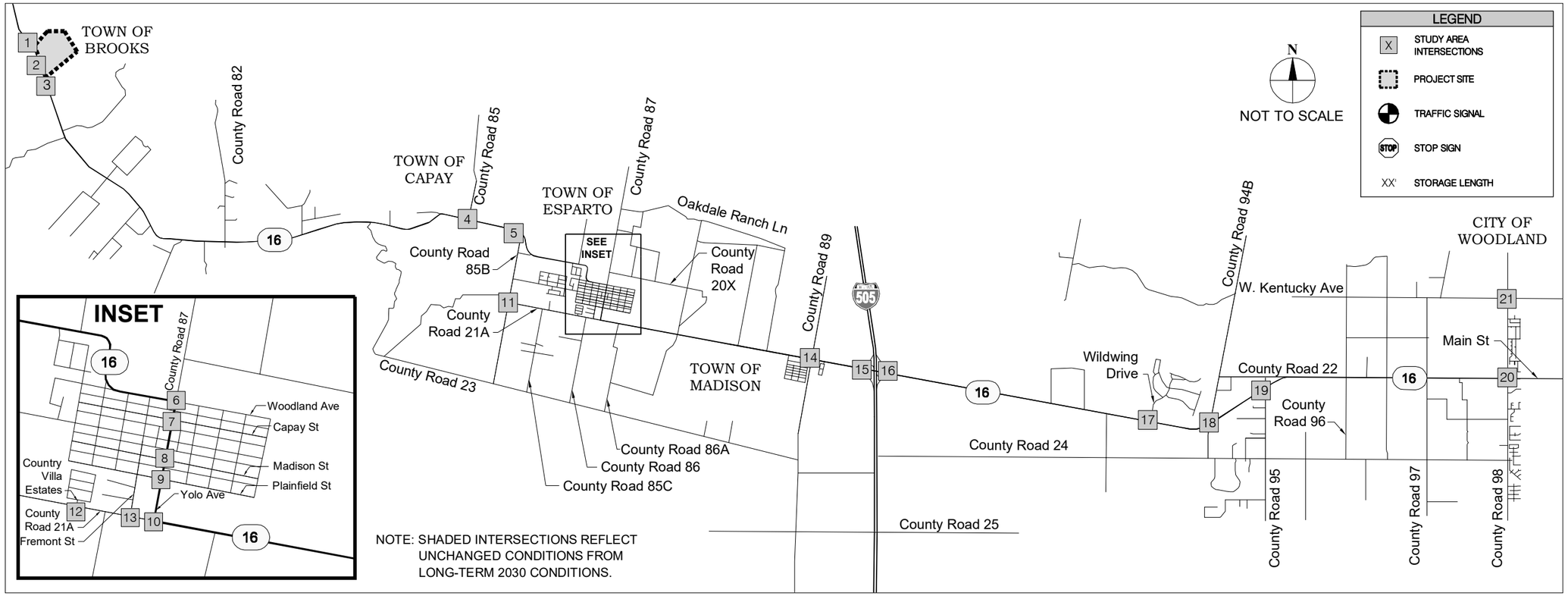

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FIGURE A9
LONG-TERM + ALTERNATIVE A MITIGATED LANE GEOMETRY AND TRAFFIC CONTROL
CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

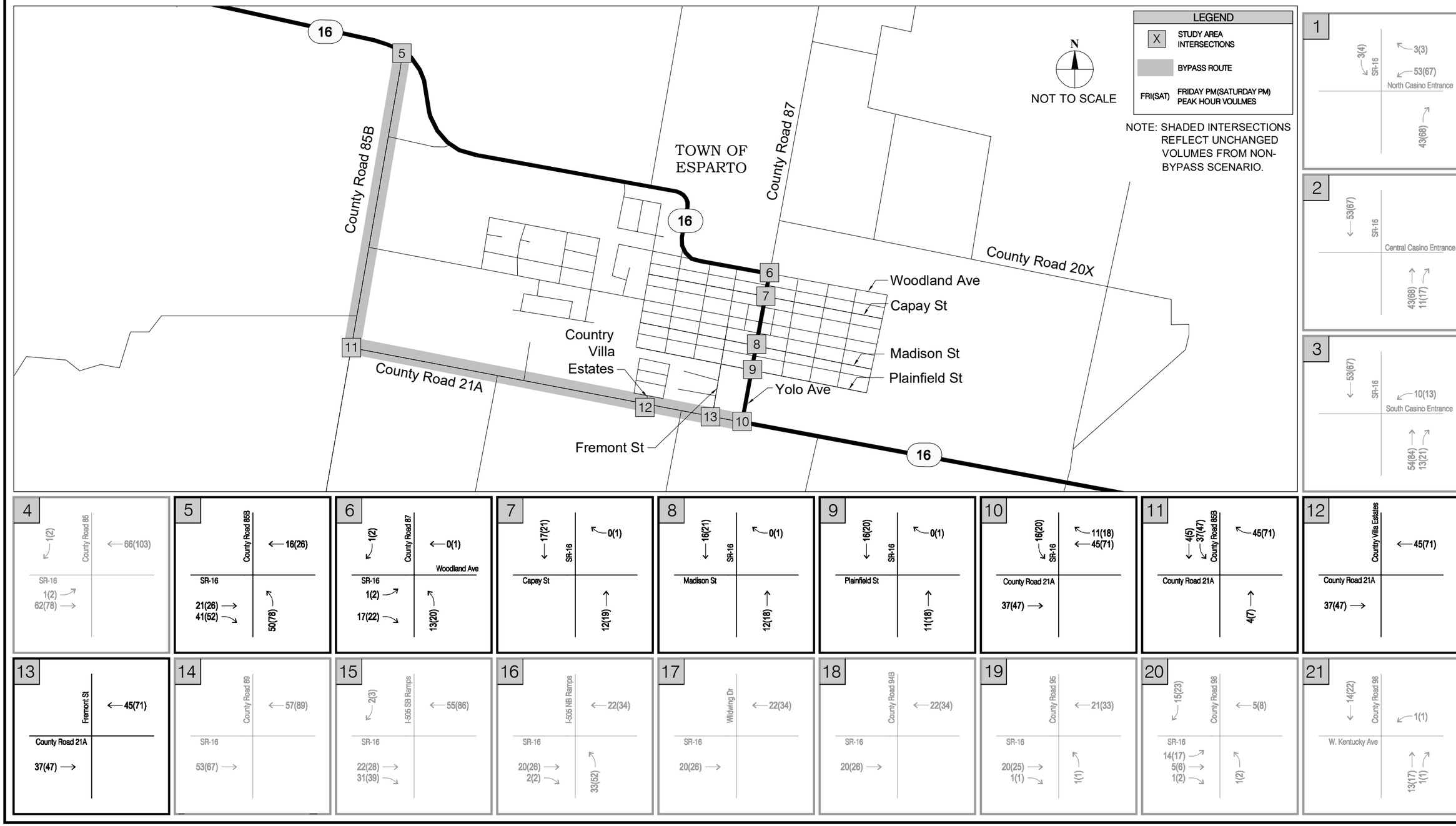

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FIGURE A10
ALTERNATIVE A PROJECT (USING BYPASS) TRAFFIC VOLUMES
CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

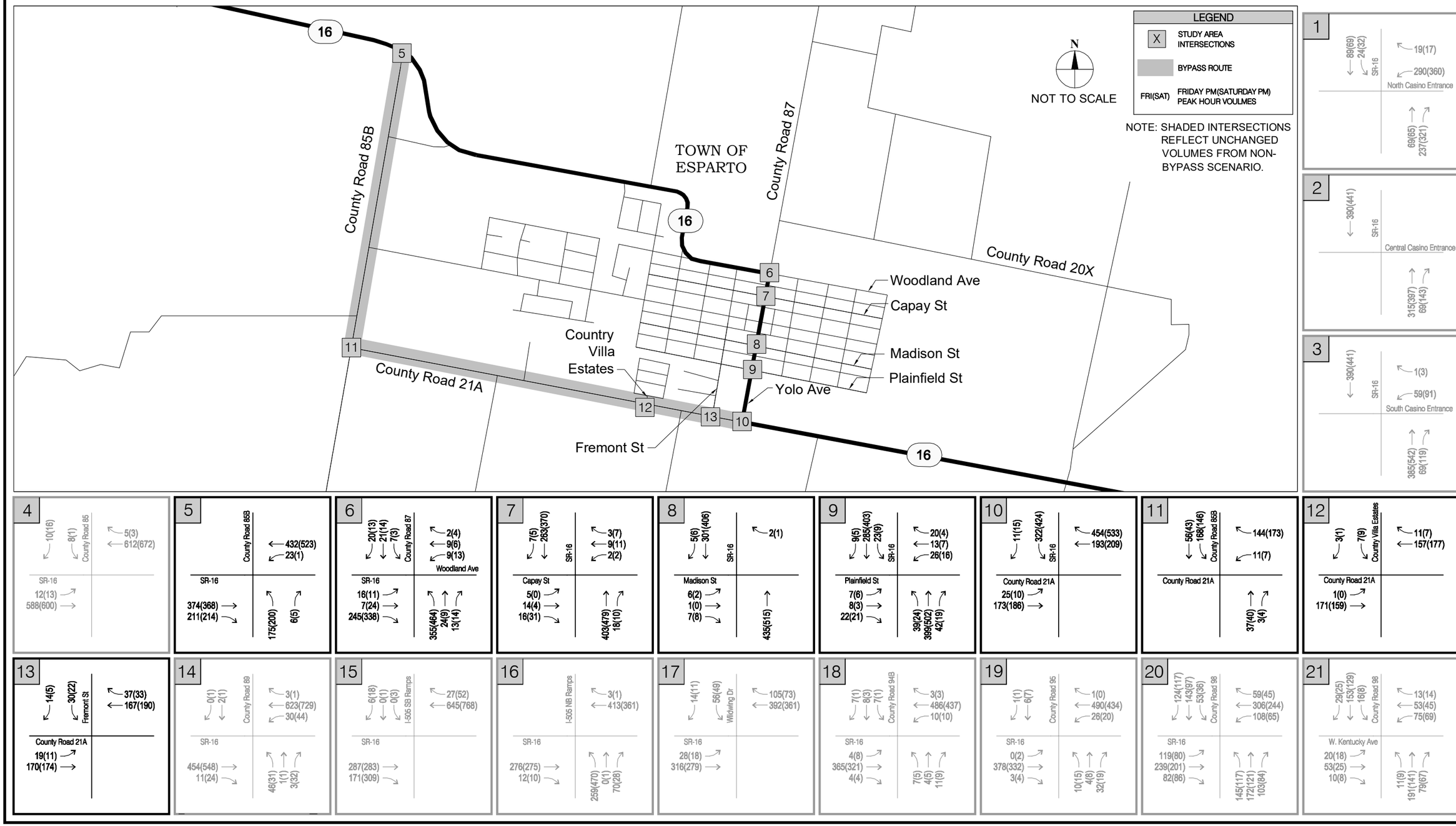

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FIGURE A11
NEAR-TERM + ALTERNATIVE A (USING BYPASS) TRAFFIC VOLUMES
CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

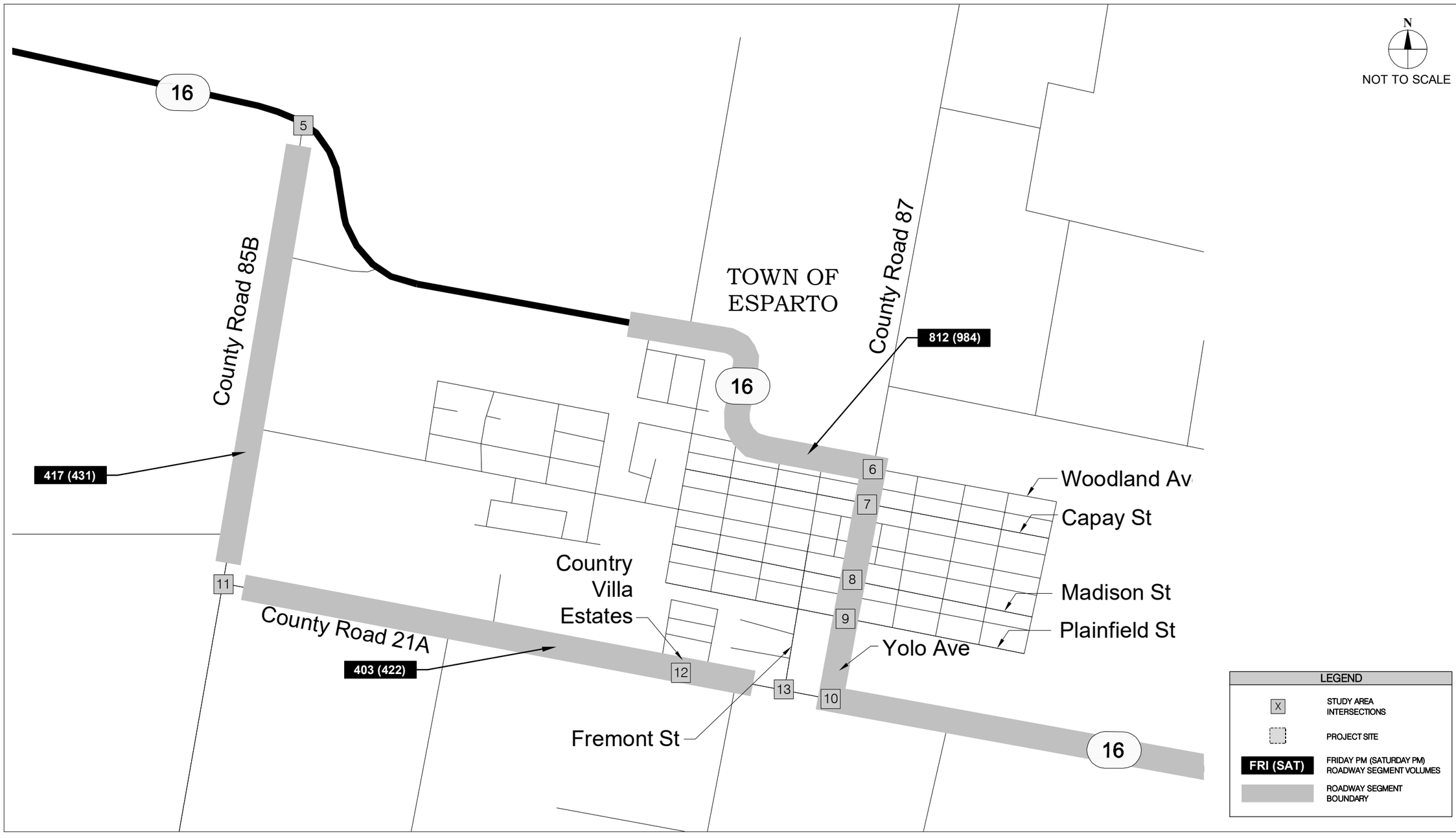

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FIGURE A12

NEAR-TERM + ALTERNATIVE A (USING BYPASS) TWO-WAY ROADWAY SEGMENT TRAFFIC VOLUMES

CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

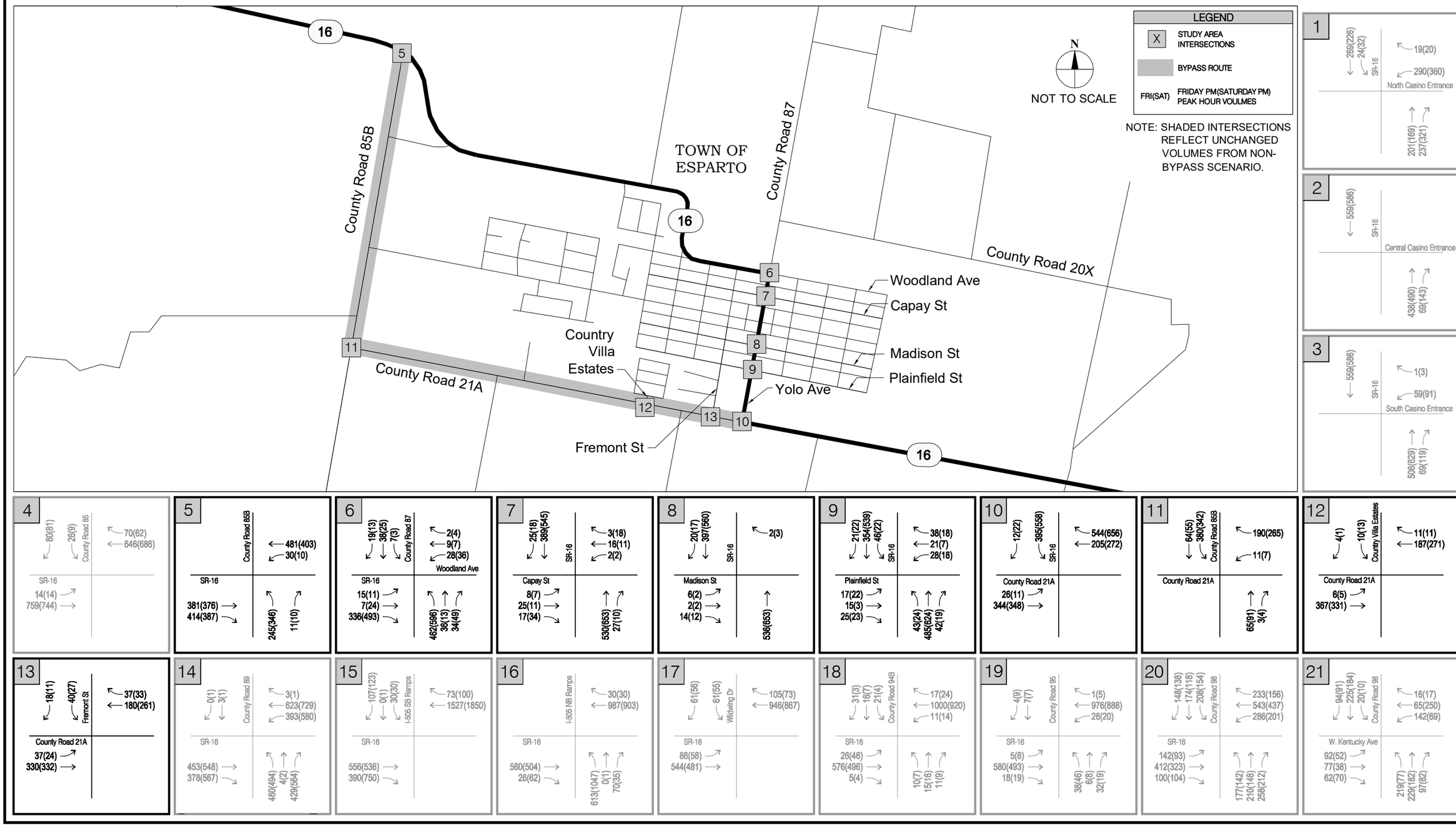

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FIGURE A13
LONG-TERM + ALTERNATIVE A (USING BYPASS) TRAFFIC VOLUMES
CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

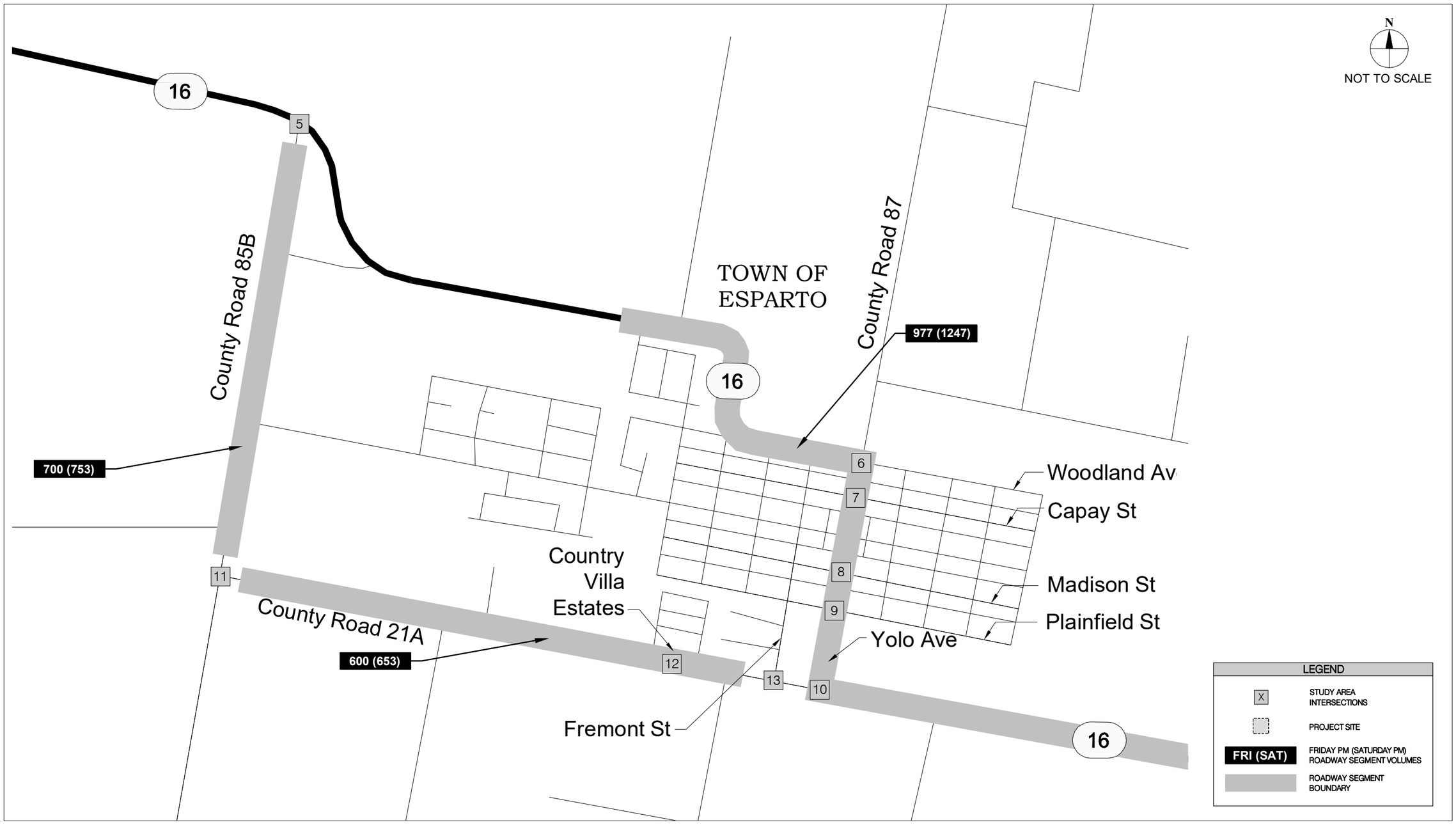

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FIGURE A14

LONG-TERM + ALTERNATIVE A (USING BYPASS) TWO-WAY ROADWAY SEGMENT TRAFFIC VOLUMES

CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

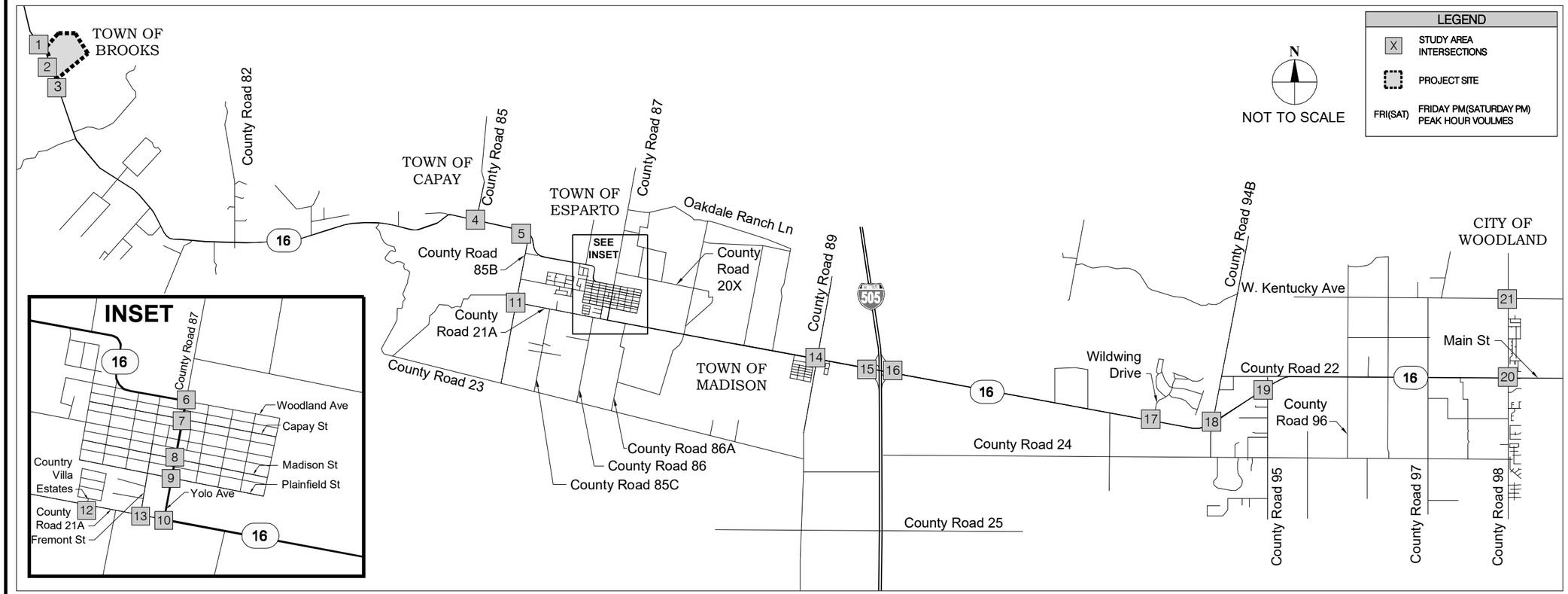

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FIGURE A15
ALTERNATIVE A PROJECT (WITH MAJOR EVENT) TRAFFIC VOLUMES

CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

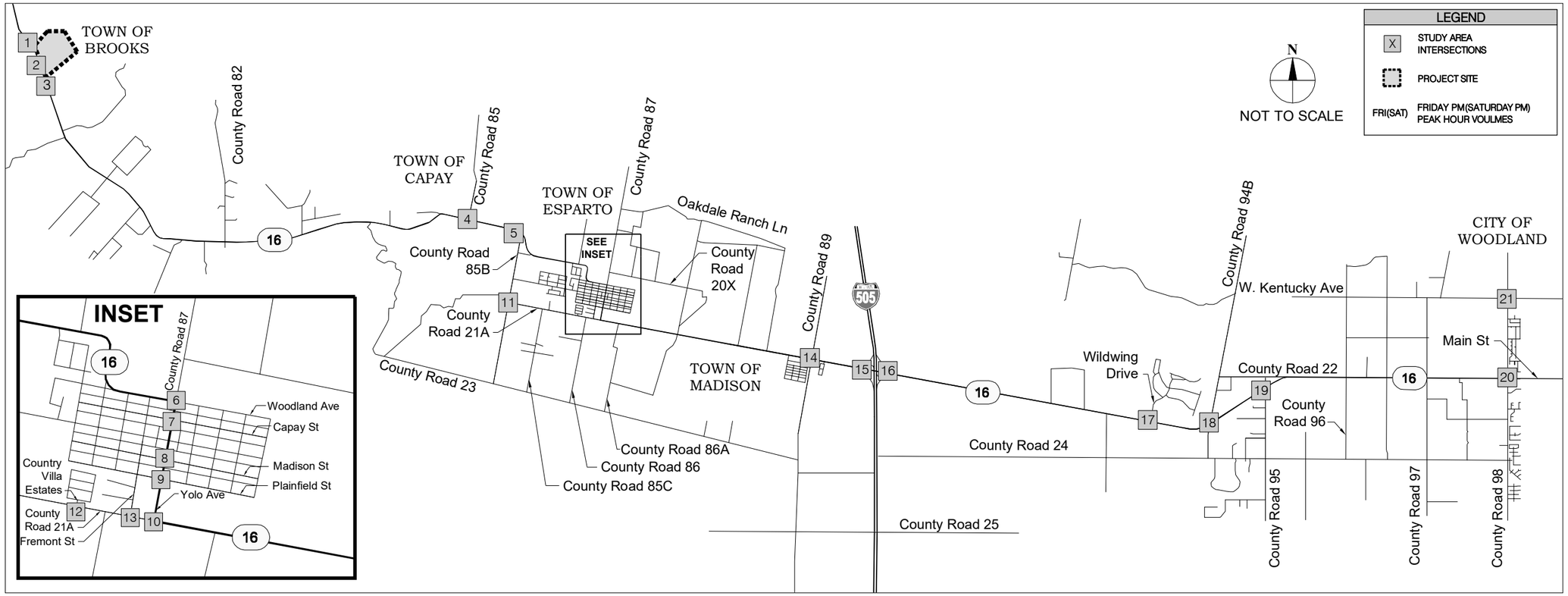

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FIGURE A16
NEAR-TERM + ALTERNATIVE A (WITH MAJOR EVENT) TRAFFIC VOLUMES
CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

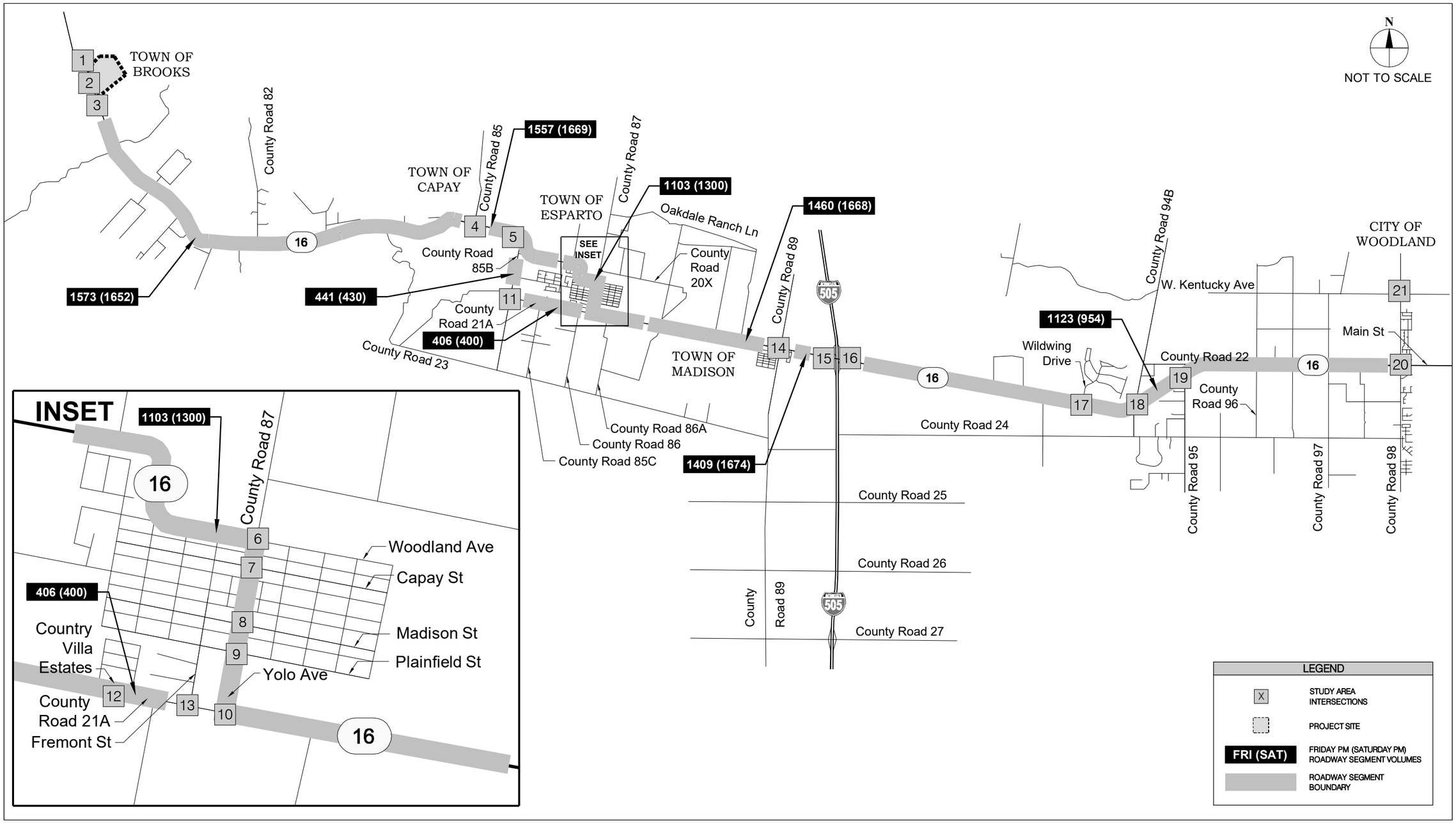

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FIGURE A17

NEAR-TERM + ALTERNATIVE A (WITH MAJOR EVENT) TWO-WAY ROADWAY SEGMENT TRAFFIC VOLUMES

CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

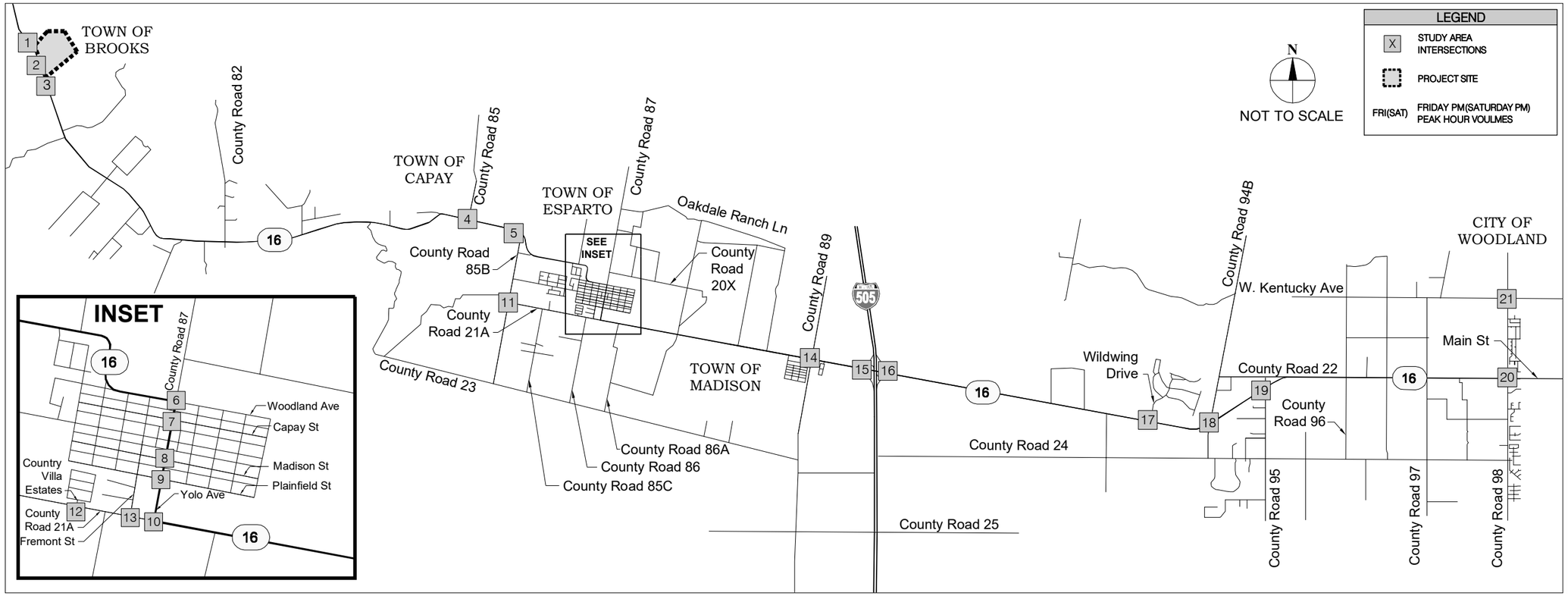

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FIGURE A18
LONG-TERM + ALTERNATIVE A (WITH MAJOR EVENT) TRAFFIC VOLUMES
CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

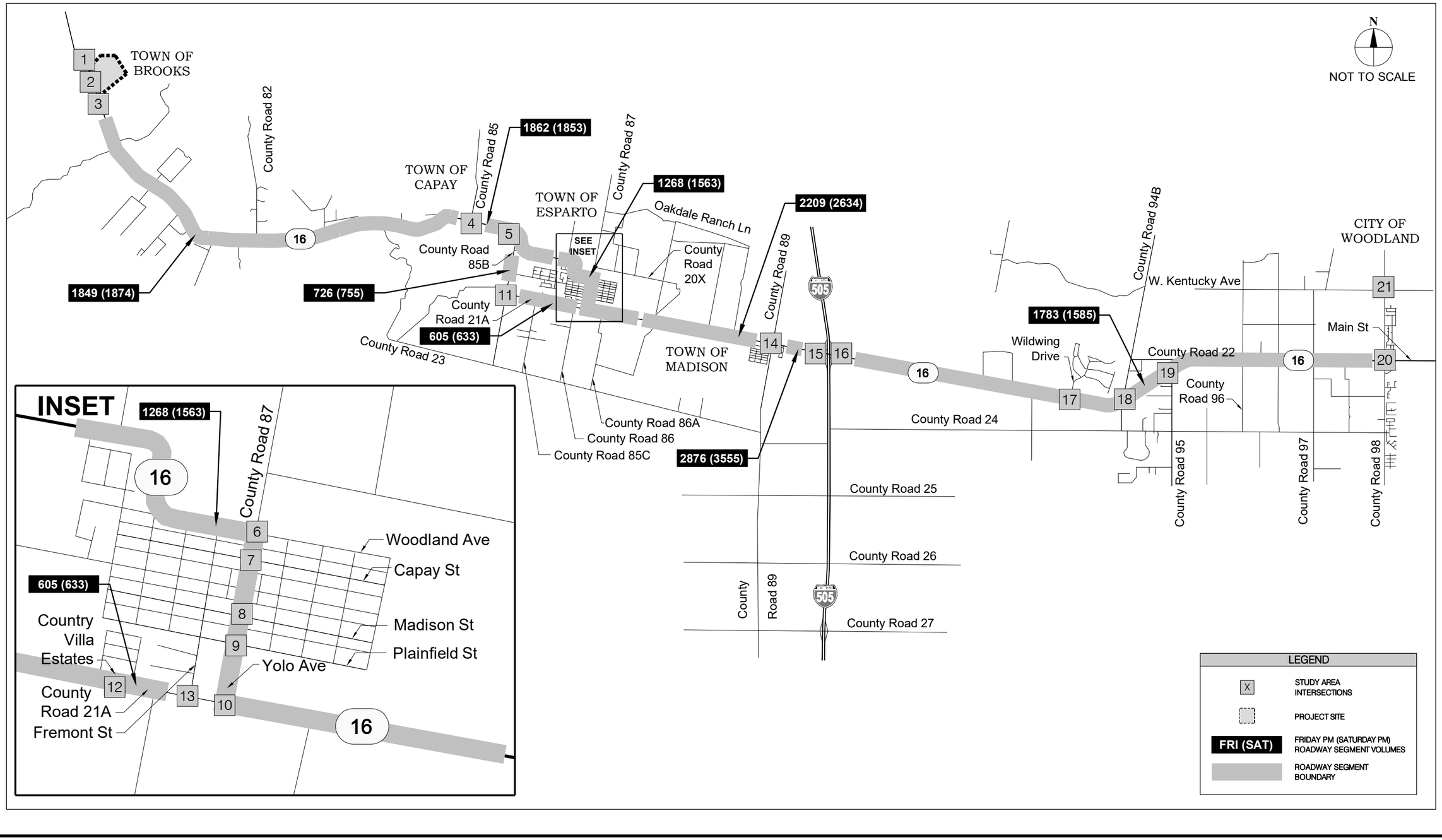

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FIGURE A19

LONG-TERM + ALTERNATIVE A (WITH MAJOR EVENT) TWO-WAY ROADWAY SEGMENT TRAFFIC VOLUMES

CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

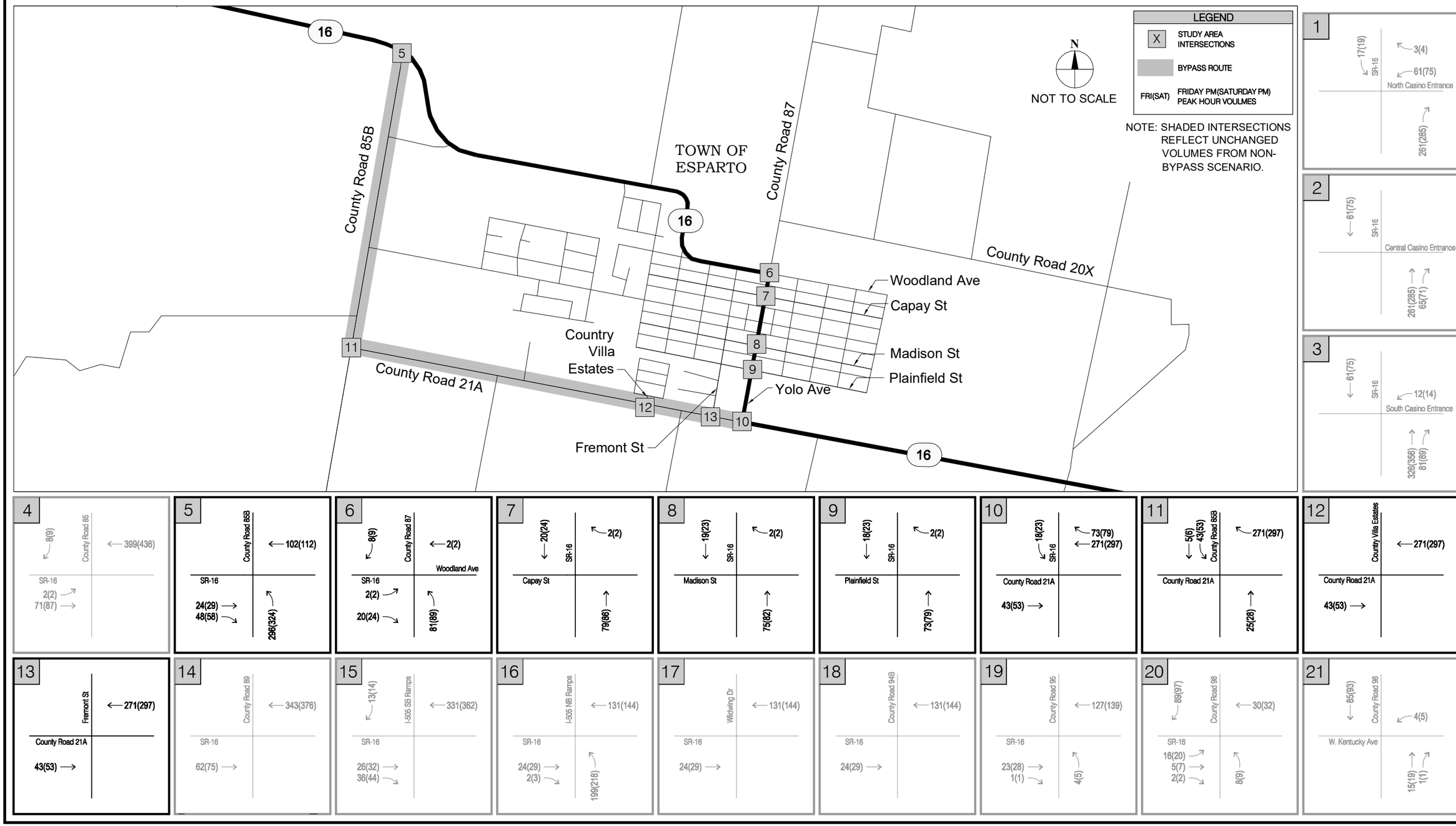

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FIGURE A20
ALTERNATIVE A PROJECT (WITH MAJOR EVENT USING BYPASS) TRAFFIC VOLUMES
CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

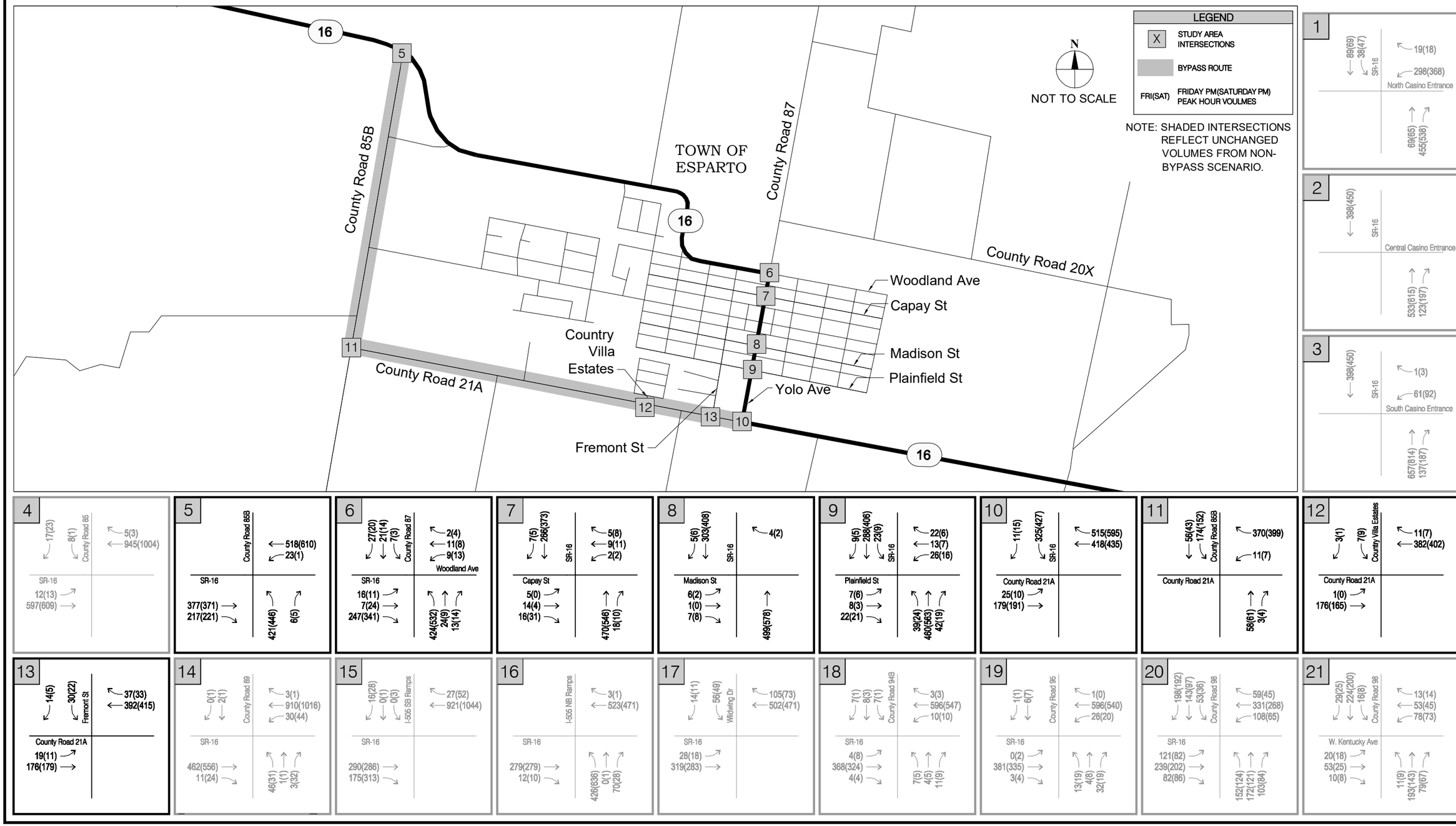

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FIGURE A21
NEAR-TERM + ALTERNATIVE A (WITH MAJOR EVENT USING BYPASS) TRAFFIC VOLUMES
CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

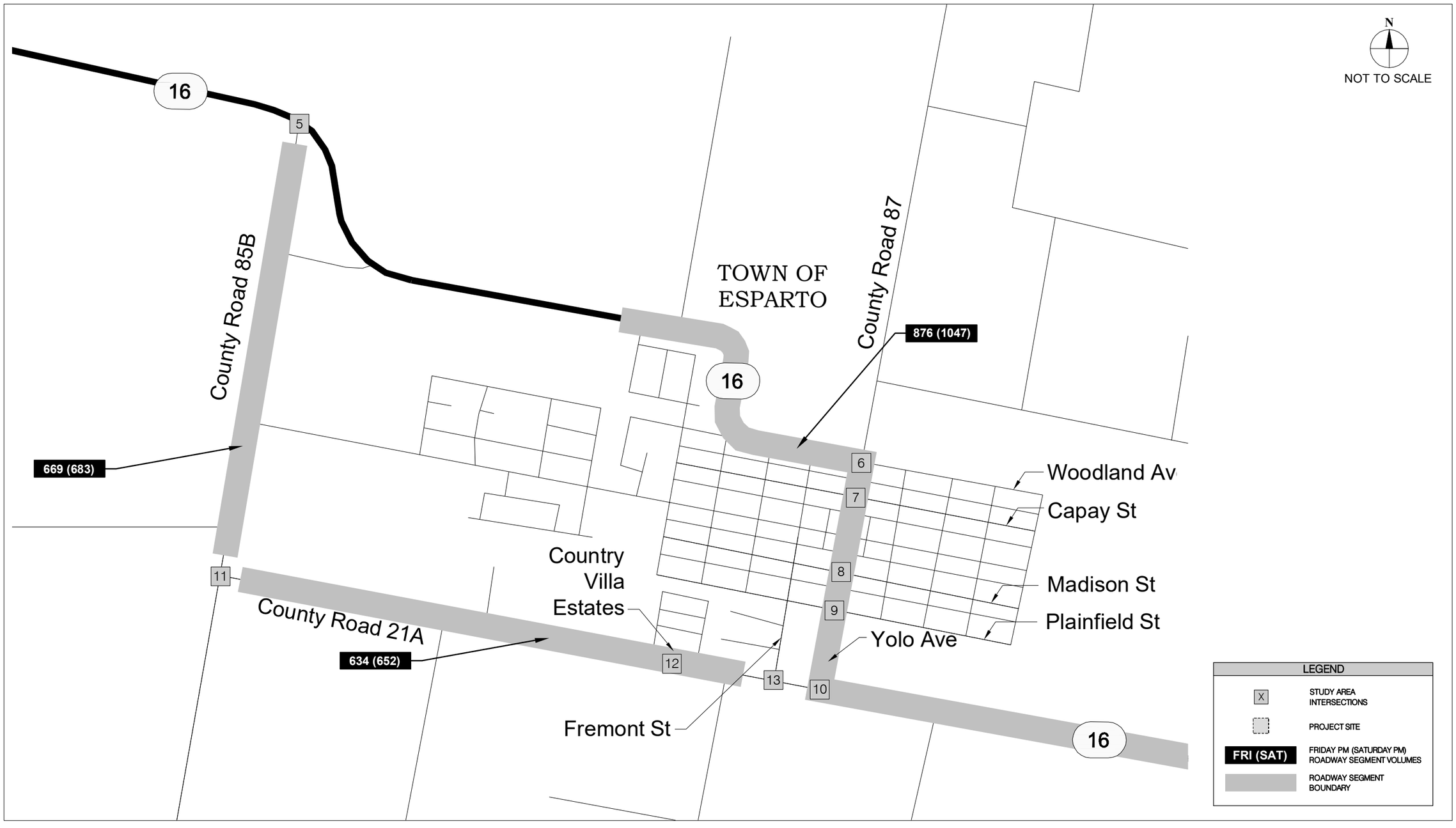

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FIGURE A22
NEAR-TERM + ALTERNATIVE A (WITH MAJOR EVENT USING BYPASS) TWO-WAY ROADWAY SEGMENT TRAFFIC VOLUMES
CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

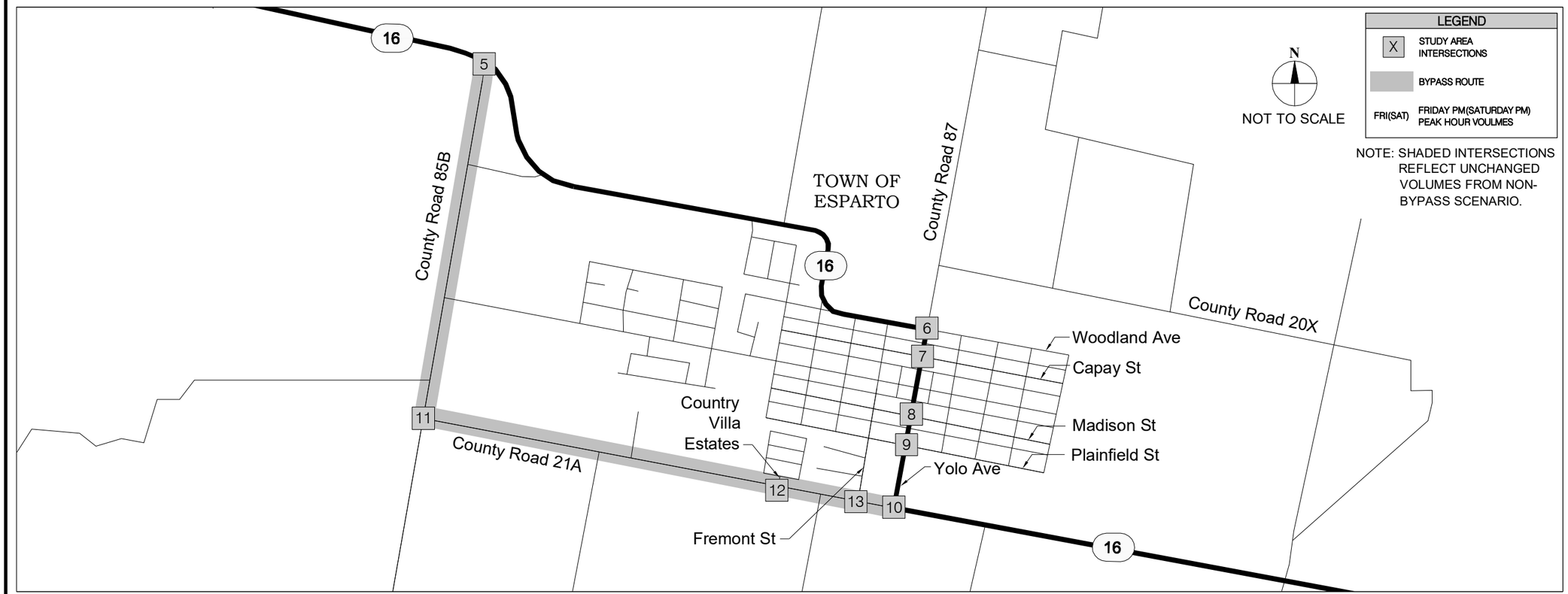

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FIGURE A23
LONG-TERM + ALTERNATIVE A (WITH MAJOR EVENT USING BYPASS) TRAFFIC VOLUMES

CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

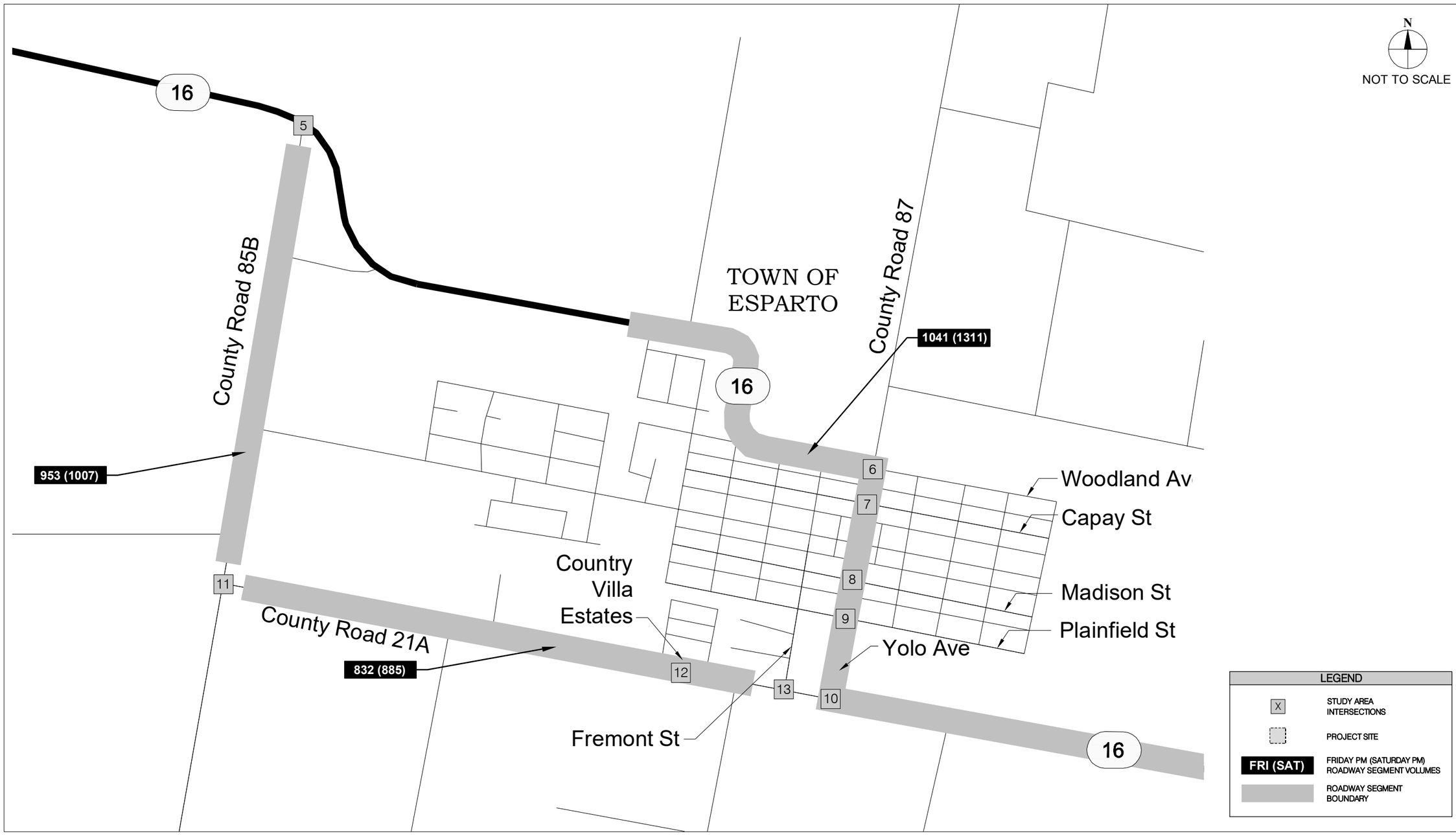

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FIGURE A24
LONG-TERM + ALTERNATIVE A (WITH MAJOR EVENT USING BYPASS)
TWO-WAY ROADWAY SEGMENT TRAFFIC VOLUMES
CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

ALTERNATIVE B – REDUCED INTENSITY ALTERNATIVE

The site layout as shown in **Figure B1** includes an expansion of approximately 172,832 square feet for an event center with 1,150 seats, additional gaming floor area, restaurants, meeting rooms, and other ancillary functions.

A breakdown of square footage as it relates to traffic impacts is shown below:

• Event Center –	20,362 s.f.
• Meeting Room Facilities –	5,164 s.f.
• Gaming Floor –	10,249 s.f.
• Dining –	12,115 s.f.
• Miscellaneous Public Spaces –	6,253 s.f.
• Warehouse & Receiving –	23,102 s.f.
• Other Back of House –	95,588 s.f.
	172,832 s.f.

The site plan also shows supporting uses such as the existing 5 level parking structure, parking lots, and nearby existing facilities such as the Brooks Fire Station, US Post Office, mini-mart, and gas station.

Site Access

The main access points to the Reduced Intensity Alternative are located on SR-16. The north access at Winners Way operates as a full movement driveway with no turn limitations. The central driveway operates as an in-only driveway with a southbound left turn prohibition. The south driveway also has a southbound left turn prohibition but allows all other movements.

Only the Winners Way access is signalized.

Alternative B Scenarios

Under Alternative B there are multiple scenarios that may occur depending on whether or not there is a performance at the event center and whether traffic drives through downtown Esparto or takes an alternative bypass route. Therefore, the following scenarios will be evaluated with Alternative B:

- **Near-Term + Alternative B** – This near-term scenario includes trips associated with the casino expansion but assumes there is no performance at the event center. New off-reservation traffic follows current patterns with most traffic continuing to travel on SR-16 downtown through Esparto.
- **Long-Term + Alternative B** – This long-term scenario includes trips associated with the casino expansion but assumes there is no performance at the event

center. New off-reservation traffic follows current patterns with most traffic continuing to travel on SR-16 downtown through Esparto.

- **Near-Term + Alternative B (using Esparto Bypass)** – This near-term scenario includes trips associated with the casino expansion but assumes there is no performance at the event center. Most new off-reservation traffic is assumed to use CR-21A and CR-85B to bypass downtown Esparto rather than use SR-16.
- **Long-Term + Alternative B (using Esparto Bypass)** – This long-term scenario includes trips associated with the casino expansion but assumes there is no performance at the event center. Most new off-reservation traffic is assumed to use CR-21A and CR-85B to bypass downtown Esparto rather than use SR-16.
- **Near-Term + Alternative B with a major event** – This near-term scenario includes trips associated with the casino expansion and traffic associated with a sold-out performance at the event center. New off-reservation traffic follows current patterns with most traffic continuing to travel on SR-16 downtown through Esparto.
- **Long -Term + Alternative B with a major event** – This long-term scenario includes trips associated with the casino expansion and traffic associated with a sold-out performance at the event center. New off-reservation traffic follows current patterns with most traffic continuing to travel on SR-16 downtown through Esparto.
- **Near-Term + Alternative B with a major event (using Esparto Bypass)** – This near-term scenario includes trips associated with the casino expansion and traffic associated with a sold-out performance at the event center. Most new off-reservation traffic is assumed to use CR-21A and CR-85B to bypass downtown Esparto rather than use SR-16.
- **Long-Term + Alternative B with a major event (using Esparto Bypass)** – This long-term scenario includes trips associated with the casino expansion and traffic associated with a sold-out performance at the event center. Most new off-reservation traffic is assumed to use CR-21A and CR-85B to bypass downtown Esparto rather than use SR-16.

ALTERNATIVE B

These Near-Term and Long-Term scenarios include trips associated with the casino expansion but assume there is no performance at the event center. New off-reservation traffic follows current patterns with most traffic continuing to travel on SR-16 downtown through Esparto.

Trip Generation – Alternative B

Trip generation for Alternative B was calculated based on the same methods discussed in Alternative A and is reported in **Table B1**. Additional trip generation calculations are contained in the **Appendix**. As seen in the table, Alternative B is expected to generate 68 new trips in the Friday PM peak hour and 97 new trips in the Saturday PM peak hour.

Table B 1 – Alternative B Project Trip Generation

LAND USE	Trips					
	Friday PM Peak Hour			Saturday PM Peak Hour		
	Entering	Exiting	Total	Entering	Exiting	Total
Casino Gaming Floor Area 10,249 s.f.	35	33	68	55	42	97
Net New Vehicle Trips	35	33	68	55	42	97

Project Trip Distribution and Assignment

Based on the factors discussed in the Alternative A Project Trip Distribution and Assignment section it was determined that approximately 31% of the project traffic would be distributed to destinations north of the site, with the remaining 69% distributed south of the site. To be conservative, only a nominal percentage of project traffic was assumed to be generated or attracted in the immediate vicinity of the project site. The project traffic distribution is shown in **Figure B2.** **Figure B3** illustrates project off-reservation traffic assigned to the study intersections based on the assumed trip distribution.

Near-Term Plus Alternative B Off-Reservation Traffic Volumes

Near-Term 2013 off-reservation traffic volumes were combined with vehicle trips expected to be generated by Alternative B (assuming there is no performance at the event center). **Figure B4** illustrates Near-Term + Alternative B off-reservation turning movement volumes at the study intersections. **Figure B5** illustrates Near-Term + Alternative B two-way roadway segment off-reservation traffic volumes.

Long-Term Plus Alternative B Off-Reservation Traffic Volumes

Long-Term 2030 off-reservation traffic volumes were combined with vehicle trips expected to be generated by Alternative B (assuming there is no performance at the event center). **Figure B6** illustrates Long-Term + Alternative B off-reservation turning movement volumes at the study intersections. **Figure B7** illustrates Long-Term + Alternative B two-way roadway segment off-reservation traffic volumes.

Alternative B Off-Reservation LOS Conditions and Impacts at Intersections

Off-reservation traffic operations were evaluated under the following development conditions:

- Near-Term conditions plus Alternative B (year 2013)
- Long-Term conditions plus Alternative B (year 2030)

Results of the analysis are presented in **Table B2**. (Results shown as bold in the table do not meet operational standards and potentially significant project impacts are highlighted.) The method of intersection control is listed as Signal for signalized intersections, AWSC for all-way stop-controlled intersections and TWSC for two-way stop-controlled intersections. Two-way stop-controlled (TWSC) intersections may operate acceptably overall but only the worst approach is reported in the table. The overall level of service is reported for signalized and all-way stop-controlled intersections. Additional detail is provided in the **Appendix**. As shown in the results, the following off-reservation intersections and approaches will fail to meet acceptable level of service thresholds based on established significance criteria and with the addition of project-related traffic create a potentially significant impact.

2013 Results

- #14 – SR-16 / CR-89

2030 Results

- #3 – SR-16 / South Casino Entrance (Saturday PM peak only) – not an impact because the unacceptable LOS occurs on-reservation
- #5 – SR-16 / CR-85B
- #14 – SR-16 / CR-89
- #15 – SR-16 / I-505 SB Ramps
- #16 – SR-16 / I-505 NB Ramps
- #17 – SR-16 / Wildwing Drive
- #18 – SR-16 / CR-94B
- #19 – SR-16 / CR-95

Table B 2 – Alternative B Intersection Level of Service Summary

	Intersection	Intersection Control	Criteria	Near-Term (2013)				Near-Term + Alt B				Long-Term (2030)				Long-Term + Alt B			
				Friday PM Peak		Saturday PM Peak		Friday PM Peak		Saturday PM Peak		Friday PM Peak		Saturday PM Peak		Friday PM Peak		Saturday PM Peak	
				LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1	SR-16/ North Casino Entrance	Signal	D	A	9.1	A	9.2	A	9.2	A	9.4	B	10.3	A	9.8	B	10.3	A	9.9
2	SR-16/ Central Casino Entrance	Uncontrolled	D	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0
3	SR-16/ South Casino Entrance[3]	TWSC	D	C	15.6	D	25.5	C	16.8	D	31.3	C	22.4	**E**	**42.9**	C	24.9	**F**	**58.1**
4	SR-16/ County Road 85	TWSC	D	C	18.7	B	13.0	C	19.6	B	13.7	D	26.1	C	16.6	D	29.1	C	18.0
5	SR-16/ County Road 85B	TWSC	D	C	16.4	C	15.6	C	18.0	C	17.7	**F**	**52.1**	**E**	**42.8**	**F**	**69.4**	**F**	**63.6**
6	SR-16/ Woodland Avenue	AWSC	E	A	4.7	A	6.0	A	5.2	A	6.2	A	5.4	A	9.4	A	7.1	B	11.9
7	SR-16/ Capay Street	TWSC	E	B	14.9	C	16.4	C	15.5	C	17.5	C	21.2	C	21.1	C	22.4	C	22.6
8	SR-16/ Madison Street	TWSC	E	B	13.7	B	12.6	B	14.2	B	13.0	C	15.3	C	17.8	C	15.9	C	18.8
9	SR-16/ Plainfield Street	TWSC	E	C	18.1	C	22.8	C	19.1	C	24.8	D	25.8	D	30.8	D	27.9	D	34.3
10	SR-16/ County Road 21A	AWSC	D	B	12.1	B	13.0	B	12.8	B	13.9	C	19.1	D	28.8	C	21.2	D	34.8
11	County Road 85B/ County Road 21A	TWSC	C	A	9.3	A	9.2	A	9.3	A	9.2	B	10.4	B	10.5	B	10.5	B	10.7
12	Country Villa Estates/ County Road 21A	TWSC	C	A	9.8	A	9.9	A	9.9	A	10.0	B	11.6	B	12.5	B	11.7	B	12.7
13	Fremont Street/ County Road 21A	TWSC	C	B	10.5	B	10.4	B	10.6	B	10.6	B	12.4	B	12.8	B	12.6	B	13.0
14	SR-16/ County Road 89	AWSC[1]	D	**E**	**42.9**	**F**	**67.8**	**F**	**53.2**	**F**	**88.4**	**E**	**56.4**	**F**	**134.6**	**E**	**57.7**	**F**	**137.0**
15	SR-16/ I-505 SB Ramps	TWSC	D	B	13.2	C	15.7	B	13.6	C	16.3	**F**	**246.0**	**F**	**344.3**	**F**	**277.4**	**F**	**401.1**
16	SR-16/ I-505 NB Ramps	Signal	D	A	9.8	B	11.2	B	10.2	B	11.6	**F**	**115.8**	**F**	**146.7**	**F**	**123.5**	**F**	**157.5**
17	SR-16/ Wildwing Drive	TWSC	D	C	16.0	B	14.2	C	16.4	B	14.6	**F**	**80.2**	**E**	**41.2**	**F**	**85.4**	**E**	**44.0**
18	SR-16/ County Road 94B	TWSC	D	C	18.4	C	15.8	C	18.8	C	16.3	**F**	**162.6**	**F**	**51.5**	**F**	**176.9**	**F**	**54.9**
19	SR-16/ County Road 95	TWSC	D	C	20.5	C	15.9	C	21.1	C	16.4	**F**	**99.4**	**F**	**65.7**	**F**	**107.3**	**F**	**73.5**
20	SR-16/ County Road 98	Signal	D	C	26.2	C	24.7	C	26.4	C	24.8	D	53.4	C	32.8	D	54.2	C	33.1
21	SR-16/ W. Kentucky Avenue	AWSC[2]	D	B	17.7	B	17.4	B	17.7	B	17.4	C	20.7	C	28.0	C	20.7	C	27.9

Note: Locations operating unacceptably are bolded and significant project impacts are highlighted.

[1]Signalized in the Long-Term (2030)

[2]Signalized in the Near-Term (2013)

[3] Increased delay occurs on reservation land and therefore does not represent a potentially significant off-reservation impact

Alternative B Traffic Signal Warrant Analysis

Alternative B, Near-Term and Long-Term, off-reservation traffic volumes at unsignalized study intersections were compared against the peak hour warrant in the *2006 California Manual on Uniform Traffic Control Devices (MUTCD)*. Results of the analysis showed that the following off-reservation intersections will satisfy traffic signal Warrant #3 by year 2013 and 2030.

- #3 – SR-16/South Casino Entrance (2013 and 2030)
- #4 – SR-16/CR-85 (2030)
- #5 – SR-16/CR-85B (2013 and 2030)
- #6 – SR-16/Woodland Avenue (2013 and 2030)
- #9 – SR-16/Plainfield Street (2030)
- #10 – SR-16/CR-21A (2013 and 2030)
- #15 – SR-16/I-505 SB Ramps (2030)
- #17 – SR-16/Wildwing Drive (2030)
- #19 – SR-16/CR-95 (2030)

Other warrants such as for minimum vehicle volumes, interruption of continuous traffic, and traffic progression were not evaluated because they generally require higher traffic volumes to be satisfied. A copy of the analysis summary for Warrant #3 is included in the **Appendix**.

Alternative B Off-Reservation LOS Conditions and Impacts on Roadway Segments

Project trips generated by the Reduced Intensity Alternative were added to the year 2013 and 2030 forecast roadway segment volumes. Traffic analyses were completed to evaluate the operation of the study off-reservation roadway segments in the year 2013 and 2030, with the addition of the Reduced Intensity Alternative project.

Results of the analyses are presented in **Tables B3 and B4**. (Results shown as bold in the table do not meet operational standards and potentially significant project impacts are highlighted.) As shown in the table, the Reduced Intensity Alternative project traffic will add to the background congestion on the off-reservation roadway segments. In the Near-Term condition, the off-reservation segment of SR-16 between CCCR and CR-85 will operate unacceptably with the addition of the Reduced Intensity Alternative project during the Saturday PM peak hour only.

In the Long-Term condition, the following off-reservation segments operate at unacceptable levels of service with the addition of the Reduced Intensity Alternative project.

- SR-16 between CCCR and CR-85
- SR-16 between the Esparto Town Limits and CR-89
- SR-16 between CR-89 and I-505
- SR-16 between I-505 and CR-98

Table B 3 – Alternative B Near-Term Roadway Segment Level of Service Summary

Roadway Segment	Highway Class	Criteria	Near-Term (2013)						Near-Term + Alt B					
			Friday PM Peak			Saturday PM Peak			Friday PM Peak			Saturday PM Peak		
		LOS	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)
SR-16 between Cache Creek Casino and CR-85	I	D	D	74.6	40.5	D	75.0	40.4	D	75.8	40.2	**E**	**76.7**	**39.9**
SR-16 between CR-85 and Esparto Town Limits	II	D	D	75.0	-	D	75.0	-	D	76.2	-	D	76.6	-
SR-16 through the Town of Esparto	II	E	C	67.1	-	D	71.9	-	C	68.6	-	D	73.5	-
SR-16 between Esparto Town limits and CR-89	I	D	D	74.8	41.7	D	77.5	40.9	D	76.0	41.4	D	79.0	40.4
SR-16 between CR-89 and I-505	I	D	D	73.4	41.9	D	76.6	41.0	D	74.6	41.6	D	78.0	40.5
SR-16 between I-505 and CR-98	I	D	D	71.2	41.2	D	64.6	42.7	D	71.7	41.0	D	65.6	42.5
County Road 21A between CR-85B and SR-16	II	C	B	40.4	-	A	38.9	-	B	49.7	-	B	49.4	-
County Road 85B between SR-16 and CR-21A	II	C	B	48.5	-	B	47.3	-	B	41.5	-	B	40.6	-

Note: Locations operating unacceptably are bolded and significant project impacts are highlighted.

Table B 4 – Alternative B Long-Term Roadway Segment Level of Service Summary

Roadway Segment	Highway Class	Criteria	Long-Term (2030)						Long-Term + Alt B					
			Friday PM Peak			Saturday PM Peak			Friday PM Peak			Saturday PM Peak		
		LOS	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)
SR-16 between Cache Creek Casino and CR-85	I	D	**E**	**79.7**	38.7	**E**	**79.1**	39.0	**E**	**81.0**	**38.2**	**E**	**80.9**	**38.2**
SR-16 between CR-85 and Esparto Town Limits	II	D	D	80.7	-	D	78.1	-	D	81.9	-	D	79.9	-
SR-16 through the Town of Esparto	II	E	D	72.2	-	D	77.6	-	D	73.3	-	D	78.6	-
SR-16 between Esparto Town limits and CR-89	I	D	**E**	**87.4**	36.0	**E**	**90.9**	33.1	**E**	**88.1**	**35.5**	**E**	**91.5**	**32.4**
SR-16 between CR-89 and I-505	I	D	**E**	**93.5**	30.1	**F**	**96.4**	26.0	**F**	**94.0**	**29.6**	**F**	**96.8**	**25.4**
SR-16 between I-505 and CR-98	I	D	**E**	**84.5**	36.1	**E**	**79.6**	38.5	**E**	**84.8**	**36.0**	**E**	**80.2**	**38.2**
County Road 21A between CR-85B and SR-16	II	C	B	52.4	-	B	53.3	-	B	53.1	-	B	54.1	-
County Road 85B between SR-16 and CR-21A	II	C	C	62.0	-	C	62.5	-	C	62.3	-	C	63.0	-

Note: Locations operating unacceptably are bolded and significant project impacts are highlighted.

Alternative B Mitigations

The evaluation disclosed that the following off-reservation improvements as shown on **Table B5** are needed in the Near-Term (2013) and Long-Term (2030) to mitigate project impacts.

Off-Reservation Intersections

Off-reservation intersections with levels of service below established thresholds were investigated to determine the role of the Alternative B traffic in the projected operating conditions at those intersections.

Impact #1 – Near-Term: SR-16/CR-89 – Intersection #14

The SR-16/CR-89 intersection will operate at LOS E and LOS F during the Friday PM and Saturday PM peak hours under the Near-Term traffic condition without Alternative B and will experience an increase in delay due to the Reduced Intensity Alternative and the Saturday PM peak hour will degrade to LOS F. Since the Reduced Intensity Alternative traffic results in an increase in delay at an intersection which operates at unacceptable service levels without Alternative B, this is a potentially significant impact. A signal is not warranted at this intersection in the Near-Term + Alternative B condition when this impact occurs.

Mitigation #1

To mitigate the Reduced Intensity Alternative impacts expected to occur in the Near-Term, eastbound and westbound left turn lanes should be added at this intersection and the eastbound and westbound approaches should be widened to two lanes in each direction as is planned by 2030 as part of Caltrans' SIP. Because the Reduced Intensity Alternative does not trigger the impact but adds to the unacceptable operation, the project would be responsible for a proportionate share of the mitigation costs. Modifying the intersection as proposed in this mitigation measure will reduce the Reduced Intensity Alternative impact to less than significant and improve the intersection to operate at acceptable LOS B and LOS C during the Friday PM and Saturday PM peak hours, respectively (see **Table B6**).

Impact #2 – Long-Term: SR-16/CR-85B – Intersection #5

The SR-16/CR-85B intersection will operate at LOS F and LOS E on the side street during the Friday PM and Saturday PM peak hours under the Long-Term traffic condition without Alternative B and will experience an increase in delay due to the Reduced Intensity Alternative and the intersection will further degrade to LOS F during the Saturday PM peak hour with the addition of the Reduced Intensity Alternative. Since the Reduced Intensity Alternative traffic results in an increase in delay at an intersection which operates at unacceptable service levels without Alternative B, this is a potentially significant impact. A signal warrant is met at this intersection in the Existing condition as well as the Long-Term + Alternative B condition when this impact occurs.

Mitigation #2

To mitigate the Reduced Intensity Alternative impacts expected to occur in the Long-Term, the intersection should be signalized. Because the Reduced Intensity Alternative does not trigger the impact but adds to the unacceptable operation, the project would be responsible for a proportionate share of the mitigation costs if and when the impact occurs. Modifying the intersection as proposed in this mitigation measure will reduce the Reduced Intensity Alternative impact to less than significant and improve the intersection to operate at acceptable LOS C and LOS B during the Friday PM and Saturday PM peak hours (see **Table B7**).

Impact #3 – Long-Term: SR-16/CR-89 – Intersection #14

The SR-16/CR-89 intersection will operate at LOS E and LOS F during the Friday PM and Saturday PM peak hours under the Long-Term traffic condition without Alternative B and will experience an increase in delay due to the Reduced Intensity Alternative. Since the Reduced Intensity Alternative traffic results in an increase in delay at an intersection which operates at unacceptable service levels without Alternative B, this is a potentially significant impact.

Mitigation #3

To mitigate the Reduced Intensity Alternative impacts expected to occur in the Long-Term, an exclusive eastbound right turn lane should be added, the eastbound through-shared-right lane should be restriped to a through lane, and an eastbound right turn overlap phase should be added at this intersection. (These improvements would be in addition to the planned Caltrans SIP improvements.) Because the Reduced Intensity Alternative does not trigger the impact but adds to the unacceptable operation, the project would be responsible for a proportionate share of the mitigation costs if and when the impact occurs. Modifying the intersection as proposed in this mitigation measure will reduce the Reduced Intensity Alternative impact to less than significant and improve the intersection to operate at acceptable LOS C during the Friday PM peak hour and better than Long-Term (No Action Alternative) LOS E during the Saturday PM peak hour (see **Table B7**).

Impact #4 – Long-Term: SR-16/I-505 SB Ramps – Intersection #15

The SR-16/I-505 SB Ramps intersection will operate at LOS F on the side street during the Friday PM and Saturday PM peak hours under the Long-Term traffic condition without Alternative B and will experience an increase in delay due to the Reduced Intensity Alternative. Since the Reduced Intensity Alternative traffic results in an increase in delay at an intersection which operates at unacceptable service levels without Alternative B, this is a potentially significant impact. A signal is warranted in the Long-Term (No Action Alternative) condition as well as the Long-Term + Alternative B condition when this impact occurs.

Mitigation #4

To mitigate the Reduced Intensity Alternative impacts expected to occur in the Long-Term, SR-16 should be widened to two lanes in each direction between the I-505 NB Ramps and Tutt Street west of CR-89. Because the Reduced Intensity Alternative does not trigger the impact but adds to the unacceptable operation, the project would be responsible for a proportionate share of the mitigation costs if and when the impact occurs. Modifying the intersection as proposed in this mitigation measure will reduce the Reduced Intensity Alternative impact to less than significant and improve the intersection to operate at better than Long-Term (No Action Alternative) LOS F on the side street during the Friday PM and Saturday PM peak hours (see **Table B7**).

Impact #5 – Long-Term: SR-16/I-505 NB Ramps – Intersection #16

The SR-16/I-505 NB Ramps intersection will operate at LOS F during the Friday PM and Saturday PM peak hours under the Long-Term traffic condition without Alternative B and will experience an increase in delay due to the Reduced Intensity Alternative. Since the Reduced Intensity Alternative traffic results in an increase in delay at an intersection which operates at unacceptable service levels without Alternative B, this is a potentially significant impact.

Mitigation #5

To mitigate the Reduced Intensity Alternative impacts expected to occur in the Long-Term, a second northbound left turn lane should be added at this intersection. Because the Reduced Intensity Alternative does not trigger the impact but adds to the unacceptable operation, the project would be responsible for a proportionate share of the mitigation costs if and when the impact occurs. Modifying the intersection as proposed in this mitigation measure will reduce the Reduced Intensity Alternative impact to less than significant and improve the intersection to operate at LOS D during the Friday PM and Saturday PM peak hours (see **Table B7**).

Impact #6 – Long-Term: SR-16/Wildwing Drive – Intersection #17

The SR-16/Wildwing Drive intersection will operate at LOS F and LOS E on the side street during the Friday PM and Saturday PM peak hours under the Long-Term traffic condition without Alternative B and will experience an increase in delay due to the Reduced Intensity Alternative. Since the Reduced Intensity Alternative traffic results in an increase in delay at an intersection which operates at unacceptable service levels without Alternative B, this is a potentially significant impact. A signal is warranted in the Long-Term (No Action Alternative) condition as well as the Long-Term + Alternative B condition when this impact occurs.

Mitigation #6

To mitigate the Reduced Intensity Alternative impacts expected to occur in the Long-Term, the intersection should be signalized. Because the Reduced Intensity Alternative does not trigger the impact but adds to the unacceptable

operation, the project would be responsible for a proportionate share of the mitigation costs if and when the impact occurs. Modifying the intersection as proposed in this mitigation measure will reduce the Reduced Intensity Alternative impact to less than significant and improve the intersection to operate at LOS B during the Friday PM and Saturday PM peak hours (see **Table B7**).

Impact #7 – Long-Term: SR-16/CR-94B – Intersection #18

The SR-16/CR-94B intersection will operate at LOS F on the side street during the Friday PM and Saturday PM peak hours under the Long-Term traffic condition without Alternative B and will experience an increase in delay due to the Reduced Intensity Alternative. Since the Reduced Intensity Alternative traffic results in an increase in delay at an intersection which operates at unacceptable service levels without Alternative B, this is a potentially significant impact. A signal is not warranted under the Long-Term + Alternative B condition when this impact occurs.

Mitigation #7

To mitigate the Reduced Intensity Alternative impacts expected to occur in the Long-Term, the northbound and southbound approaches should be restriped to a left and a through-shared-right lane at this intersection. Because the Reduced Intensity Alternative does not trigger the impact but adds to the unacceptable operation, the project would be responsible for a proportionate share of the mitigation costs when the impact occurs. Modifying the intersection as proposed in this mitigation measure will reduce the Reduced Intensity Alternative impact to less than significant and improve the intersection to operate at better than Long-Term (No Action Alternative) LOS F and LOS E on the side street during the Friday PM and Saturday PM peak hours, respectively (see **Table B7**).

Impact #8 – Long-Term: SR-16/CR-95 – Intersection #19

The SR-16/CR-95 intersection will operate at LOS F on the side street during the Friday PM and Saturday PM peak hours under the Long-Term traffic condition without Alternative B and will experience an increase in delay due to the Reduced Intensity Alternative. Since the Reduced Intensity Alternative traffic results in an increase in delay at an intersection which operates at unacceptable service levels without Alternative B, this is a potentially significant impact. A signal is warranted under the Long-Term (No Action Alternative) condition as well as the Long-Term + Alternative B condition when this impact occurs.

Mitigation #8

To mitigate the Reduced Intensity Alternative impacts expected to occur in the Long-Term, the northbound approach should be restriped to a left and a through-shared-right lane at this intersection. Because the Reduced Intensity Alternative does not trigger the impact but adds to the unacceptable operation, the project would be responsible for a proportionate share of the mitigation costs if and when the impact occurs. Modifying the intersection as proposed in this mitigation measure will reduce the Reduced Intensity Alternative impact to less than

significant and improve the intersection to operate at better than Long-Term (No Action Alternative) LOS F on the side street during the Friday PM and Saturday PM peak hours (see **Table B7**).

Tables B6 and B7 summarize the expected levels of service with the proposed mitigation in the Near-Term + Alternative B and Long-Term + Alternative B conditions.

As mentioned previously, the method of intersection control is listed as Signal for signalized intersections, AWSC for all-way stop-controlled intersections and TWSC for two-way stop-controlled intersections. Two-way stop-controlled (TWSC) intersections may operate acceptably overall but only the worst approach is reported in the table. The overall level of service is reported for signalized and AWSC intersections. **Figures B8 and B9** illustrate the recommended mitigated off-reservation lane geometry and traffic control in the Near-Term + Alternative B and Long-Term + Alternative B conditions. Modification to any interchanges requires review and approval from Caltrans' Department Headquarters Division of Design.

Off-Reservation Roadway Segments

Off-Reservation roadway segments with levels of service below established thresholds were investigated to determine the role of the Alternative B traffic in the projected operating conditions at those roadway segments.

Impact #9 – Near-Term: SR-16 between CCCR and CR-85

The roadway segment of SR-16 between the CCCR and CR-85 will operate at acceptable LOS D during the Saturday PM peak hour under the Near-Term traffic condition without Alternative B and will degrade to LOS E with the addition of the Reduced Intensity Alternative. Since the Reduced Intensity Alternative traffic results in an unacceptable level of service on this roadway segment, this is a potentially significant impact.

Mitigation #9

To mitigate the Reduced Intensity Alternative impacts expected to occur in the Near-Term, a slow vehicle turnout should be installed in each direction on SR-16 between CCCR and CR-85. The Reduced Intensity Alternative's percentage of the mitigation costs will be determined in consultation with Caltrans. Modifying the roadway segment as proposed in this mitigation measure will reduce the Reduced Intensity Alternative impact to less than significant and improve the roadway segment to operate at better than the No Action Alternative conditions during the Friday PM and Saturday PM peak hours (see **Table B8**).

Table B 5 – Alternative B Summary of Mitigations

Mitigation #	Location	Impacted Scenario	Jurisdiction	Mitigation	Fair Share
1	#14 - SR-16/CR 89	Near-Term (2013) + Alternative B	Caltrans	Eastbound and westbound left turn lanes should be added at this intersection and the eastbound and westbound approaches on SR-16 should be widened to two lanes in each direction as is planned by 2030 as part of Caltrans' SIP.	4%
2	#5 - SR-16/CR 85B	Long-Term (2030) + Alternative B	Caltrans	The intersection should be signalized.	29%
3	#14 - SR-16/CR 89	Long-Term (2030) + Alternative B	Caltrans	An exclusive eastbound right turn lane should be added, the eastbound through-shared-right lane should be restriped to a through lane, and an eastbound right turn overlap phase should be added.	4%
4	#15 - SR-16/ I-505 SB Ramps	Long-Term (2030) + Alternative B	Caltrans	SR-16 should be widened to two lanes in each direction between the I-505 NB Ramps and Tutt Street west of CR 89.	4%
5	#16 - SR-16/ I-505 NB Ramps	Long-Term (2030) + Alternative B	Caltrans	A second northbound left turn lane should be added.	4%
6	#17 - SR-16/ Wildwing Drive	Long-Term (2030) + Alternative B	Caltrans	The intersection should be signalized.	4%
7	#18 - SR-16/CR 94B	Long-Term (2030) + Alternative B	Caltrans	The northbound and southbound approaches should be restriped to a left and a through-shared-right lane.	4%
8	#19 - SR-16/CR 95	Long-Term (2030) + Alternative B	Caltrans	The northbound approach should be restriped to a left and a through-shared-right lane.	4%
9	SR-16 between Cache Creek Casino and CR 85	Near-Term (2013) + Alternative B	Caltrans	Add a slow vehicle turnout in each direction.	TBD in consultation w/ Caltrans
10	SR-16 between Cache Creek Casino and CR 85	Long-Term (2030) + Alternative B	Caltrans	Add a slow vehicle turnout in each direction. (This is the same as Mitigation 9.)	TBD in consultation w/ Caltrans
11	SR-16 between Esparto Town limits and CR 89	Long-Term (2030) + Alternative B	Caltrans	SR-16 should be widened to two lanes in each direction between the I-505 NB Ramps and Tutt Street west of CR 89.	TBD in consultation w/ Caltrans
12	SR-16 between CR 89 and I-505	Long-Term (2030) + Alternative B	Caltrans	SR-16 should be widened to two lanes in each direction between the I-505 NB Ramps and Tutt Street west of CR 89.	TBD in consultation w/ Caltrans
13	SR-16 between I-505 and CR 98	Long-Term (2030) + Alternative B	Caltrans	Add a one mile passing lane on SR-16 in each direction from one mile east of I-505 to the I-505 NB Ramps.	TBD in consultation w/ Caltrans

Table B 6 – Near-Term + Alternative B Mitigated Intersection Level of Service Summary

	Intersection	Intersection Control	Criteria	Near-Term (2013)				Near-Term + Alt B				Near-Term + Alt B (Mitigated)			
				Friday PM Peak		Saturday PM Peak		Friday PM Peak		Saturday PM Peak		Friday PM Peak		Saturday PM Peak	
				LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1	SR-16/ North Casino Entrance	Signal	D	A	9.1	A	9.2	A	9.2	A	9.4	A	9.2	A	9.4
2	SR-16/ Central Casino Entrance	Uncontrolled	D	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0
3	SR-16/ South Casino Entrance	TWSC	D	C	15.6	D	25.5	C	16.8	D	31.3	C	16.8	D	31.3
4	SR-16/ County Road 85	TWSC	D	C	18.7	B	13.0	C	19.6	B	13.7	C	19.6	B	13.7
5	SR-16/ County Road 85B	TWSC	D	C	16.4	C	15.6	C	18.0	C	17.7	C	18.0	C	17.7
6	SR-16/ Woodland Avenue	AWSC	E	A	4.7	A	6.0	A	5.2	A	6.2	A	5.2	A	6.2
7	SR-16/ Capay Street	TWSC	E	B	14.9	C	16.4	C	15.5	C	17.5	C	15.5	C	17.5
8	SR-16/ Madison Street	TWSC	E	B	13.7	B	12.6	B	14.2	B	13.0	B	14.2	B	13.0
9	SR-16/ Plainfield Street	TWSC	E	C	18.1	C	22.8	C	19.1	C	24.8	C	19.1	C	24.8
10	SR-16/ County Road 21A	AWSC	D	B	12.1	B	13.0	B	12.8	B	13.9	B	12.8	B	13.9
11	County Road 85B/ County Road 21A	TWSC	C	A	9.3	A	9.2	A	9.3	A	9.2	A	9.3	A	9.2
12	Country Villa Estates/ County Road 21A	TWSC	C	A	9.8	A	9.9	A	9.9	A	10.0	A	9.9	A	10.0
13	Fremont Street/ County Road 21A	TWSC	C	B	10.5	B	10.4	B	10.6	B	10.6	B	10.6	B	10.6
14	SR-16/ County Road 89	AWSC	D	**E**	**42.9**	**F**	**67.8**	**F**	**53.2**	**F**	**88.4**	B	14.8	C	18.3
15	SR-16/ I-505 SB Ramps	TWSC	D	B	13.2	C	15.7	B	13.6	C	16.3	B	13.6	C	16.3
16	SR-16/ I-505 NB Ramps	Signal	D	A	9.8	B	11.2	B	10.2	B	11.6	B	10.2	B	11.6
17	SR-16/ Wildwing Drive	TWSC	D	C	16.0	B	14.2	C	16.4	B	14.6	C	16.4	B	14.6
18	SR-16/ County Road 94B	TWSC	D	C	18.4	C	15.8	C	18.8	C	16.3	C	18.8	C	16.3
19	SR-16/ County Road 95	TWSC	D	C	20.5	C	15.9	C	21.1	C	16.4	C	21.1	C	16.4
20	SR-16/ County Road 98	Signal	D	C	26.2	C	24.7	C	26.4	C	24.8	C	26.4	C	24.8
21	SR-16/ W. Kentucky Avenue	Signal	D	B	17.7	B	17.4	B	17.7	B	17.4	B	17.7	B	17.4

Note: Locations operating unacceptably are bolded and significant impacts are highlighted.

Table B 7 – Long-Term + Alternative B Mitigated Intersection Level of Service Summary

	Intersection	Intersection Control	Criteria	Long-Term (2030)				Long-Term + Alt B				Long-Term + Alt B (Mitigated)			
				Friday PM Peak		Saturday PM Peak		Friday PM Peak		Saturday PM Peak		Friday PM Peak		Saturday PM Peak	
				LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1	SR-16/ North Casino Entrance	Signal	D	B	10.3	A	9.8	B	10.3	A	9.9	B	10.3	A	9.9
2	SR-16/ Central Casino Entrance	Uncontrolled	D	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0
3	SR-16/ South Casino Entrance[1]	TWSC	D	C	22.4	**E**	**42.9**	C	24.9	**F**	**58.1**	C	24.9	**F**	**58.1**
4	SR-16/ County Road 85	TWSC	D	D	26.1	C	16.6	D	29.1	C	18.0	D	29.1	C	18.0
5	SR-16/ County Road 85B	TWSC	D	**F**	**52.1**	**E**	**42.8**	**F**	**69.4**	**F**	**63.6**	C	25.8	B	14.9
6	SR-16/ Woodland Avenue	AWSC	E	A	5.4	A	9.4	A	7.1	B	11.9	A	7.1	B	11.9
7	SR-16/ Capay Street	TWSC	E	C	21.2	C	21.1	C	22.4	C	22.6	C	22.4	C	22.6
8	SR-16/ Madison Street	TWSC	E	C	15.3	C	17.8	C	15.9	C	18.8	C	15.9	C	18.8
9	SR-16/ Plainfield Street	TWSC	E	D	25.8	D	30.8	D	27.9	D	34.3	D	27.9	D	34.3
10	SR-16/ County Road 21A	AWSC	D	C	19.1	D	28.8	C	21.2	D	34.8	C	21.2	D	34.8
11	County Road 85B/ County Road 21A	TWSC	C	B	10.4	B	10.5	B	10.5	B	10.7	B	10.5	B	10.7
12	Country Villa Estates/ County Road 21A	TWSC	C	B	11.6	B	12.5	B	11.7	B	12.7	B	11.7	B	12.7
13	Fremont Street/ County Road 21A	TWSC	C	B	12.4	B	12.8	B	12.6	B	13.0	B	12.6	B	13.0
14	SR-16/ County Road 89	Signal	D	**E**	**56.4**	**F**	**134.6**	**E**	**57.7**	**F**	**137.0**	C	30.9	**E**	**68.4**
15	SR-16/ I-505 SB Ramps	TWSC	D	**F**	**246.0**	**F**	**344.3**	**F**	**277.4**	**F**	**401.1**	**F**	**73.0**	**F**	**89.8**
16	SR-16/ I-505 NB Ramps	Signal	D	**F**	**115.8**	**F**	**146.7**	**F**	**123.5**	**F**	**157.5**	D	47.3	D	37.6
17	SR-16/ Wildwing Drive	TWSC	D	**F**	**80.2**	**E**	**41.2**	**F**	**85.4**	**E**	**44.0**	B	12.9	B	10.5
18	SR-16/ County Road 94B	TWSC	D	**F**	**162.6**	**F**	**51.5**	**F**	**176.9**	**F**	**54.9**	**F**	**84.7**	**E**	**48.7**
19	SR-16/ County Road 95	TWSC	D	**F**	**99.4**	**F**	**65.7**	**F**	**107.3**	**F**	**73.5**	**F**	**73.4**	**F**	**57.6**
20	SR-16/ County Road 98	Signal	D	D	53.4	C	32.8	D	54.2	C	33.1	D	54.2	C	33.1
21	SR-16/ W. Kentucky Avenue	Signal	D	C	20.7	C	28.0	C	20.7	C	27.9	C	20.7	C	27.9

Note: Locations operating unacceptably are bolded and significant project impacts are highlighted.

[1] Increased delay occurs on reservation land and therefore does not represent a potentially significant off-reservation impact

Impact #10 – Long-Term: SR-16 between CCCR and CR-85
The roadway segment of SR-16 between the CCCR and CR-85 will operate at LOS E during the Friday PM and Saturday PM peak hours under the Long-Term traffic condition without Alternative B and will experience an increase in the percent time spent following and a decrease in average travel speed with the addition of the Reduced Intensity Alternative. Since the Reduced Intensity Alternative traffic results in an increase in percent time spent following on a roadway segment which operates at unacceptable service levels without Alternative B, this is a potentially significant impact.

Mitigation #10
Completion of Mitigation #9 (i.e., installation of slow vehicle turnout in each direction on SR-16 in the Near-Term + Alternative B) will reduce the impact to less than significant in the Long-Term + Alternative B conditions. Modifying the roadway segment as proposed in this mitigation measure will reduce the Reduced Intensity Alternative impact to less than significant and improve the roadway segment to operate at better than the No Action Alternative conditions during the Friday PM and Saturday PM peak hours (see **Table B9**).

Impact #11 – Long-Term: SR-16 between Esparto Town limits and CR-89
The roadway segment of SR-16 between the Esparto Town limits and CR-89 will operate at LOS E during the Friday PM and Saturday PM peak hours under the Long-Term traffic condition without Alternative B and will experience an increase in the percent time spent following and a decrease in average travel speed with the addition of the Reduced Intensity Alternative. Since the Reduced Intensity Alternative traffic results in an increase in percent time spent following on a roadway segment which operates at unacceptable service levels without Alternative B, this is a potentially significant impact.

Mitigation #11
Completion of Mitigation #4 (i.e., widening of SR-16 to four lanes between the I-505 NB Ramps and Tutt Street in the Long-Term + Alternative B) will reduce the impact to less than significant in the Long-Term + Alternative B conditions. Modifying the roadway segment as proposed in this mitigation measure will reduce the Reduced Intensity Alternative impact to less than significant and improve the roadway segment to operate at better than the No Action Alternative conditions during the Friday PM and Saturday PM peak hours (see **Table B9**).

Impact #12 – Long-Term: SR-16 between CR-89 and I-505
The roadway segment of SR-16 between CR-89 and I-505 will operate at LOS E and LOS F during the Friday PM and Saturday PM peak hours, respectively under the Long-Term traffic condition without Alternative B and will experience a degradation from LOS E to LOS F during the Friday PM peak, an increase in the percent time spent following, and a decrease in average travel speed with the addition of the Reduced Intensity Alternative. Since the Reduced Intensity Alternative traffic results in an increase in percent time spent following on a roadway segment which operates at unacceptable

service levels in the No Action Alternative condition, this is a potentially significant impact.

Mitigation #12

Completion of Mitigation #4 (i.e., widening of SR-16 to four lanes between the I-505 NB Ramps and Tutt Street in the Long-Term + Alternative B) will reduce the impact to less than significant in the Long-Term + Alternative B conditions. Modifying the roadway segment as proposed in this mitigation measure will reduce the Reduced Intensity Alternative impact to less than significant and improve the roadway segment to operate at better than the No Action Alternative conditions during the Friday PM and Saturday PM peak hours (see **Table B9**).

Impact #13 – Long-Term: SR-16 between I-505 and CR-98

The roadway segment of SR-16 between the I-505 and CR-98 will operate at LOS E during the Friday PM and Saturday PM peak hours under the Long-Term traffic condition without Alternative B and will experience an increase in the percent time spent following and a decrease in average travel speed with the addition of the Reduced Intensity Alternative. Since the Reduced Intensity Alternative traffic results in an increase in percent time spent following on a roadway segment which operates at unacceptable service levels without Alternative B, this is a potentially significant impact.

Mitigation #13

To mitigate the Reduced Intensity Alternative impacts expected to occur in the Long-Term, a one mile passing lane should be installed in each direction on SR-16 between the I-505 NB Ramps to one mile east of I-505 if and when the impact occurs. The Reduced Intensity Alternative's percentage of the mitigation costs will be determined in consultation with Caltrans. Modifying the roadway segment as proposed in this mitigation measure will reduce the Reduced Intensity Alternative impact to less than significant and improve the roadway segment to operate at better than the No Action Alternative conditions during the Friday PM and Saturday PM peak hours (see **Table B9**)

Tables B8 and B9 summarize the expected roadway segment levels of service with the proposed mitigation in the Near-Term + Alternative B and Long-Term + Alternative B conditions, respectively.

Table B 8 – Near-Term + Alternative B Mitigated Roadway Segment Level of Service Summary

Roadway Segment	Highway Class	Criteria	Near-Term + Alt B						Near-Term + Alt B (Mitigated)					
			Friday PM Peak			Saturday PM Peak			Friday PM Peak			Saturday PM Peak		
		LOS	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)
SR-16 between Cache Creek Casino and CR-85	I	D	D	75.8	40.2	**E**	**76.7**	**39.9**	*	*	*	*	*	*
SR-16 between CR-85 and Esparto Town Limits	II	D	D	76.2	-	D	76.6	-	D	76.2	-	D	76.6	-
SR-16 through the Town of Esparto	II	E	C	68.6	-	D	73.5	-	C	68.6	-	D	73.5	-
SR-16 between Esparto Town limits and CR-89	I	D	D	76.0	41.4	D	79.0	40.4	D	76.0	41.4	D	79.0	40.4
SR-16 between CR-89 and I-505	I	D	D	74.6	41.6	D	78.0	40.5	D	74.6	41.6	D	78.0	40.5
SR-16 between I-505 and CR-98	I	D	D	71.7	41.0	D	65.6	42.5	D	71.7	41.0	D	65.6	42.5
County Road 21A between CR-85B and SR-16	II	C	B	41.5	-	B	40.6	-	B	41.5	-	B	40.6	-
County Road 85B between SR-16 and CR-21A	II	C	B	49.7	-	B	49.4	-	B	49.7	-	B	49.4	-

Note: Locations operating unacceptably are bolded and significant project impacts are highlighted.
* Adding a slow vehicle turnout will improve the percent time spent following and the average travel speed and reduce the impact to a less-than-significant level.

Table B 9 – Long-Term + Alternative B Mitigated Roadway Segment Level of Service Summary

Roadway Segment	Direction	Highway Class	Criteria	Long-Term + Alt B						Long-Term + Alt B (Mitigated)					
				Friday PM Peak			Saturday PM Peak			Friday PM Peak			Saturday PM Peak		
			LOS	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)
SR-16 between Cache Creek Casino and CR-85	Both	I	D	**E**	**81.0**	**38.2**	**E**	**80.9**	**38.2**	*	*	*	*	*	*
SR-16 between CR-85 and Esparto Town Limits	Both	II	D	D	81.9	-	D	79.9	-	D	81.9	-	D	79.9	-
SR-16 through the Town of Esparto	Both	II	E	D	73.3	-	D	78.6	-	D	73.3	-	D	78.6	-
SR-16 between Esparto Town limits and CR-89	EB	I	D	**E**	**88.1**	**35.5**	**E**	**91.5**	**32.4**	**E**	**84.4**	**35.9**	**E**	**87.6**	**32.8**
	WB									**E**	**64.5**	**36.9**	**E**	**67.0**	**33.7**
SR-16 between CR-89 and I-505	EB	I	D	**F**	**94.0**	**29.6**	**F**	**96.8**	**25.4**	A	10.3**	-	B	13.3**	-
	WB									B	18.0**	-	C	20.4**	-
SR-16 between I-505 and CR-98	EB	I	D	**E**	**84.8**	**36.0**	**E**	**80.2**	**38.2**	D	69.9	72.7	D	65.7	76.8
	WB									**E**	**80.9**	**36.4**	**E**	**76.5**	**38.7**
County Road 21A between CR-85B and SR-16	Both	II	C	B	53.1	-	B	54.1	-	B	53.1	-	B	54.1	-
County Road 85B between SR-16 and CR-21A	Both	II	C	C	62.3	-	C	63.0	-	C	62.3	-	C	63.0	-

Note: Locations operating unacceptably are bolded and significant project impacts are highlighted.
* Adding a slow vehicle turnout will improve the percent time spent following and the average travel speed and reduce the impact to a less-than-significant level.
** Units are in passenger cars per mile per lane in this four-lane mitigated roadway segment.

ALTERNATIVE B WITH TRAFFIC USING ESPARTO BYPASS

A sub-area analysis was completed to analyze the affect on the off-reservation study intersections of RIA traffic being encouraged to use the Esparto bypass instead of traveling through downtown when going to or leaving from CCCR. The following sections summarize the analysis.

Trip Generation – Alternative B

Trip generation with Reduced Intensity Alternative traffic using the Esparto bypass is the same as was calculated in the Trip Generation – Alternative B section above and is reported in **Table B1**.

Project Trip Distribution and Assignment

The same project trip distribution discussed above and seen in **Figure B2** was used in this analysis with the exception of assuming more of the Reduced Intensity Alternative traffic uses the Esparto bypass. In the Existing condition, 80% of vehicles travelling westbound on SR-16 drive through downtown Esparto and 20% of vehicles travel westbound on CR-21A to CR-85B to connect back to SR-16. In the eastbound direction, 70% of vehicles travelling eastbound on SR-16 drive through downtown Esparto and 30% of vehicles travel southbound on CR-85B to CR-21A to connect back to SR-16.

An alternate analysis was completed to evaluate what the effects would be if most new project off-reservation traffic used the Esparto bypass. The trip percentages were assumed to be reversed from the Existing condition and 20% of vehicles travelling westbound on SR-16 were assumed to drive through downtown Esparto and 80% of vehicles were assumed to travel westbound on CR-21A to CR-85B to connect back to SR-16. In the eastbound direction, 30% of vehicles travelling eastbound on SR-16 were assumed to drive through downtown Esparto and 70% of vehicles were assumed to travel southbound on CR-85B to CR-21A to connect back to SR-16. **Figure B10** illustrates project traffic assigned to the off-reservation study intersections based on the trip distribution using the Esparto bypass at the intersections that are affected by the change in trip assignment.

Near-Term Plus Alternative B Off-Reservation Traffic Volumes

Near-Term 2013 off-reservation traffic volumes were combined with vehicle trips expected to be generated by Alternative B using the Esparto bypass. **Figure B11** illustrates Near-Term + Alternative B using the Esparto bypass off-reservation turning movement volumes at the study intersections. **Figure B12** illustrates Near-Term + Alternative B using the Esparto bypass two-way roadway segment off-reservation traffic volumes.

Long-Term Plus Alternative B Off-Reservation Traffic Volumes

Long-term 2030 off-reservation traffic volumes were combined with vehicle trips expected to be generated by Alternative B using the Esparto bypass. **Figure B13** illustrates Long-Term + Alternative B using the Esparto bypass off-reservation turning movement volumes at the study intersections. **Figure B14** illustrates Long-Term + Alternative B using the Esparto bypass two-way roadway segment off-reservation traffic volumes.

Alternative B Off-Reservation LOS Conditions and Impacts at Intersections

Off-Reservation traffic operations were evaluated under the following development conditions:

- Near-Term conditions plus Alternative B using Esparto bypass (year 2013)
- Long-Term conditions plus Alternative B using Esparto bypass (year 2030)

Results of the analysis are presented in **Tables B10 and B11**. (Results shown as bold in the table do not meet operational standards and potentially significant project impacts are highlighted.) The method of intersection control is listed as Signal for signalized intersections, AWSC for all-way stop-controlled intersections and TWSC for two-way stop-controlled intersections. Two-way stop-controlled (TWSC) intersections may operate acceptably overall but only the worst approach is reported in the table. The overall level of service is reported for signalized and all-way stop-controlled intersections. Additional detail is provided in the **Appendix**. As shown in the results, there are no off-reservation intersections or approaches that will fail to meet acceptable level of service thresholds based on established significance criteria with the addition of project-related traffic and create a new potentially significant impact not already identified in the Alternative B LOS Conditions above.

2013 Results

- #14 – SR-16 / CR-89

2030 Results

- #3 – SR-16 / South Casino Entrance (Saturday PM peak only) – not an impact because the unacceptable LOS occurs on-reservation
- #5 – SR-16 / CR-85B
- #14 – SR-16 / CR-89
- #15 – SR-16 / I-505 SB Ramps
- #16 – SR-16 / I-505 NB Ramps
- #17 – SR-16 / Wildwing Drive
- #18 – SR-16 / CR-94B

- #19 – SR-16 / CR-95

Table B 10 – Near-Term + Alternative B Intersection Level of Service Summary Using Esparto Bypass

	Intersection	Intersection Control	Criteria	Near-Term + Alt B				Near-Term + Alt B (using Bypass)			
				Friday PM Peak		Saturday PM Peak		Friday PM Peak		Saturday PM Peak	
				LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1	SR-16/ North Casino Entrance	Signal	D	A	9.2	A	9.4	No change from Near-Term + Alt B			
2	SR-16/ Central Casino Entrance	Uncontrolled	D	A	0.0	A	0.0				
3	SR-16/ South Casino Entrance	TWSC	D	C	16.8	D	31.3				
4	SR-16/ County Road 85	TWSC	D	C	19.6	B	13.7				
5	SR-16/ County Road 85B	TWSC	D	C	18.0	C	17.7	C	18.1	C	17.9
6	SR-16/ Woodland Avenue	AWSC	E	A	5.2	A	6.2	A	4.9	A	6.4
7	SR-16/ Capay Street	TWSC	E	C	15.5	C	17.5	C	15.1	C	16.8
8	SR-16/ Madison Street	TWSC	E	B	14.2	B	13.0	B	13.8	B	12.7
9	SR-16/ Plainfield Street	TWSC	E	C	19.1	C	24.8	C	18.4	C	23.4
10	SR-16/ County Road 21A	AWSC	D	B	12.8	B	13.9	B	12.8	B	13.9
11	County Road 85B/ County Road 21A	TWSC	C	A	9.3	A	9.2	A	9.4	A	9.4
12	Country Villa Estates/ County Road 21A	TWSC	C	A	9.9	A	10.0	B	10.1	B	10.3
13	Fremont Street/ County Road 21A	TWSC	C	B	10.6	B	10.6	B	10.8	B	11.0
14	SR-16/ County Road 89	AWSC	D	**F**	**53.2**	**F**	**88.4**	No change from Near-Term + Alt B			
15	SR-16/ I-505 SB Ramps	TWSC	D	B	13.6	C	16.3				
16	SR-16/ I-505 NB Ramps	Signal	D	B	10.2	B	11.6				
17	SR-16/ Wildwing Drive	TWSC	D	C	16.4	B	14.6				
18	SR-16/ County Road 94B	TWSC	D	C	18.8	C	16.3				
19	SR-16/ County Road 95	TWSC	D	C	21.1	C	16.4				
20	SR-16/ County Road 98	Signal	D	C	26.4	C	24.8				
21	SR-16/ W. Kentucky Avenue	Signal	D	B	17.7	B	17.4				

Note: Locations operating unacceptably are bolded and significant project impacts are highlighted.

Table B 11 – Long-Term + Alternative B Intersection Level of Service Summary Using Esparto Bypass

	Intersection	Intersection Control	Criteria	Long-Term + Alt B				Long-Term + Alt B (using Bypass)			
				Friday PM Peak		Saturday PM Peak		Friday PM Peak		Saturday PM Peak	
				LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1	SR-16/ North Casino Entrance	Signal	D	B	10.3	A	9.9	No change from Long-Term + Alt B			
2	SR-16/ Central Casino Entrance	Uncontrolled	D	A	0.0	A	0.0				
3	SR-16/ South Casino Entrance[1]	TWSC	D	C	24.9	**F**	**58.1**				
4	SR-16/ County Road 85	TWSC	D	D	29.1	C	18.0				
5	SR-16/ County Road 85B	TWSC	D	**F**	**69.4**	**F**	**63.6**	**F**	**74.2**	**F**	**67.7**
6	SR-16/ Woodland Avenue	AWSC	E	A	7.1	B	11.9	A	5.5	A	9.7
7	SR-16/ Capay Street	TWSC	E	C	22.4	C	22.6	C	21.6	C	21.6
8	SR-16/ Madison Street	TWSC	E	C	15.9	C	18.8	C	15.5	C	18.1
9	SR-16/ Plainfield Street	TWSC	E	D	27.9	D	34.3	D	26.4	D	31.9
10	SR-16/ County Road 21A	AWSC	D	C	21.2	D	34.8	C	21.3	D	34.4
11	County Road 85B/ County Road 21A	TWSC	C	B	10.5	B	10.7	B	10.6	B	10.9
12	Country Villa Estates/ County Road 21A	TWSC	C	B	11.7	B	12.7	B	12.0	B	13.2
13	Fremont Street/ County Road 21A	TWSC	C	B	12.6	B	13.0	B	12.9	B	13.6
14	SR-16/ County Road 89	Signal	D	**E**	**57.7**	**F**	**137.0**	No change from Long-Term + Alt B			
15	SR-16/ I-505 SB Ramps	TWSC	D	**F**	**277.4**	**F**	**401.1**				
16	SR-16/ I-505 NB Ramps	Signal	D	**F**	**123.5**	**F**	**157.5**				
17	SR-16/ Wildwing Drive	TWSC	D	**F**	**85.4**	**E**	**44.0**				
18	SR-16/ County Road 94B	TWSC	D	**F**	**176.9**	**F**	**54.9**				
19	SR-16/ County Road 95	TWSC	D	**F**	**107.3**	**F**	**73.5**				
20	SR-16/ County Road 98	Signal	D	D	54.2	C	33.1				
21	SR-16/ W. Kentucky Avenue	Signal	D	C	20.7	C	27.9				

Note: Locations operating unacceptably are bolded and significant project impacts are highlighted.

[1] Increased delay occurs on reservation land and therefore does not represent a potentially significant off-reservation impact

Alternative B Traffic Signal Warrant Analysis

Alternative B using the Esparto bypass, Near-Term and Long-Term, off-reservation traffic volumes at unsignalized study intersections were compared against the peak hour warrant in the *2006 California Manual on Uniform Traffic Control Devices (MUTCD)*.

Results of the analysis showed that the following off-reservation intersections will satisfy traffic signal Warrant #3 by year 2013 and 2030 with project traffic using the Esparto bypass. It should be noted that no additional locations meet a signal warrant with project traffic using the Esparto bypass.

- #3 – SR-16/South Casino Entrance (2013 and 2030)
- #4 – SR-16/CR-85 (2030)
- #5 – SR-16/CR-85B (2013 and 2030)
- #6 – SR-16/Woodland Avenue (2013 and 2030)
- #9 – SR-16/Plainfield Street (2030)
- #10 – SR-16/CR-21A (2013 and 2030)
- #15 – SR-16/I-505 SB Ramps (2030)

- #17 – SR-16/Wildwing Drive (2030)
- #19 – SR-16/CR-95 (2030)

Other warrants such as for minimum vehicle volumes, interruption of continuous traffic, and traffic progression were not evaluated because they generally require higher traffic volumes to be satisfied. A copy of the analysis summary for Warrant #3 is included in the **Appendix**.

Alternative B Off-Reservation LOS Conditions and Impacts on Roadway Segments

Trips generated by the Reduced Intensity Alternative were added to the year 2013 and 2030 forecast off-reservation roadway segment volumes.

Traffic analyses were completed to evaluate the operation of the study roadway segments in the year 2013 and 2030, with the addition of the Reduced Intensity Alternative using the Esparto bypass.

Results of the analyses are presented in **Tables B12 and B13**. (Results shown as bold in the table do not meet operational standards and potentially significant project impacts are highlighted.) As shown in the table, Reduced Intensity Alternative traffic will add to the background congestion on the off-reservation roadway segments. In the Near-Term condition, the segment of SR-16 between CCCR and CR-85 will operate unacceptably with the addition of the Reduced Intensity Alternative during the Saturday PM peak hour only. It should be noted that no additional off-reservation segments operate unacceptably with Reduced Intensity Alternative traffic using the Esparto bypass.

In the Long-Term condition, the following off-reservation segments operate at unacceptable levels of service with the addition of the Reduced Intensity Alternative. It should be noted that no additional off-reservation segments operate unacceptably with Reduced Intensity Alternative traffic using the Esparto bypass.

- SR-16 between CCCR and CR-85
- SR-16 between the Esparto Town Limits and CR-89
- SR-16 between CR-89 and I-505
- SR-16 between I-505 and CR-98

Table B 12 – Near-Term + Alternative B Roadway Segment Level of Service Summary Using Esparto Bypass

Roadway Segment	Highway Class	Criteria	Near-Term + Alt B						Near-Term + Alt B (using Bypass)					
			Friday PM Peak			Saturday PM Peak			Friday PM Peak			Saturday PM Peak		
		LOS	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)
SR-16 between Cache Creek Casino and CR-85	I	D	D	75.8	40.2	**E**	**76.7**	**39.9**	No change from Near-Term + Alt B					
SR-16 between CR-85 and Esparto Town Limits	II	D	D	76.2	-	D	76.6	-						
SR-16 through the Town of Esparto	II	E	C	68.6	-	D	73.5	-	C	67.7	-	D	72.5	-
SR-16 between Esparto Town limits and CR-89	I	D	D	76.0	41.4	D	79.0	40.4	No change from Near-Term + Alt B					
SR-16 between CR-89 and I-505	I	D	D	74.6	41.6	D	78.0	40.5						
SR-16 between I-505 and CR-98	I	D	D	71.7	41.0	D	65.6	42.5						
County Road 21A between CR-85B and SR-16	II	C	B	49.7	-	B	49.4	-	B	51.4	-	B	52.9	-
County Road 85B between SR-16 and CR-21A	II	C	B	41.5	-	B	40.6	-	B	43.9	-	B	43.7	-

Note: Locations operating unacceptably are bolded and significant project impacts are highlighted.

Table B 13 – Long-Term + Alternative B Roadway Segment Level of Service Summary Using Esparto Bypass

Roadway Segment	Highway Class	Criteria	Long-Term + Alt B						Long-Term + Alt B (using Bypass)					
			Friday PM Peak			Saturday PM Peak			Friday PM Peak			Saturday PM Peak		
		LOS	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)
SR-16 between Cache Creek Casino and CR-85	I	D	**E**	**81.0**	**38.2**	**E**	**80.9**	**38.2**	No change from Long-Term + Alt B					
SR-16 between CR-85 and Esparto Town Limits	II	D	D	81.9	-	D	79.9	-						
SR-16 through the Town of Esparto	II	E	D	73.3	-	D	78.6	-	D	72.6	-	D	77.9	-
SR-16 between Esparto Town limits and CR-89	I	D	**E**	**88.1**	**35.5**	**E**	**91.5**	**32.4**	No change from Long-Term + Alt B					
SR-16 between CR-89 and I-505	I	D	**F**	**94.0**	**29.6**	**F**	**96.8**	**25.4**						
SR-16 between I-505 and CR-98	I	D	**E**	**84.8**	**36.0**	**E**	**80.2**	**38.2**						
County Road 21A between CR-85B and SR-16	II	C	B	53.1	-	B	54.1	-	B	54.3	-	C	55.6	-
County Road 85B between SR-16 and CR-21A	II	C	C	62.3	-	C	63.0	-	C	63.0	-	C	64.1	-

Note: Locations operating unacceptably are bolded and significant project impacts are highlighted.

Alternative B Mitigations Using Esparto Bypass

Off-reservation intersections with levels of service below established thresholds were investigated to determine the role of Alternative B traffic using the Esparto bypass in the projected operating conditions at those intersections. The evaluation disclosed that no additional improvements are needed in the Near-Term (2013) and Long-Term (2030) to mitigate project level of service impacts beyond what was listed in **Table B5**.

Although no new LOS impacts occur with Reduced Intensity Alternative traffic using the bypass, the increase in traffic along CR-21A will create a potentially significant impact to safety of school children and other pedestrians walking adjacent to the roadway. Therefore, the following mitigation is recommended and listed in **Table B14**.

Impact #14: School Pedestrians

Esparto Middle School is located along County Road 21A and some middle school students can reach the school by using interior neighborhood streets and a pedestrian connection to the school. However, some students use the shoulder on the north side of CR-21A as their most direct route to school. If new Reduced Intensity Alternative traffic is encouraged to use CR-21A as a bypass around downtown Esparto, the addition of casino traffic increases the potential for conflict with school children walking adjacent to the roadway.

Mitigation #14

To mitigate the impacts expected to occur, it is recommended that an asphalt walking path be installed between the school driveway and Fremont Street. Because the Reduced Intensity Alternative triggers the impact, the Reduced Intensity Alternative would be responsible for all of the mitigation costs. Installing the walking path will reduce the Reduced Intensity Alternative impact to less than significant.

Table B 14 – Alternative B Using Esparto Bypass Summary of Mitigations

Mitigation #	Location	Impacted Scenario	Jurisdiction	Mitigation	Fair Share
14	School Pedestrians	Near-Term (2013) + Alternative B	Yolo County	Install an asphalt walking path between the Esparto Middle School driveway and Fremont Street on CR-21A	100%

ALTERNATIVE B WITH A MAJOR EVENT

Although not expected to occur every week, there will be major events at the CCCR Event Center under Alternative B. In some instances the performance will be sold out; therefore, a sub-area analysis was completed to identify how the surrounding street network would be affected when a major event occurs. The following sections summarize the analysis.

Trip Generation – Alternative B With Major Event

Trip generation with a major event at the CCCR event center under Alternative B was calculated based on the previous discussions and is reported in **Table B15**. Additional trip generation calculations are contained in the **Appendix**. As seen in the table, Alternative B with a major event is expected to generate 255 new trips in the Friday PM peak hour and 284 new trips in the Saturday PM peak hour.

Table B 15 – Alternative B Trip Generation With Major Event

LAND USE	Trips					
	Friday PM Peak Hour			Saturday PM Peak Hour		
	Entering	Exiting	Total	Entering	Exiting	Total
Casino Gaming Floor Area 10,249 s.f.	35	33	68	55	42	97
Event Center 1,150 seats*	177	10	187	17	10	187
Net New Vehicle Trips	212	43	255	232	52	284

*Trip rate accounts for the 40% of the total trips arriving during the PM peak hour (1 hour before the event begins) with 2.6 persons/vehicle

Project Trip Distribution and Assignment

The same project trip distribution discussed above and seen in **Figure B2** was used in this analysis. **Figure B15** illustrates project traffic with a major event at CCCR under Alternative B assigned to the study intersections based on the trip distribution to the study intersections.

Near-Term Plus Alternative B Off-Reservation Traffic Volumes

Near-term 2013 off-reservation traffic volumes were combined with vehicle trips expected to be generated by Alternative B with a major event. **Figure B16** illustrates Near-Term + Alternative B with a major event off-reservation turning movement volumes at the study intersections. **Figure B17** illustrates the two-way roadway segment off-reservation traffic volumes for Near-Term + Alternative B with a major event.

Long-Term Plus Alternative B Off-Reservation Traffic Volumes

Long-term 2030 off-reservation traffic volumes were combined with vehicle trips expected to be generated by Alternative B with a major event. **Figure B18** illustrates Long-Term + Alternative B with a major event off-reservation turning movement volumes at the study intersections. **Figure B19** illustrates two-way roadway segment off-reservation traffic volumes for Long-Term + Alternative B with a major event.

Alternative B Off-Reservation LOS Conditions and Impacts at Intersections

Off-reservation traffic operations were evaluated under the following development conditions:

- Near-Term conditions plus Alternative B with a major event (year 2013)
- Long-Term conditions plus Alternative B with a major event (year 2030)

Results of the analysis are presented in **Tables B16 and B17**. (Results shown as bold in the table do not meet operational standards and potentially significant project impacts are highlighted.) The method of intersection control is listed as Signal for signalized intersections, AWSC for all-way stop-controlled intersections and TWSC for two-way stop-controlled intersections. Two-way stop-controlled (TWSC) intersections may operate acceptably overall but only the worst approach is reported in the table. The overall level of service is reported for signalized and all-way stop-controlled intersections. Additional detail is provided in the **Appendix**. As shown in the results, the following off-reservation intersections or approaches will fail to meet acceptable level of service thresholds based on established significance criteria with the addition of Reduced Intensity Alternative traffic and will create new potentially significant impacts. It should be noted that the off-reservation intersections in bold operate unacceptably with Reduced Intensity Alternative traffic only when there is a major event.

2013 Results

- **#3 – SR-16/South Casino Entrance** (Saturday PM peak only) – not an impact because the unacceptable LOS occurs on-reservation
- **#5 – SR-16/CR-85B**
- #14 – SR-16/CR-89

2030 Results

- #3 – SR-16/South Casino Entrance – not an impact because the unacceptable LOS occurs on-reservation
- **#4 – SR-16/CR-85** (Friday PM peak only)
- #5 – SR-16/CR-85B
- **#10 – SR-16/CR-21A** (Saturday PM peak only)

- #14 – SR-16/CR-89
- #15 – SR-16/I-505 SB Ramps
- #16 – SR-16/I-505 NB Ramps
- #17 – SR-16/Wildwing Drive
- #18 – SR-16/CR-94B
- #19 – SR-16/CR-95
- **#20 – SR-16/CR-98** (Friday PM peak only)

Alternative B Traffic Signal Warrant Analysis

Alternative B with a major event, Near-Term and Long-Term, off-reservation traffic volumes at unsignalized study intersections were compared against the peak hour warrant in the *2006 California Manual on Uniform Traffic Control Devices (MUTCD)*.

Results of the analysis showed that the following off-reservation intersections will satisfy traffic signal Warrant #3 by year 2013 and 2030. It should be noted that the location shown in bold meets a signal warrant with Reduced Intensity Alternative traffic only with a major event.

- #3 – SR-16/South Casino Entrance (2013 and 2030)
- #4 – SR-16/CR-85 (2030)
- #5 – SR-16/CR-85B (2013 and 2030)
- #6 – SR-16/Woodland Avenue (2013 and 2030)
- #9 – SR-16/Plainfield Street (2030)
- #10 – SR-16/CR-21A (2013 and 2030)
- **#11 – CR-85B/CR-21A (2030)**
- #15 – SR-16/I-505 SB Ramps (2030)
- #17 – SR-16/Wildwing Drive (2030)
- #19 – SR-16/CR-95 (2030)

Other warrants such as for minimum vehicle volumes, interruption of continuous traffic, and traffic progression were not evaluated because they generally require higher traffic volumes to be satisfied. A copy of the analysis summary for Warrant #3 is included in the **Appendix**.

Table B 16 – Near-Term + Alternative B with Major Event Intersection Level of Service Summary

	Intersection	Intersection Control	Criteria	Near-Term + Alt B				Near-Term + Alt B w/ Major Event			
				Friday PM Peak		Saturday PM Peak		Friday PM Peak		Saturday PM Peak	
				LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1	SR-16/ North Casino Entrance	Signal	D	A	9.2	A	9.4	A	9.4	A	9.9
2	SR-16/ Central Casino Entrance	Uncontrolled	D	A	0.0	A	0.0	A	0.0	A	0.0
3	SR-16/ South Casino Entrance[1]	TWSC	D	C	16.8	D	31.3	C	20.8	**E**	**48.1**
4	SR-16/ County Road 85	TWSC	D	C	19.6	B	13.7	C	23.2	C	15.9
5	SR-16/ County Road 85B	TWSC	D	C	18.0	C	17.7	**E**	**39.2**	**E**	**36.0**
6	SR-16/ Woodland Avenue	AWSC	E	A	5.2	A	6.2	A	5.3	A	6.8
7	SR-16/ Capay Street	TWSC	E	C	15.5	C	17.5	C	17.5	C	19.8
8	SR-16/ Madison Street	TWSC	E	B	14.2	B	13.0	C	15.8	B	14.7
9	SR-16/ Plainfield Street	TWSC	E	C	19.1	C	24.8	C	22.6	D	29.3
10	SR-16/ County Road 21A	AWSC	D	B	12.8	B	13.9	B	13.4	B	14.6
11	County Road 85B/ County Road 21A	TWSC	C	A	9.3	A	9.2	A	9.5	A	9.4
12	Country Villa Estates/ County Road 21A	TWSC	C	A	9.9	A	10.0	B	10.1	B	10.2
13	Fremont Street/ County Road 21A	TWSC	C	B	10.6	B	10.6	B	10.8	B	10.9
14	SR-16/ County Road 89	AWSC	D	**F**	**53.2**	**F**	**88.4**	**F**	**113.6**	**F**	**154.7**
15	SR-16/ I-505 SB Ramps	TWSC	D	B	13.6	C	16.3	C	15.9	C	18.5
16	SR-16/ I-505 NB Ramps	Signal	D	B	10.2	B	11.6	B	12.4	B	13.2
17	SR-16/ Wildwing Drive	TWSC	D	C	16.4	B	14.6	C	17.7	C	15.6
18	SR-16/ County Road 94B	TWSC	D	C	18.8	C	16.3	C	20.3	C	17.4
19	SR-16/ County Road 95	TWSC	D	C	21.1	C	16.4	C	22.7	C	17.3
20	SR-16/ County Road 98	Signal	D	C	26.4	C	24.8	C	26.6	C	25.0
21	SR-16/ W. Kentucky Avenue	Signal	D	B	17.7	B	17.4	B	18.0	B	17.6

Note: Locations operating unacceptably are bolded and significant project impacts are highlighted.

[1] Increased delay occurs on reservation land and therefore does not represent a potentially significant off-reservation impact

Table B 17 – Long-Term + Alternative B with Major Event Intersection Level of Service Summary

	Intersection	Intersection Control	Criteria	Long-Term + Alt B				Long-Term + Alt B w/ Major Event			
				Friday PM Peak		Saturday PM Peak		Friday PM Peak		Saturday PM Peak	
				LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1	SR-16/ North Casino Entrance	Signal	D	B	10.3	A	9.9	A	9.4	A	9.7
2	SR-16/ Central Casino Entrance	Uncontrolled	D	A	0.0	A	0.0	A	0.0	A	0.0
3	SR-16/ South Casino Entrance[1]	TWSC	D	C	24.9	**F**	**58.1**	**D**	**32.7**	**F**	**105.5**
4	SR-16/ County Road 85	TWSC	D	D	29.1	C	18.0	**E**	**44.9**	C	23.0
5	SR-16/ County Road 85B	TWSC	D	**F**	**69.4**	**F**	**63.6**	**F**	**198.3**	**F**	**175.5**
6	SR-16/ Woodland Avenue	AWSC	E	A	7.1	B	11.9	A	6.3	B	10.2
7	SR-16/ Capay Street	TWSC	E	C	22.4	C	22.6	D	26.2	D	26.6
8	SR-16/ Madison Street	TWSC	E	C	15.9	C	18.8	C	17.7	C	20.8
9	SR-16/ Plainfield Street	TWSC	E	D	27.9	D	34.3	E	35.7	E	42.7
10	SR-16/ County Road 21A	AWSC	D	C	21.2	D	34.8	C	22.7	**E**	**38.4**
11	County Road 85B/ County Road 21A	TWSC	C	B	10.5	B	10.7	B	10.7	B	11.0
12	Country Villa Estates/ County Road 21A	TWSC	C	B	11.7	B	12.7	B	12.0	B	13.1
13	Fremont Street/ County Road 21A	TWSC	C	B	12.6	B	13.0	B	13.0	B	13.5
14	SR-16/ County Road 89	Signal	D	**E**	**57.7**	**F**	**137.0**	**E**	**56.3**	**F**	**133.2**
15	SR-16/ I-505 SB Ramps	TWSC	D	**F**	**277.4**	**F**	**401.1**	**F**	**448.5**	**F**	**591.7**
16	SR-16/ I-505 NB Ramps	Signal	D	**F**	**123.5**	**F**	**157.5**	**F**	**166.3**	**F**	**194.7**
17	SR-16/ Wildwing Drive	TWSC	D	**F**	**85.4**	**E**	**44.0**	**F**	**103.0**	**F**	**51.0**
18	SR-16/ County Road 94B	TWSC	D	**F**	**176.9**	**F**	**54.9**	**F**	**225.7**	**F**	**62.3**
19	SR-16/ County Road 95	TWSC	D	**F**	**107.3**	**F**	**73.5**	**F**	**141.8**	**F**	**90.9**
20	SR-16/ County Road 98	Signal	D	D	54.2	C	33.1	**E**	**55.0**	C	33.4
21	SR-16/ W. Kentucky Avenue	Signal	D	C	20.7	C	27.9	C	21.2	C	27.8

Note: Locations operating unacceptably are bolded and significant project impacts are highlighted.

[1] Increased delay occurs on reservation land and therefore does not represent a potentially significant off-reservation impact

Alternative B Off-Reservation LOS Conditions and Impacts on Roadway Segments

Trips with a major event generated by the Reduced Intensity Alternative were added to the year 2013 and 2030 forecast off-reservation roadway segment volumes.

Traffic analyses were completed to evaluate the operation of the study roadway segments in the year 2013 and 2030.

Results of the analyses are presented in **Tables B18 and B19**. (Results shown as bold in the table do not meet operational standards and potentially significant project impacts are highlighted.) As shown in the table, project traffic will add to the background congestion on the off-reservation roadway segments. In the Near-Term condition, the following off-reservation segments will operate unacceptably with the addition of the project with a major event under Alternative B. It should be noted that the off-reservation segment in bold operates unacceptably with project traffic only when there is a major event under Alternative B.

- SR-16 between CCCR and CR-85
- **SR-16 between the Esparto Town Limits and CR-89**

- **SR-16 between CR-89 and I-505** (Saturday PM peak only)

In the Long-Term condition, the following off-reservation segments operate at unacceptable levels of service with the addition of the project with a major event. It should be noted that the off-reservation segment in bold operates unacceptably with project traffic only when there is a major event under Alternative B.

- SR-16 between CCCR and CR-85
- **SR-16 between CR-85 and the Esparto Town Limits** (Friday PM peak only)
- SR-16 between the Esparto Town Limits and CR-89
- SR-16 between CR-89 and I-505
- SR-16 between I-505 and CR-98

Table B 18 – Near-Term + Alternative B with Major Event Roadway Segment Level of Service Summary

Roadway Segment	Highway Class	Criteria	Near-Term + Alt B						Near-Term + Alt B w/ Major Event					
			Friday PM Peak			Saturday PM Peak			Friday PM Peak			Saturday PM Peak		
		LOS	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)
SR-16 between Cache Creek Casino and CR-85	I	D	D	75.8	40.2	**E**	**76.7**	**39.9**	**E**	**80.7**	**38.4**	**E**	**81.7**	**38.0**
SR-16 between CR-85 and Esparto Town Limits	II	D	D	76.2	-	D	76.6	-	D	81.0	-	D	81.2	-
SR-16 through the Town of Esparto	II	E	C	68.6	-	D	73.5	-	D	72.2	-	D	77.0	-
SR-16 between Esparto Town limits and CR-89	I	D	D	76.0	41.4	D	79.0	40.4	**E**	**80.4**	**39.9**	**E**	**83.0**	**38.7**
SR-16 between CR-89 and I-505	I	D	D	74.6	41.6	D	78.0	40.5	D	79.2	40.1	**E**	**82.1**	**38.8**
SR-16 between I-505 and CR-98	I	D	D	71.7	41.0	D	65.6	42.5	D	73.7	40.5	D	68.0	42.0
County Road 21A between CR-85B and SR-16	II	C	B	41.5	-	B	40.6	-	B	44.7	-	B	43.3	-
County Road 85B between SR-16 and CR-21A	II	C	B	49.7	-	B	49.4	-	B	53.6	-	B	52.8	-

Note: Locations operating unacceptably are bolded and significant project impacts are highlighted.

Table B 19 – Long-Term + Alternative B with Major Event Roadway Segment Level of Service Summary

Roadway Segment	Highway Class	Criteria	Long-Term + Alt B						Long-Term + Alt B w/ Major Event					
			Friday PM Peak			Saturday PM Peak			Friday PM Peak			Saturday PM Peak		
		LOS	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)
SR-16 between Cache Creek Casino and CR-85	I	D	**E**	**81.0**	**38.2**	**E**	**80.9**	**38.2**	**E**	**84.9**	**36.3**	**E**	**84.9**	**36.3**
SR-16 between CR-85 and Esparto Town Limits	II	D	D	81.9	-	D	79.9	-	**D**	**84.6**	-	D	84.0	-
SR-16 through the Town of Esparto	II	E	D	73.3	-	D	78.6	-	D	75.9	-	D	81.9	-
SR-16 between Esparto Town limits and CR-89	I	D	**E**	**88.1**	**35.5**	**E**	**91.5**	**32.4**	**E**	**90.3**	**33.7**	**E**	**93.1**	**30.7**
SR-16 between CR-89 and I-505	I	D	**F**	**94.0**	**29.6**	**F**	**96.8**	**25.4**	**F**	**95.5**	**27.8**	**F**	**97.7**	**23.6**
SR-16 between I-505 and CR-98	I	D	**E**	**84.8**	**36.0**	**E**	**80.2**	**38.2**	**E**	**85.9**	**35.3**	**E**	**81.7**	**37.6**
County Road 21A between CR-85B and SR-16	II	C	B	53.1	-	B	54.1	-	B	54.5	-	C	55.9	-
County Road 85B between SR-16 and CR-21A	II	C	C	62.3	-	C	63.0	-	C	63.1	-	C	64.2	-

Note: Locations operating unacceptably are bolded and significant project impacts are highlighted.

Alternative B Mitigations With Major Event

Off-reservation intersections with levels of service below established thresholds were investigated to determine the role of the Alternative B traffic with a major event at CCCR in the projected operating conditions at those intersections. **Table B5** summarizes the mitigations needed for Alternative B without a major event that would also be needed with a major event. In addition, when there is a major event at CCCR under Alternative B, the mitigation in **Table B20** should be implemented as well. Although major events only occur occasionally, CCCR should provide special event traffic management to reduce the effects caused by the additional trips generated by the major event. As noted previously, CCCR does not intend to schedule events at Club 88 and the new special event center on the same evening. Traffic management mitigation would be needed only when the size of the special event exceeds the size of a sold out event at Club 88 (which currently occurs without the need for special traffic management measures).

Table B 20 – Alternative B With Major Event Summary of Mitigations

Mitigation #	Location	Impacted Scenario	Jurisdiction	Mitigation	Fair Share
15	Various	Near-Term (2013) + Alternative B	Caltrans	When the advanced ticket sales of an event at the new event center exceeds the existing capacity of Club 88, CCCR should work with CHP to determine what intersections would be best to have flaggers directing traffic before an event starts and when the events let out. At a minimum, there should be CHP officers directing traffic at the following intersections: • #5 – SR-16/CR-85B • #10 – SR-16/CR-21A • #14 – SR-16/CR-89 • #15 – SR-16/I-505 SB Ramps • #16 – SR-16/I-505 NB Ramps	100%

Impact #15: Major Event

When the advanced ticket sales of an event at the Reduced Intensity Alternative event center exceeds the existing capacity of Club 88, the surrounding intersections will be temporarily impacted due to the arrival and departure of patrons of the Reduced Intensity Alternative event center.

Mitigation #15

To mitigate the project impacts expected to occur with a sold out performance at the Reduced Intensity Alternative event center, CCCR should work with CHP to determine what intersections would be best to have flaggers directing traffic before an event starts and when the events let out. At a minimum, there should be CHP officers directing traffic at the following intersections:

- #5 – SR-16/CR-85B
- #10 – SR-16/CR-21A
- #14 – SR-16/CR-89

- #15 – SR-16/I-505 SB Ramps
- #16 – SR-16/I-505 NB Ramps

ALTERNATIVE B WITH MAJOR EVENT AND USING ESPARTO BYPASS

A sub-area analysis was completed to analyze the affect on the off-reservation study intersections of Reduced Intensity Alternative traffic with a major event being encouraged to use the Esparto bypass instead of traveling through downtown when going to or leaving from CCCR when there is a major event. The following sections summarize the analysis.

Trip Generation – Alternative B With Major Event

Trip generation with a major event at CCCR under Alternative B and project traffic using the Esparto bypass is the same as was calculated in the Trip Generation – Alternative B With Major Event section above and is reported in **Table B15**.

Project Trip Distribution and Assignment

The same project trip distribution discussed above and seen in **Figure B2** was used in this analysis with the exception of assuming more of the project traffic uses the Esparto Bypass. In the Existing condition, 80% of vehicles travelling westbound on SR-16 drive through downtown Esparto and 20% of vehicles travel westbound on CR-21A to CR-85B to connect back to SR-16. In the eastbound direction, 70% of vehicles travelling eastbound on SR-16 drive through downtown Esparto and 30% of vehicles travel southbound on CR-85B to CR-21A to connect back to SR-16.

An alternate analysis was completed to evaluate what the effects would be if most Reduced Intensity Alternative traffic used the Esparto bypass. The trip percentages were assumed to be reversed from the Existing condition and 20% of vehicles travelling westbound on SR-16 were assumed to drive through downtown Esparto and 80% of vehicles were assumed to travel westbound on CR-21A to CR-85B to connect back to SR-16. In the eastbound direction, 30% of vehicles travelling eastbound on SR-16 were assumed to drive through downtown Esparto and 70% of vehicles were assumed to travel southbound on CR-85B to CR-21A to connect back to SR-16. **Figure B20** illustrates project traffic with a major event assigned to the off-reservation study intersections based on the trip distribution using the Esparto bypass at the intersections that are affected by the change in trip assignment.

Near-Term Plus Alternative B Off-Reservation Traffic Volumes

Near-Term 2013 off-reservation traffic volumes were combined with vehicle trips expected to be generated by Alternative B with a major event using the Esparto bypass. **Figure B21** illustrates Near-Term + Alternative B with a major event using the Esparto bypass off-reservation turning movement volumes at the study intersections. **Figure**

B22 illustrates Near-Term + Alternative B with a major event using the Esparto bypass two-way roadway segment off-reservation traffic volumes.

Long-Term Plus Alternative B Off-Reservation Traffic Volumes

Long-term 2030 off-reservation traffic volumes were combined with vehicle trips expected to be generated by Alternative B with a major event using the Esparto bypass. **Figure B23** illustrates Long-Term + Alternative B with a major event using the Esparto bypass off-reservation turning movement volumes at the study intersections. **Figure B24** illustrates Long-Term + Alternative B with a major event using the Esparto bypass two-way roadway segment off-reservation traffic volumes.

Alternative B Off-Reservation LOS Conditions and Impacts at Intersections

Off-reservation traffic operations were evaluated under the following development conditions:

- Near-Term conditions plus Alternative B with a major event using the Esparto bypass (year 2013)
- Long-Term conditions plus Alternative B with a major event using the Esparto bypass (year 2030)

Results of the analysis are presented in **Tables B21 and B22**. (Results shown as bold in the table do not meet operational standards and potentially significant project impacts are highlighted.) The method of intersection control is listed as Signal for signalized intersections, AWSC for all-way stop-controlled intersections and TWSC for two-way stop-controlled intersections. Two-way stop-controlled (TWSC) intersections may operate acceptably overall but only the worst approach is reported in the table. The overall level of service is reported for signalized and all-way stop-controlled intersections. Additional detail is provided in the **Appendix**. As shown in the results, the following off-reservation intersections or approaches will fail to meet acceptable level of service thresholds based on established significance criteria with the addition of Reduced Intensity Alternative traffic and will create new potentially significant impacts. It should be noted that there are no off-reservation intersections that operate unacceptably with project traffic only when there is a major event with Reduced Intensity Alternative traffic using the Esparto bypass.

2013 Results

- #3 – SR-16/South Casino Entrance (Saturday PM peak only) – not an impact because the unacceptable LOS occurs on-reservation
- #5 – SR-16/CR-85B
- #14 – SR-16/CR-89

2030 Results

- #3 – SR-16/South Casino Entrance – not an impact because the unacceptable LOS occurs on-reservation
- #4 – SR-16/CR-85
- #5 – SR-16/CR-85B
- #9 – SR-16/Plainfield Street
- #10 – SR-16/CR-21A (Saturday PM peak only)
- #14 – SR-16/CR-89
- #15 – SR-16/I-505 SB Ramps
- #16 – SR-16/I-505 NB Ramps
- #17 – SR-16/Wildwing Drive
- #18 – SR-16/CR-94B
- #19 – SR-16/CR-95
- #20 – SR-16/CR-98 (Friday PM peak only)

Table B 21 – Near-Term + Alternative B With Major Event Intersection Level of Service Summary Using Esparto Bypass

	Intersection	Intersection Control	Criteria	Near-Term + Alt B w/ Major Event				Near-Term + Alt B w/ Major Event (using Bypass)			
				Friday PM Peak		Saturday PM Peak		Friday PM Peak		Saturday PM Peak	
				LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1	SR-16/ North Casino Entrance	Signal	D	A	9.4	A	9.9	No change from Near-Term + Alt B w/ Major Event			
2	SR-16/ Central Casino Entrance	Uncontrolled	D	A	0.0	A	0.0				
3	SR-16/ South Casino Entrance[1]	TWSC	D	C	20.8	**E**	**48.1**				
4	SR-16/ County Road 85	TWSC	D	C	23.2	C	15.9				
5	SR-16/ County Road 85B	TWSC	D	**E**	**39.2**	**E**	**36.0**	**F**	**93.2**	**F**	**81.6**
6	SR-16/ Woodland Avenue	AWSC	E	A	5.3	A	6.8	A	4.9	A	6.7
7	SR-16/ Capay Street	TWSC	E	C	17.5	C	19.8	C	15.5	C	17.2
8	SR-16/ Madison Street	TWSC	E	C	15.8	B	14.7	B	14.2	B	13.6
9	SR-16/ Plainfield Street	TWSC	E	C	22.6	D	29.3	C	19.2	C	24.1
10	SR-16/ County Road 21A	AWSC	D	B	13.4	B	14.6	C	15.3	C	16.2
11	County Road 85B/ County Road 21A	TWSC	C	A	9.5	A	9.4	B	10.0	B	10.2
12	Country Villa Estates/ County Road 21A	TWSC	C	B	10.1	B	10.2	B	11.1	B	11.3
13	Fremont Street/ County Road 21A	TWSC	C	B	10.8	B	10.9	B	12.0	B	12.2
14	SR-16/ County Road 89	AWSC	D	**F**	**113.6**	**F**	**154.7**	No change from Near-Term + Alt B w/ Major Event			
15	SR-16/ I-505 SB Ramps	TWSC	D	C	15.9	C	18.5				
16	SR-16/ I-505 NB Ramps	Signal	D	B	12.4	B	13.2				
17	SR-16/ Wildwing Drive	TWSC	D	C	17.7	C	15.6				
18	SR-16/ County Road 94B	TWSC	D	C	20.3	C	17.4				
19	SR-16/ County Road 95	TWSC	D	C	22.7	C	17.3				
20	SR-16/ County Road 98	Signal	D	C	26.6	C	25.0				
21	SR-16/ W. Kentucky Avenue	Signal	D	B	18.0	B	17.6				

Note: Locations operating unacceptably are bolded and significant project impacts are highlighted.

[1] Increased delay occurs on reservation land and therefore does not represent a potentially significant off-

Table B 22 – Long-Term + Alternative B With Major Event Intersection Level of Service Summary Using Esparto Bypass

	Intersection	Intersection Control	Criteria	Long-Term + Alt B w/ Major Event				Long-Term + Alt B w/ Major Event (using Bypass)			
				Friday PM Peak		Saturday PM Peak		Friday PM Peak		Saturday PM Peak	
				LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1	SR-16/ North Casino Entrance	Signal	D	A	9.4	A	9.7	No change from Long-Term + Alt B w/ Major Event			
2	SR-16/ Central Casino Entrance	Uncontrolled	D	A	0.0	A	0.0				
3	SR-16/ South Casino Entrance[1]	TWSC	D	D	32.7	**F**	**105.5**				
4	SR-16/ County Road 85	TWSC	D	**E**	**44.9**	C	23.0				
5	SR-16/ County Road 85B	TWSC	D	**F**	**198.3**	**F**	**175.5**	**F**	**287.3**	**F**	**226.0**
6	SR-16/ Woodland Avenue	AWSC	E	A	6.3	B	10.2	A	6.9	B	11.3
7	SR-16/ Capay Street	TWSC	E	D	26.2	D	26.6	C	22.3	C	22.4
8	SR-16/ Madison Street	TWSC	E	C	17.7	C	20.8	C	16.0	C	18.7
9	SR-16/ Plainfield Street	TWSC	E	E	35.7	E	42.7	D	28.0	D	33.4
10	SR-16/ County Road 21A	AWSC	D	C	22.7	**E**	**38.4**	D	26.7	**E**	**44.5**
11	County Road 85B/ County Road 21A	TWSC	C	B	10.7	B	11.0	B	11.4	B	12.3
12	Country Villa Estates/ County Road 21A	TWSC	C	B	12.0	B	13.1	B	13.3	B	14.9
13	Fremont Street/ County Road 21A	TWSC	C	B	13.0	B	13.5	B	14.6	C	15.5
14	SR-16/ County Road 89	Signal	D	**E**	**56.3**	**F**	**133.2**	No change from Long-Term + Alt B w/ Major Event			
15	SR-16/ I-505 SB Ramps	TWSC	D	**F**	**448.5**	**F**	**591.7**				
16	SR-16/ I-505 NB Ramps	Signal	D	**F**	**166.3**	**F**	**194.7**				
17	SR-16/ Wildwing Drive	TWSC	D	**F**	**103.0**	**F**	**51.0**				
18	SR-16/ County Road 94B	TWSC	D	**F**	**225.7**	**F**	**62.3**				
19	SR-16/ County Road 95	TWSC	D	**F**	**141.8**	**F**	**90.9**				
20	SR-16/ County Road 98	Signal	D	**E**	**55.0**	C	33.4				
21	SR-16/ W. Kentucky Avenue	Signal	D	C	21.2	C	27.8				

Note: Locations operating unacceptably are bolded and significant project impacts are highlighted.

[1] Increased delay occurs on reservation land and therefore does not represent a potentially significant off-reservation impact

Alternative B Traffic Signal Warrant Analysis

Alternative B with a major event using the Esparto bypass, Near-Term and Long-Term, off-reservation traffic volumes at unsignalized study intersections were compared against the peak hour warrant in the *2006 California Manual on Uniform Traffic Control Devices (MUTCD)*.

Results of the analysis showed that the following off-reservation intersections will satisfy traffic signal Warrant #3 by year 2013 and 2030 with a major event at CCCR under Alternative B and traffic using the Esparto bypass. It should be noted that there are no additional locations that meet a signal warrant with a major event with Alternative B traffic using the Esparto bypass.

- #3 – SR-16/South Casino Entrance (2013 and 2030)
- #4 – SR-16/CR-85 (2030)
- #5 – SR-16/CR-85B (2013 and 2030)
- #6 – SR-16/Woodland Avenue (2013 and 2030)
- #9 – SR-16/Plainfield Street (2030)
- #10 – SR-16/CR-21A (2013 and 2030)
- #11 – CR-85B/CR-21A (2030)

- #15 – SR-16/I-505 SB Ramps (2030)
- #17 – SR-16/Wildwing Drive (2030)
- #19 – SR-16/CR-95 (2030)

Other warrants such as for minimum vehicle volumes, interruption of continuous traffic, and traffic progression were not evaluated because they generally require higher traffic volumes to be satisfied. A copy of the analysis summary for Warrant #3 is included in the **Appendix**.

Alternative B Off-Reservation LOS Conditions and Impacts on Roadway Segments

Trips with a major event generated by the Reduced Intensity Alternative using the Esparto bypass were added to the year 2013 and 2030 forecast off-reservation roadway segment volumes.

Traffic analyses were completed to evaluate the operation of the study roadway segments in the year 2013 and 2030, with the addition of a major event at CCCR under Alternative B and the traffic using the Esparto bypass.

Results of the analyses are presented in **Tables B23 and B24**. (Results shown as bold in the table do not meet operational standards and potentially significant project impacts are highlighted.) As shown in the table, project traffic will add to the background congestion on the off-reservation roadway segments. In the Near-Term condition, the segment of SR-16 between CCCR and CR-85 will operate unacceptably with the addition of the Reduced Intensity Alternative. It should be noted that no additional off-reservation segments operate unacceptably with a major event at CCCR with Reduced Intensity Alternative traffic using the Esparto bypass.

In the Long-Term condition, the following off-reservation segments operate at unacceptable levels of service with the addition of the project with a major event. It should be noted that no additional off-reservation segments operate unacceptably with a major event at CCCR under Alternative B with traffic using the Esparto bypass.

- SR-16 between CCCR and CR-85
- SR-16 between CR-85 and the Esparto Town Limits (Friday PM peak only)
- SR-16 between the Esparto Town Limits and CR-89
- SR-16 between CR-89 and I-505
- SR-16 between I-505 and CR-98

Table B 23 – Near-Term + Alternative B With Major Event Roadway Segment Level of Service Summary Using Esparto Bypass

Roadway Segment	Highway Class	Criteria	Near-Term + Alt B w/ Major Event						Near-Term + Alt B w/ Major Event (using Bypass)					
			Friday PM Peak			Saturday PM Peak			Friday PM Peak			Saturday PM Peak		
		LOS	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)
SR-16 between Cache Creek Casino and CR-85	I	D	**E**	**80.7**	**38.4**	**E**	**81.7**	**38.0**	No change from Near-Term + Alt B					
SR-16 between CR-85 and Esparto Town Limits	II	D	D	81.0	-	D	81.2	-						
SR-16 through the Town of Esparto	II	E	D	72.2	-	D	77.0	-	C	69.1	-	D	73.6	-
SR-16 between Esparto Town limits and CR-89	I	D	E	80.4	39.9	E	83.0	38.7	No change from Near-Term + Alt B					
SR-16 between CR-89 and I-505	I	D	D	79.2	40.1	E	82.1	38.8						
SR-16 between I-505 and CR-98	I	D	D	73.7	40.5	D	68.0	42.0						
County Road 21A between CR-85B and SR-16	II	C	B	44.7	-	B	43.3	-	B	53.0	-	B	53.1	-
County Road 85B between SR-16 and CR-21A	II	C	B	53.6	-	B	52.8	-	C	60.7	-	C	60.9	-

Note: Locations operating unacceptably are bolded but there are no significant project impacts.

Table B 24 – Long-Term + Alternative B With Major Event Roadway Segment Level of Service Summary Using Esparto Bypass

Roadway Segment	Highway Class	Criteria	Long-Term + Alt B w/ Major Event						Long-Term + Alt B w/ Major Event (using Bypass)					
			Friday PM Peak			Saturday PM Peak			Friday PM Peak			Saturday PM Peak		
		Criteria	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)	LOS	% Time Spent Following	Average Travel Speed (mph)
SR-16 between Cache Creek Casino and CR-85	I	D	**E**	**84.9**	**36.3**	**E**	**84.9**	36.3	No change from Long-Term + Alt B					
SR-16 between CR-85 and Esparto Town Limits	II	D	**D**	**84.6**	-	D	84.0	-						
SR-16 through the Town of Esparto	II	E	D	75.9	-	D	81.9	-	D	73.7	-	D	78.7	-
SR-16 between Esparto Town limits and CR-89	I	D	**E**	**90.3**	**33.7**	**E**	**93.1**	30.7	No change from Long-Term + Alt B					
SR-16 between CR-89 and I-505	I	D	**F**	**95.5**	**27.8**	**F**	**97.7**	23.6						
SR-16 between I-505 and CR-98	I	D	**E**	**85.9**	**35.3**	**E**	**81.7**	37.6						
County Road 21A between CR-85B and SR-16	II	C	B	54.5	-	C	55.9	-	C	60.5	-	C	61.5	-
County Road 85B between SR-16 and CR-21A	II	C	C	63.1	-	C	64.2	-	C	67.8	-	C	69.4	-

Note: Locations operating unacceptably are bolded but there are no significant project impacts.

Alternative B Mitigations With Major Event Using Esparto Bypass

Off-reservation intersections with levels of service below established thresholds were investigated to determine the role of Alternative B traffic with a major event using the Esparto bypass in the projected operating conditions at those intersections. **Table B5** summarizes the mitigations needed for Alternative B without a major event that would also be needed with a major event. In addition, when project traffic uses the Esparto bypass and there is a major event at CCCR under Alternative B, the mitigations in **Tables B14 and B20** should be implemented as well.

Alternative B Potential Effects on Bicycle and Pedestrian Mobility

Due to the lack of other land uses in the vicinity of the casino and the nature of the Reduced Intensity Alternative, it is unlikely that patrons or employees will walk or bike to the site. Furthermore, the Reduced Intensity Alternative is not expected to have a notable effect on current mobility for bicyclists and pedestrians nor will it conflict with applicable goals and policies for bicycles and pedestrians contained in the General Plan. Thus, the impact of Alternative B on off-reservation transit, pedestrian or bicycle facilities is determined to be less than significant.

Alternative B Potential Effects on Transit Mobility

As noted earlier, Yolo County Transportation District (YCTD) operates the YoloBus Route 215, connecting the communities of Woodland, Madison, Esparto, Capay, and Brooks to the CCCR.

According to the 2006 – 2008 U.S. Census American Community Survey, 3.5% of Yolo County residents use transit to travel to work. This typically represents the highest level of transit ridership during the day. If it is conservatively assumed that 3.5% of employees or customers will use transit during the peak hours of the day, it represents approximately 3 additional employees or customers during the typical weekday PM peak period and approximately 4 additional employees or customers during the Saturday PM peak period that would use the YoloBus.

During a major event, 3.5% represents approximately 18 additional employees or customers in the weekday PM peak period and approximately 20 additional employees or customers during the Saturday PM peak period that would use the YoloBus. However, it is not expected that this level of attendees will use the YCTD system to reach the casino. It is assumed they will drive out of convenience.

(Note: The estimated number of transit users has not been deducted from the Reduced Intensity Alternative traffic trip generation calculations).

Data was not readily available for peak hour ridership levels on the YCTD system but during the typical weekday and weekend periods observations indicate the sufficient

capacity exists on the buses to accommodate the potential additional transit demand. Furthermore, the project will not conflict with applicable goals and policies for transit contained in the General Plan. Thus, based on Kimley-Horn's professional opinion, the project impact on off-reservation transit service is determined to be less than significant.

Alternative B Potential Effects on County Road Maintenance

Pavement primarily fails due to fatigue and exponentially increases with the axle load of the vehicles traveling upon it. Therefore, large trucks and buses generate the greatest effect on pavement fatigue. The effect of passenger cars, pickups, and two-axle trucks are considered to be negligible.[27] The Reduced Intensity Alternative is not expected to notably increase off-reservation truck or bus traffic, and in fact may actually decrease truck traffic because the expanded back-of-house area will permit more on-site storage. This in turn will reduce the frequency of trucks that currently bring supplies to CCCR. Therefore, the increase in off-reservation traffic associated with the Reduced Intensity Alternative is considered to be less than significant on county road maintenance.

Alternative B Potential Effects on Intersection Safety

Traffic volumes generated by the project were reviewed in consideration of existing intersection collision history and the potential for increased accidents. According to collision data provided by the California Highway Patrol, accidents involving bicyclist and pedestrians are very low. Many intersections did not report any collisions of this type during the reported period. This suggests that bicycle and pedestrian volumes are relatively low and study intersections have minimal safety hazards for individuals biking or walking. Although the Reduced Intensity Alternative will introduce increased off-reservation traffic volumes at some intersections, bicyclists and pedestrians are expected to be able to travel through study intersections with similar levels of safety. Historically casinos do not attract a significant amount of bicycle and pedestrian traffic. Therefore, the expected amount of pedestrian and bicycle traffic is nominal and a significant increase in bicycle and pedestrian accidents is unlikely.

The potential for increased collisions between motorized vehicles was also considered. Collision frequency and severity are a function of many complex factors that vary depending on the location and type of intersection or roadway segment. Factors include traffic control such as signals or stop signs, lane and shoulder widths, grades, driveway densities, roadside hazards or obstacles, presence of left and right turn lanes, sight distance, congestion, and others.

Because of the number and interrelationships of the variables, accurate crash prediction is difficult. However, the Reduced Intensity Alternative will increase roadway congestion, a factor which could result in an increase in traffic collisions if left unmitigated. Other factors are expected to remain unaffected.

[27] Caltrans Highway Design Manual, Topic 613 – Traffic Considerations, July 1, 2008.

As noted previously, the purpose of this study is to address the traffic and transportation effects of the Reduced Intensity Alternative. This includes mitigation improvements to restore traffic operations to levels within acceptable standards or to levels as good as or better than without the project. Any potential increases in accidents due to project-related traffic would be offset by the implementation of off-reservation roadway improvements included as mitigation. Therefore, if mitigations are implemented as proposed in this study, no significant increase in daytime or nighttime collisions is expected.

The Reduced Intensity Alternative will increase off-reservation traffic on SR-16 and adjacent county roadways where farm vehicles operate. However, this increase in traffic will not significantly impact or significantly increase the potential conflicts with nearby farm operations for a variety of reasons:

- There were no reported collisions (in the last 3 years) that included farm machinery or vehicles colliding with other highway traffic along any of the study segments or intersections.
- The area has a history of co-existence between the CCCR and farm operations.
- Farm vehicles typically operate prior to the PM peak commute period or later in the day when CCCR traffic levels are highest. Observations indicate farm workers and equipment are in the fields shortly after sunrise and are winding down most activities prior to 5 PM. Large harvesting equipment is often moved during these same times to reduce conflicts with highway traffic.
- Volumes on the roads serving the CCCR and farm uses will remain within the acceptable volumes for the road classifications, or will be mitigated to a level at or less than the “before” project condition.
- Intersections will be improved, thereby ensuring that traffic, including farm equipment, can move safely and efficiently through study intersections.

As long as the traffic volumes continue to be consistent with the volumes of the roadway’s classification, it is reasonable to assume that the roads can continue to sufficiently serve the uses that they were designed to accommodate. Therefore, an increase in off-reservation Reduced Intensity Alternative traffic volume alone does not render the project incompatible with the other agricultural and residential uses SR-16 serves. It is reasonable to conclude that a delay in exiting or entering a farm property does not rise to the level of a significant impact. Furthermore potential increases in traffic due to Reduced Intensity Alternative traffic would be offset by the implementation of off-reservation roadway improvements included as mitigation. Therefore, if mitigations are implemented as proposed in this report, no significant increase in collisions with farm equipment is expected.

It is also noted that the future State Route 16 Safety Improvement Project (SIP) will implement improved sight distances, wider shoulders, and other improvements to increase safety on several segments of the state highway.

Esparto Middle School is located along County Road 21A approximately 0.4 miles west of SR-16. Nearly all middle school students live north of CR-21A. Some can reach the school by using interior neighborhood streets and a pedestrian connection to the school. However, some students use the shoulder on the north side of CR-21A as their most direct route to school. If Reduced Intensity Alternative traffic is encouraged to use CR-21A as a bypass around downtown Esparto, the addition of Reduced Intensity Alternative traffic increases the potential for conflict with school children walking adjacent to the roadway. Therefore, under this scenario it is recommended that an asphalt walking path be installed between the school driveway and Fremont Street as described in Mitigation #15 if Reduced Intensity Alternative traffic is encouraged to use the Esparto bypass.

Esparto High School is located along SR-16, just north of Plainfield Street. In this area, streets have sidewalks upon which to walk and marked crosswalks at major intersections. The Reduced Intensity Alternative is not expected to have a notable effect on current mobility or safety for school children in this area. Thus, the Reduced Intensity Alternative impact on High School students is determined to be less than significant.

Alternative B Construction Traffic Impacts

The day-to-day construction operations for the construction of Alternative B will include off-reservation traffic impacts related to construction workers as well as construction material exportation and importation. There will be no off-reservation traffic impacts related to excavation activities because there will not be any off-site disposal of material. The principal activities expected to generate traffic related to the construction[28] are listed below:

- Construction import is based on the number of trucks required to deliver construction materials to the site, including building materials such as wood, steel, and masonry.
- Construction worker trips are based on the number of workers estimated to be on site during different points throughout the construction. Each construction worker is assumed to drive to and from the site alone each day and it is assumed that 20% of the workers leave and return to the site for various purposes during the day.
- Heavy equipment is based on the number of large construction vehicles expected during the duration of construction. The heavy equipment expected was provided by the Tribe.

[28] Provided by Rob Willis, Director of Development at CCCR and Tom Horgan, Civil Engineer, Laugenour and Meikle

Using the expected traffic information described above, construction related traffic generation was estimated. Each construction activity listed above will generate different volumes of traffic at different points in the Reduced Intensity Alternative. For example, the delivery and removal of heavy equipment to the site will happen only a few times during the construction period. The construction related off-reservation traffic is expected to remain relatively consistent throughout the Reduced Intensity Alternative construction.

It is estimated that it will take 24 months to complete construction of the Reduced Intensity Alternative.

Construction Material Export and Import – It is estimated that 46,000 cubic yards of earthwork will be required to be excavated to develop the site for Alternative B. The excess excavated earth will be hauled to an unpaved area above the existing casino where it will be placed, compacted, and contoured as an extension of the hill. Because the excavation will occur entirely on-site, it will not generate any traffic on the surrounding off-reservation roadways. The grading is expected to last 12 to 15 weeks.

Once the site is graded, Alternative B will also require the importation of construction material including, raw materials, concrete, the parking lot base and asphalt paving. This results in a material importation of approximately 50 truckloads per week from SR-16 to the east via I-5 and I-505. A full haul truck, because of its larger size and slower operating characteristics, is equivalent to 4 passenger vehicles and an empty haul truck is equivalent to 2 passenger vehicles. The material importation via truck equates to 40 passenger car equivalent trips in per day and 20 passenger car equivalent trips out per day. Even though the material importation trips will occur outside of the PM peak hour, for comparison, the number of construction importation trips is roughly equivalent to 12% of the Friday PM peak hour Reduced Intensity Alternative trips and 8% of the Saturday PM peak hour Reduced Intensity Alternative trips. In comparison to project trips with a major event, the construction importation trips are roughly equivalent to 3.1% of the Friday PM peak hour Reduced Intensity Alternative trips with a major event and 2.8% of the Saturday PM peak hour Reduced Intensity Alternative trips with a major event.

Because the import truck off-reservation traffic generates significantly less traffic than Alternative B's equivalent passenger car traffic generation (even when added to employee trips described below) and the vehicle path travels through generally uncongested intersection movements, it should not significantly impact the capacity of any off-reservation study intersection. However, this level of truck traffic may have an impact on quality of life including increased perception of lower traffic safety and the track of debris and mud onto roadways may create a perceptual impact as well as a physical impact.

Employees – The weekday work will begin around 7:00 a.m. and end around 3:30 p.m. The construction worker arrival peak occurs between 6:00 a.m. and 7:00 a.m., and the

departure peak occurs between 3:30 p.m. and 4:30 p.m. This is generally prior to the areawide commute peaks between 7:30 a.m. and 8:30 a.m. and between 4:30 p.m. and 5:30 p.m. with a period of overlap into the commute peak periods. There will be 400 employees at most on-site during construction and none of them are expected to be on the roadway during the peak hours. During grading, there will be approximately 100 employees on-site.

Workers will generate peak parking demand equivalent to roughly 400 vehicles during the peak construction period. Additionally, deliveries, visits, and other activities may generate peak non-worker parking demand of up to another 50 trucks and autos. Therefore, an approximate demand of 450 vehicle parking spaces will be required during the peak construction period for the construction employees. It is anticipated that this demand will be able to be met on site at CCCR.

The impacts of construction related employee traffic and parking are considered less than significant because the construction commute peak and the areawide commute peak will only have a brief period of overlap and the parking demand will be able to be met at the site.

Heavy Equipment – A total of approximately 16 pieces of heavy equipment will be used based on wide-load permits necessary at various times over the course of the construction period. Delivery and removal of heavy equipment will occur outside of the areawide commute peak and equipment will be moved in and out of the site on different days. The periodic delivery during off-peak hours constitutes a minimum disruption of traffic.

The impacts of the periodic delivery and removal of heavy equipment during off-peak hours constitutes a minimum disruption of traffic and thus is considered less than significant.

The following mitigation is recommended in relation to construction traffic and listed in **Table B25**.

Impact #16: Construction Traffic
The worst-case construction traffic for the Reduced Intensity Alternative will occur for a period of time where truck traffic will generate a large number vehicle trip ends per day in addition to construction employee trips and heavy equipment delivery to the project site. The presence of large and slow moving vehicles and construction equipment on SR-16 in the project vicinity would result in potential safety hazards to motorists.

Mitigation #16

Prior to the commencing each phase of project development, the applicant shall prepare a traffic control plan for construction of that phase and shall obtain approval from Caltrans for implementation of such a plan. The traffic control plan shall be prepared in accordance with Caltrans requirements and shall include information about times of construction, the haul routes, delivery times for heavy equipment, and any other particulars as required by Caltrans. With the implementation of the traffic control plan, the impacts of project construction traffic would be reduced to less-than-significant levels.

Table B 25 – Alternative B Construction Traffic Summary of Mitigations

Mitigation #	Location	Impacted Scenario	Jurisdiction	Mitigation	Fair Share
16	Construction Traffic	Near-Term (2013) + Alternative B	Caltrans	Prepare a traffic control plan.	100%

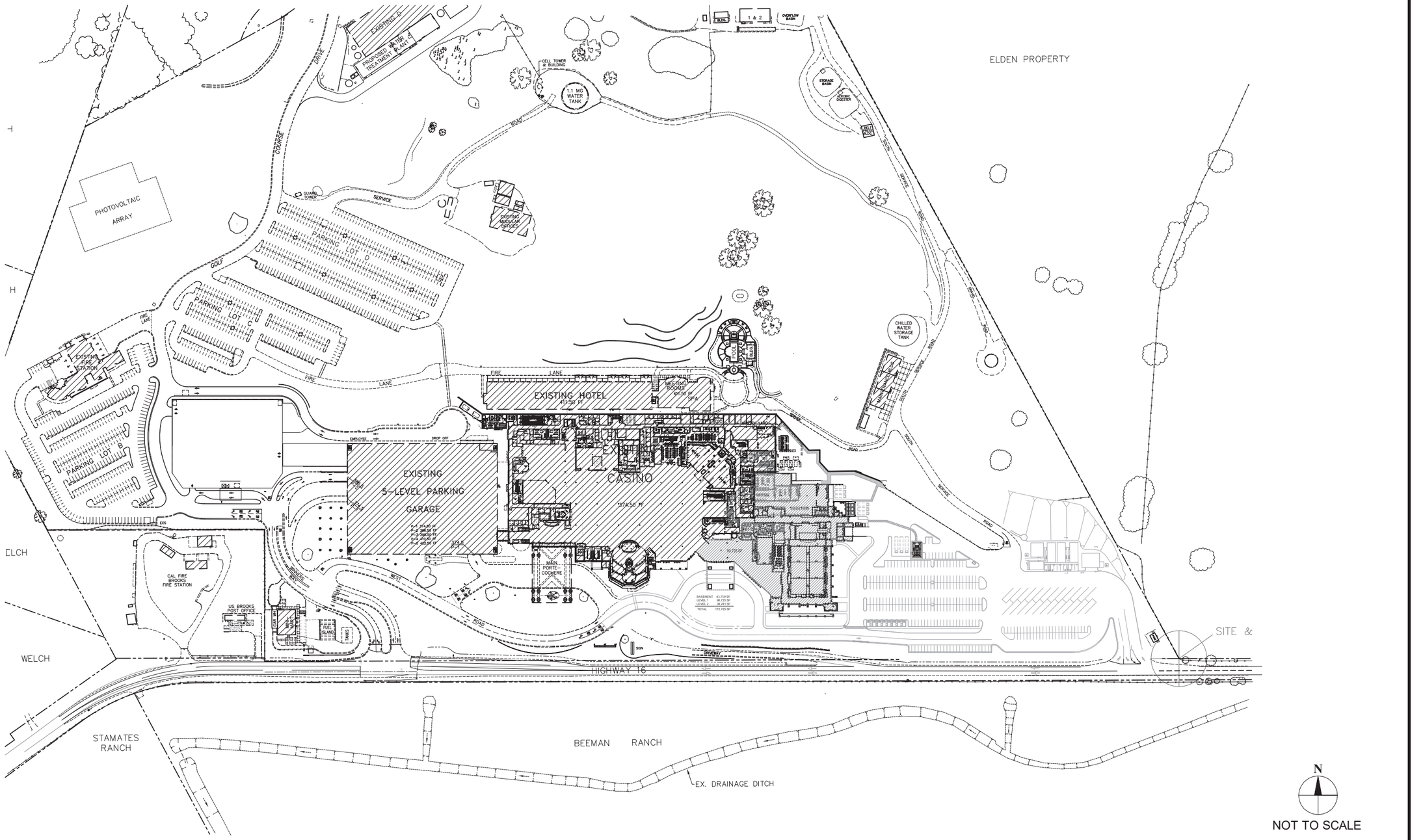

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FIGURE B1
ALTERNATIVE B PROJECT SITE PLAN
CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

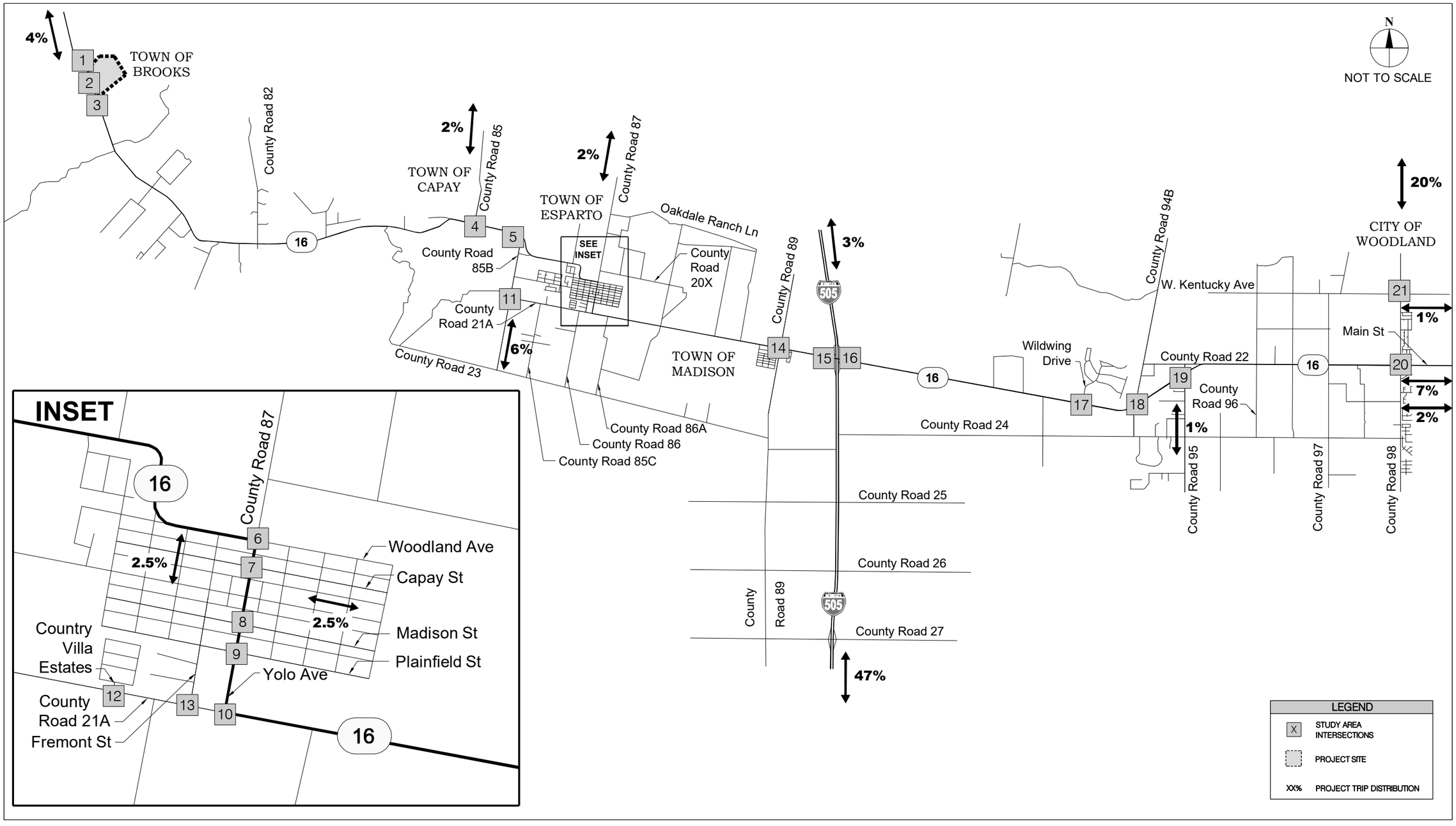

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FIGURE B2
ALTERNATIVE B PROJECT TRIP DISTRIBUTION
CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

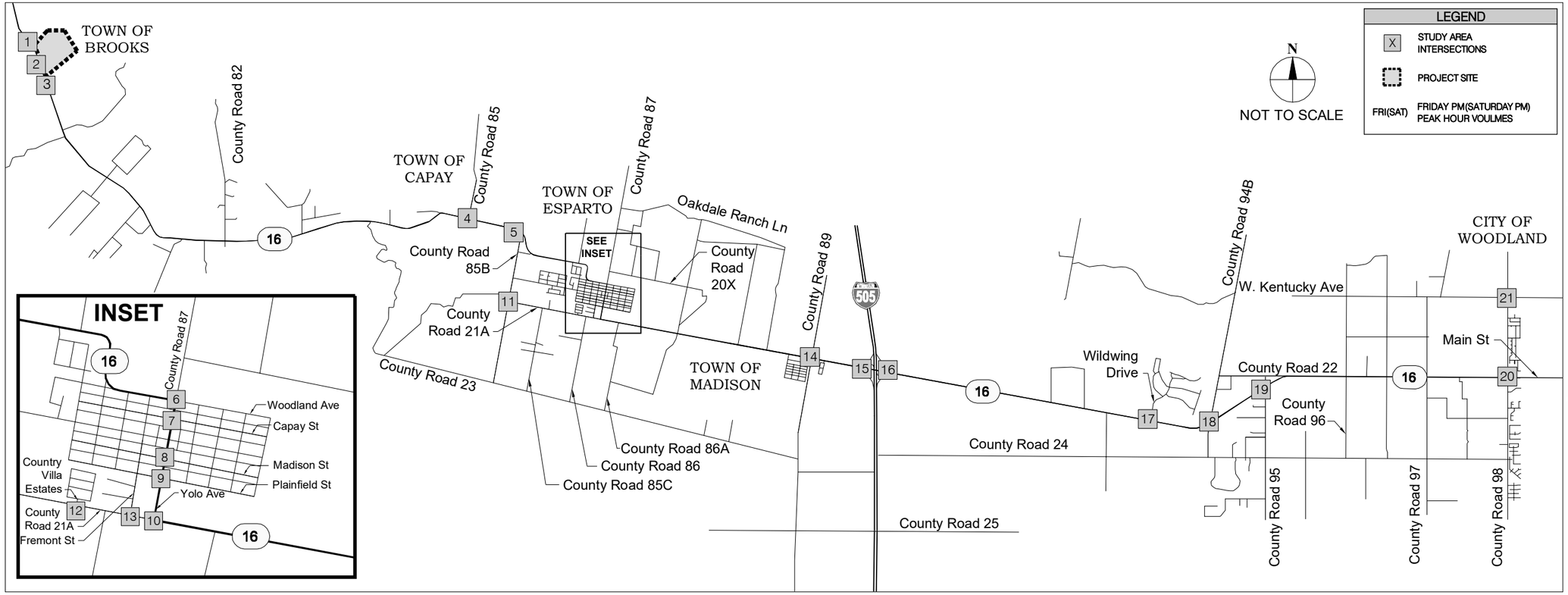

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FIGURE B3
ALTERNATIVE B PROJECT TRAFFIC VOLUMES
CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

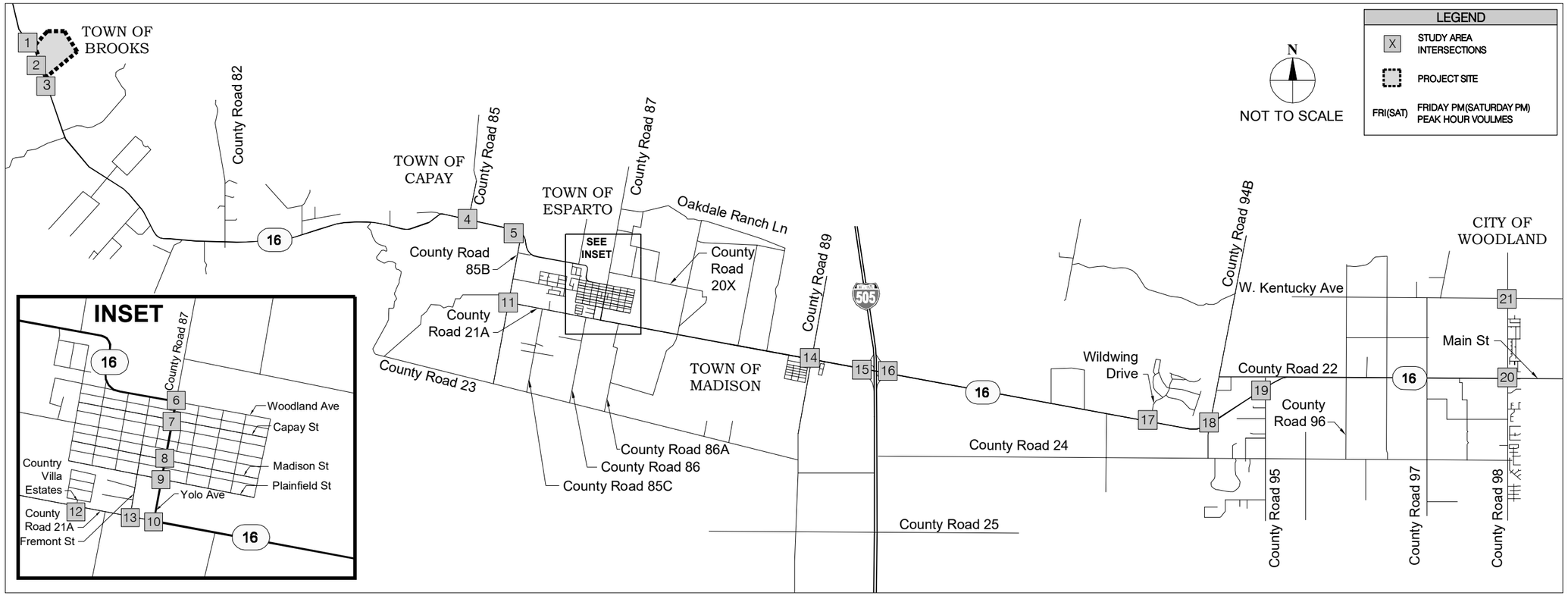

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FIGURE B4
NEAR-TERM + ALTERNATIVE B TRAFFIC VOLUMES
CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

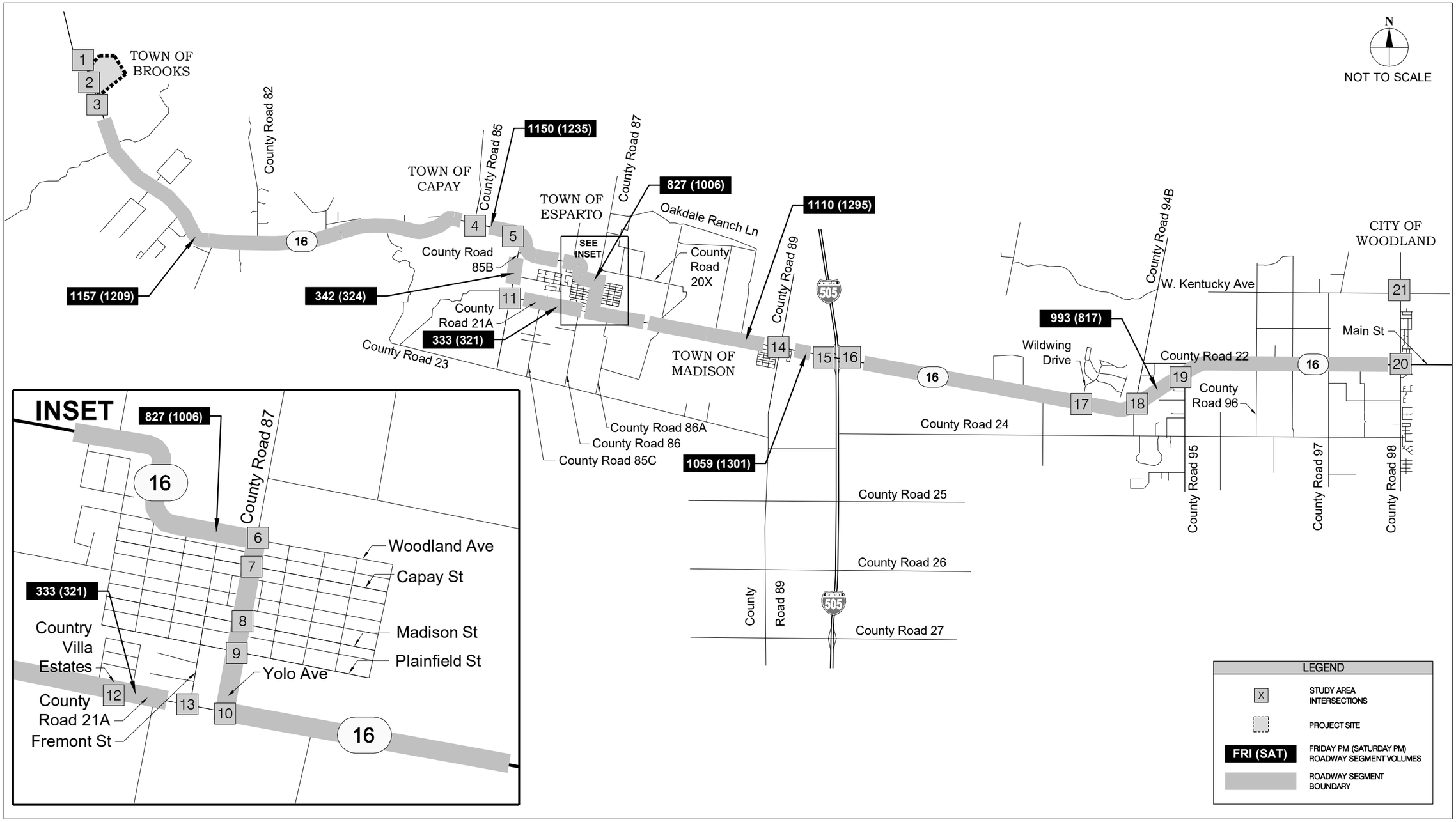

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FIGURE B5
NEAR-TERM + ALTERNATIVE B TWO-WAY ROADWAY SEGMENT TRAFFIC VOLUMES
CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

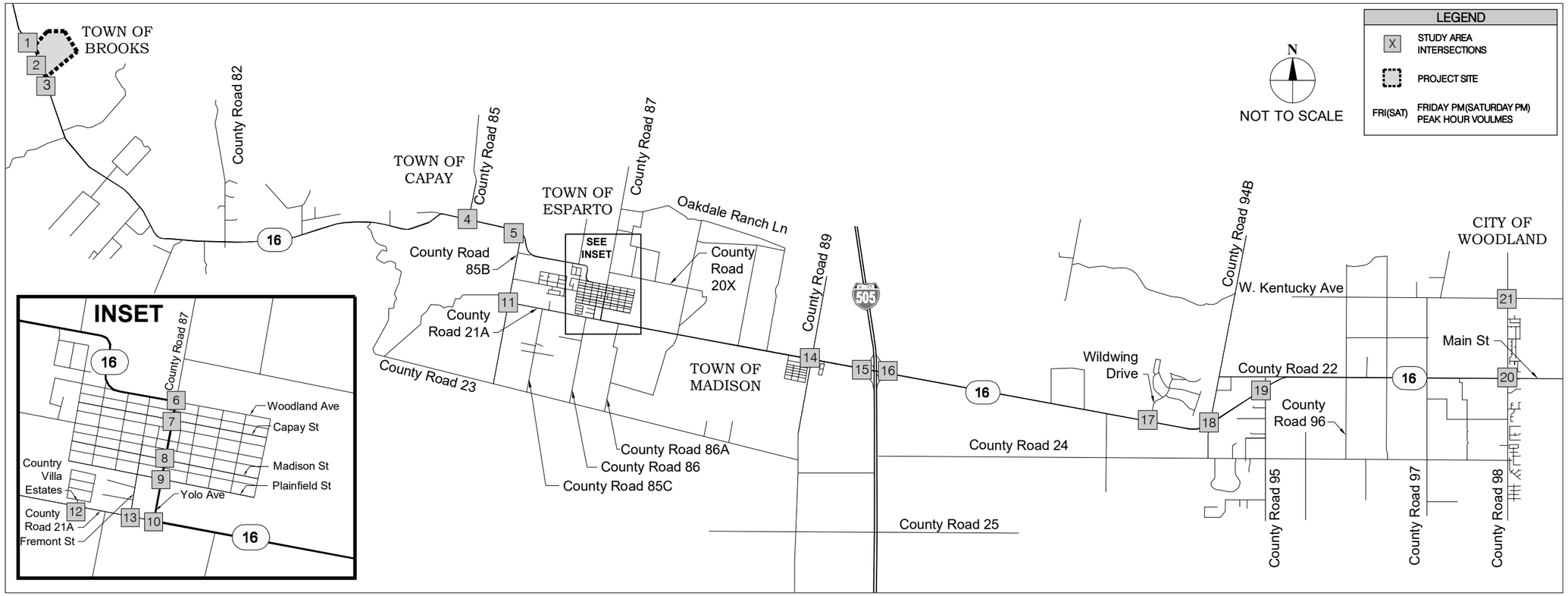

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FIGURE B6
LONG-TERM + ALTERNATIVE B TRAFFIC VOLUMES
CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

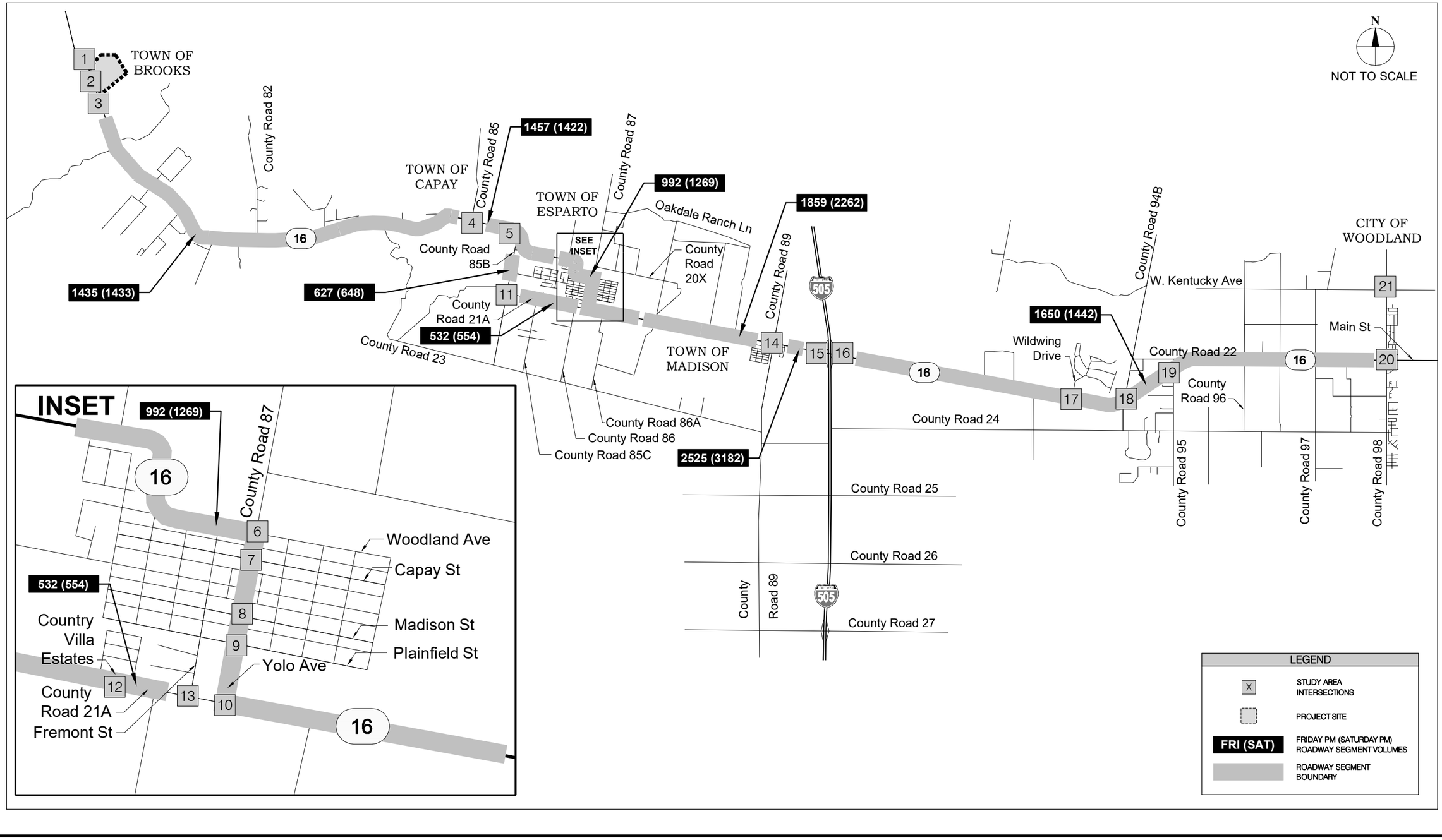

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FIGURE B7
LONG-TERM + ALTERNATIVE B TWO-WAY ROADWAY SEGMENT TRAFFIC VOLUMES
CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

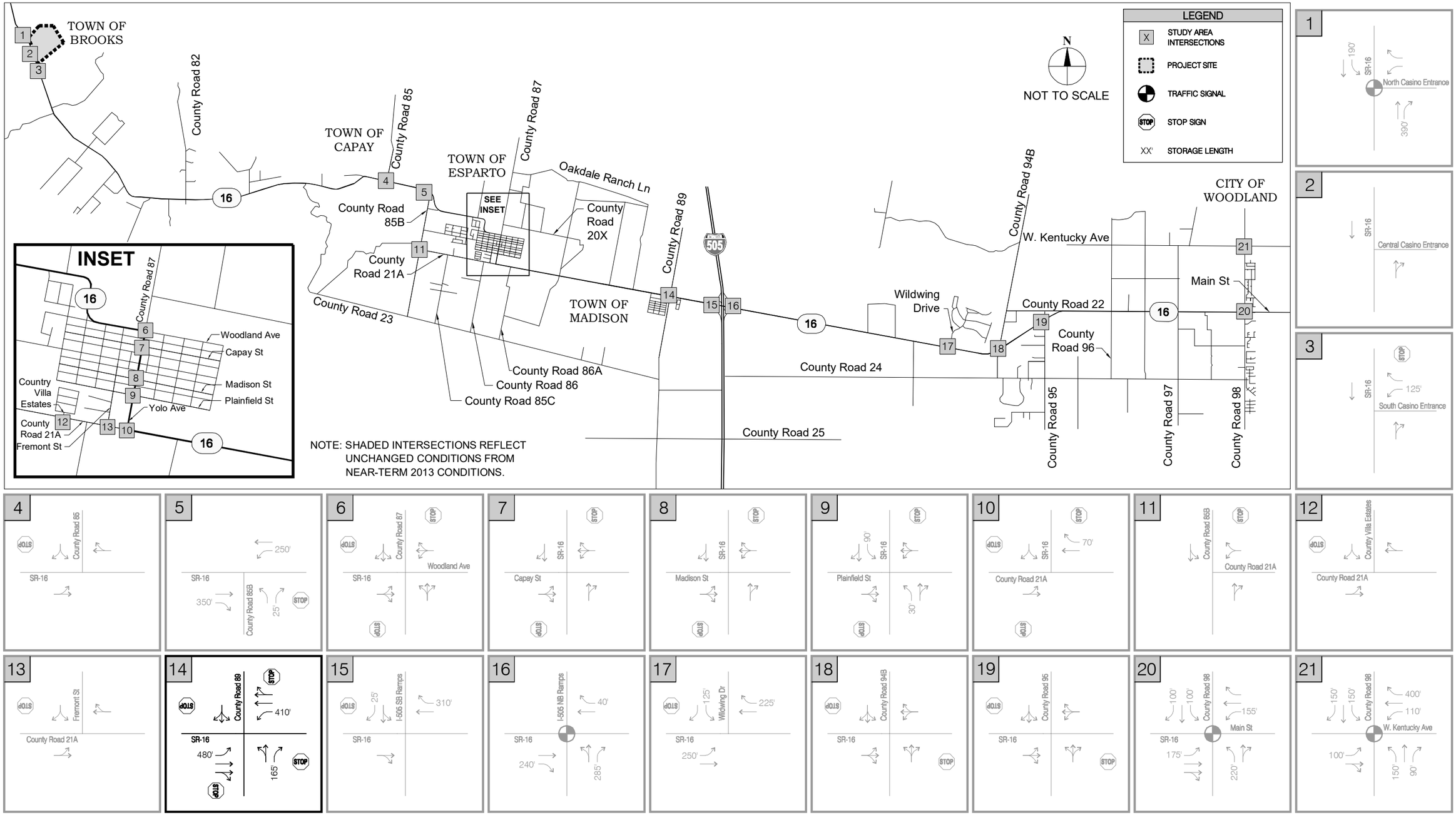

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FIGURE B8
NEAR-TERM + ALTERNATIVE B MITIGATED LANE GEOMETRY AND TRAFFIC CONTROL
CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

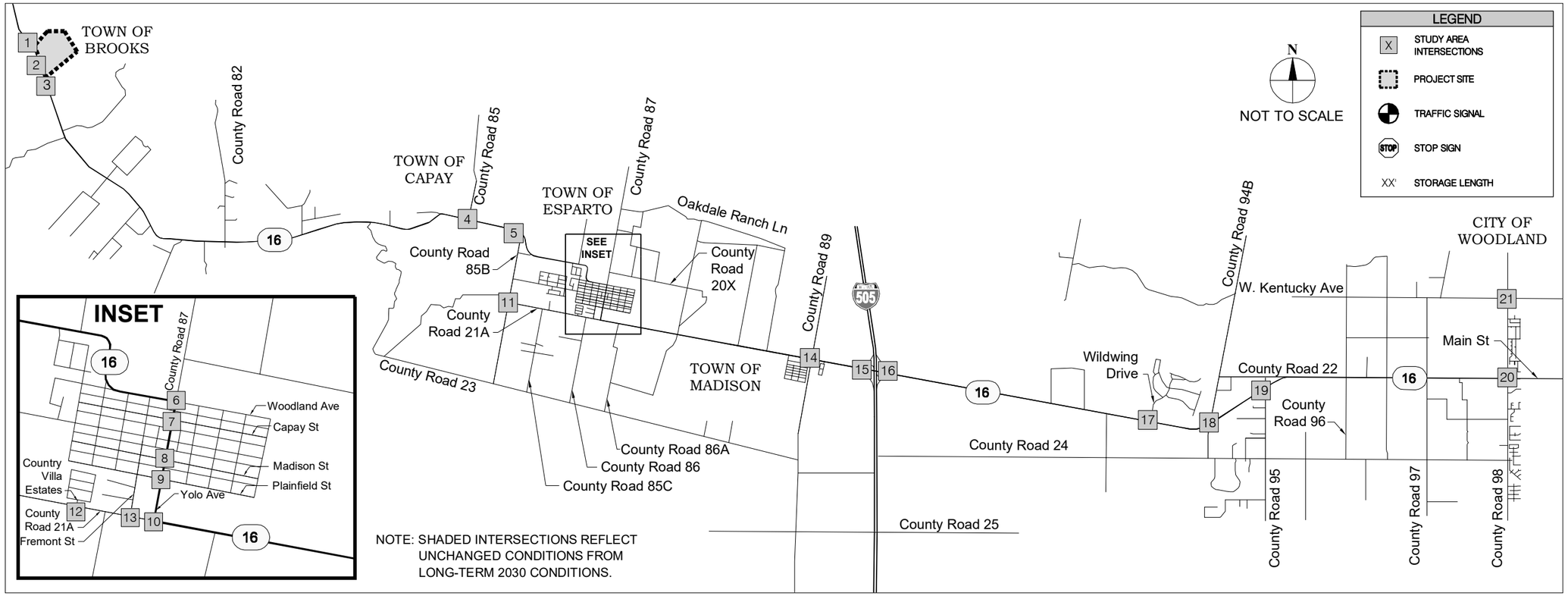

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FIGURE B9
LONG-TERM + ALTERNATIVE B MITIGATED LANE GEOMETRY AND TRAFFIC CONTROL
CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

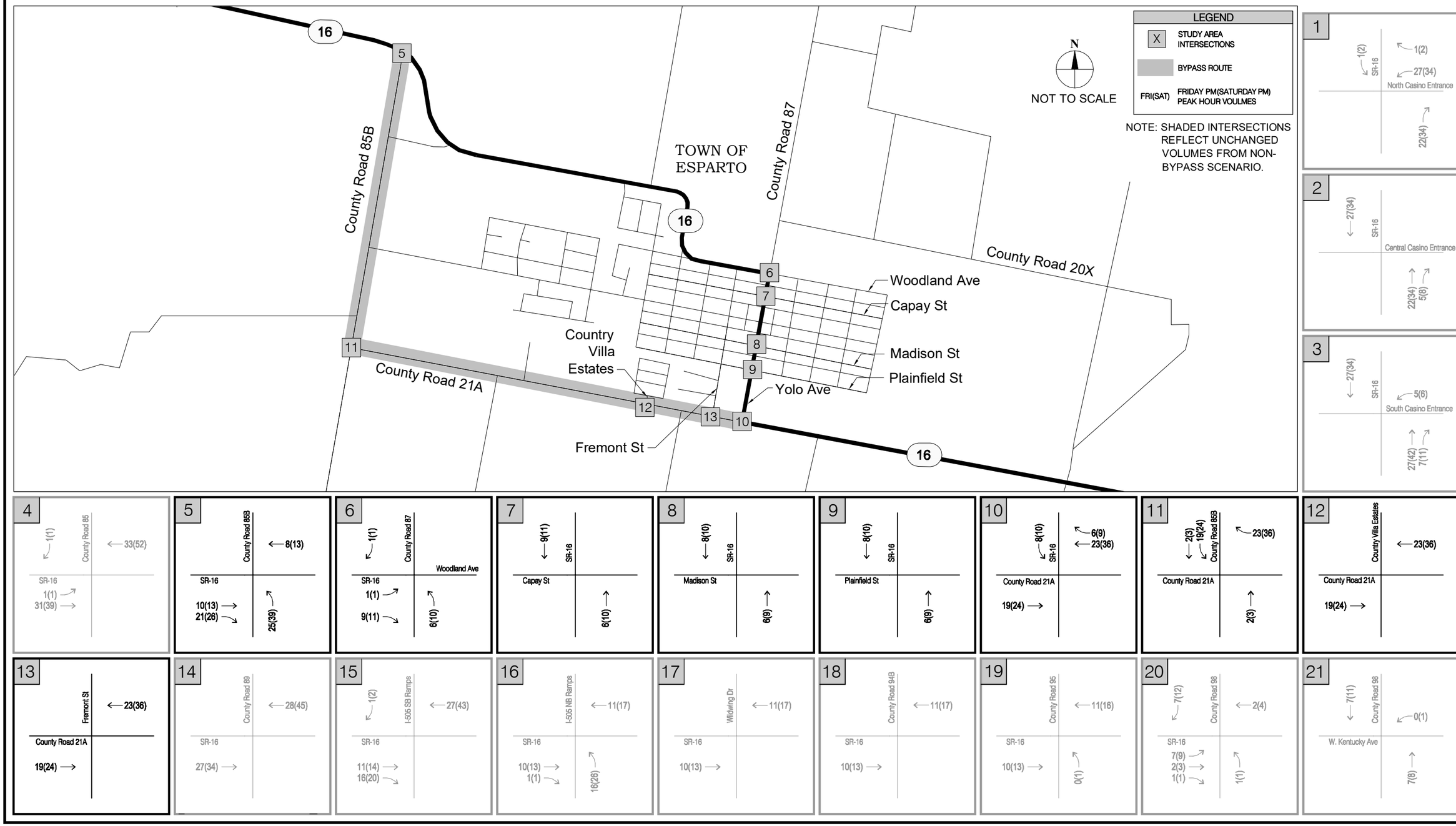

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FIGURE B10
ALTERNATIVE B PROJECT (USING BYPASS) TRAFFIC VOLUMES
CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

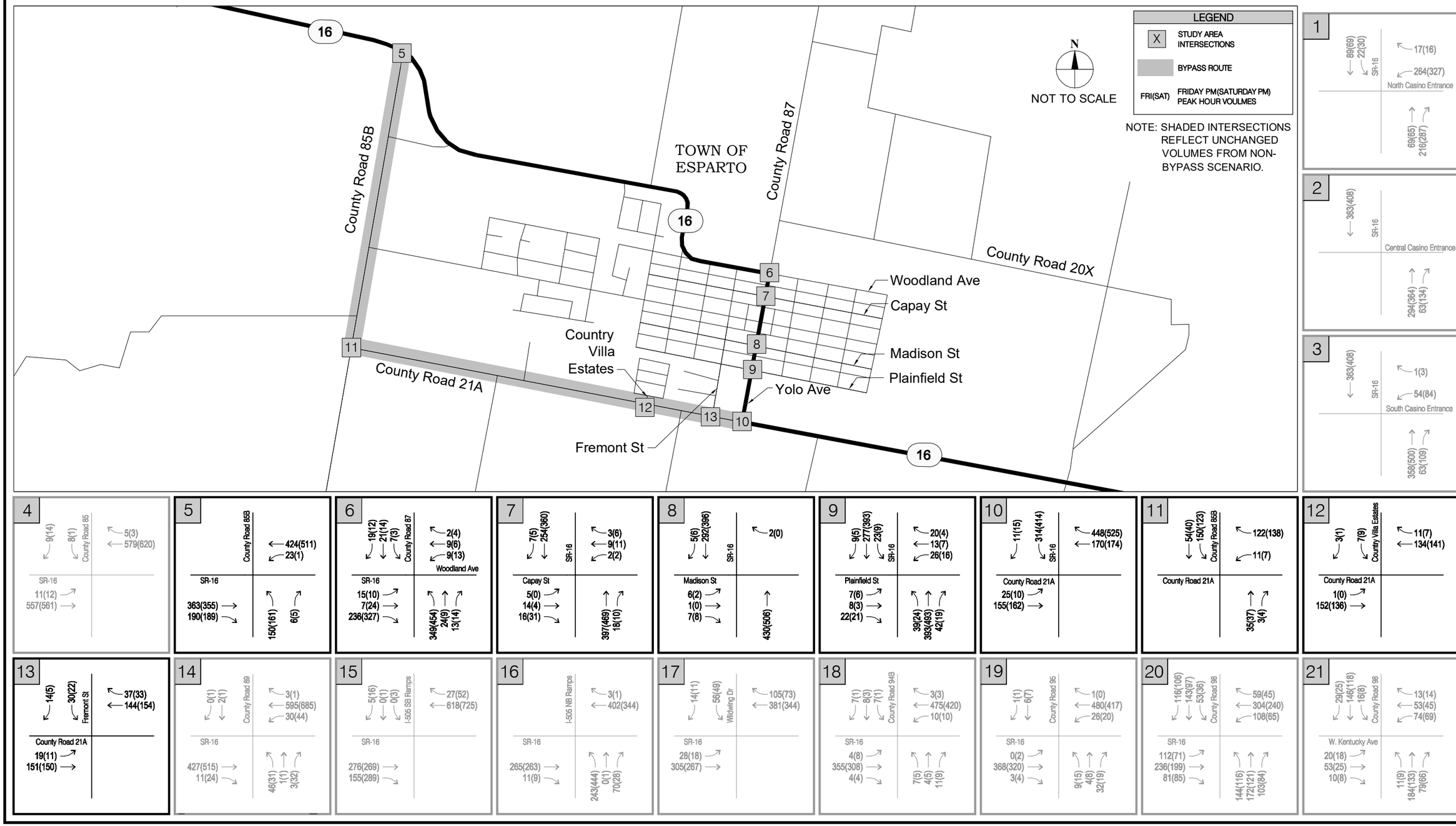

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FIGURE B11
NEAR-TERM + ALTERNATIVE B (USING BYPASS) TRAFFIC VOLUMES
CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

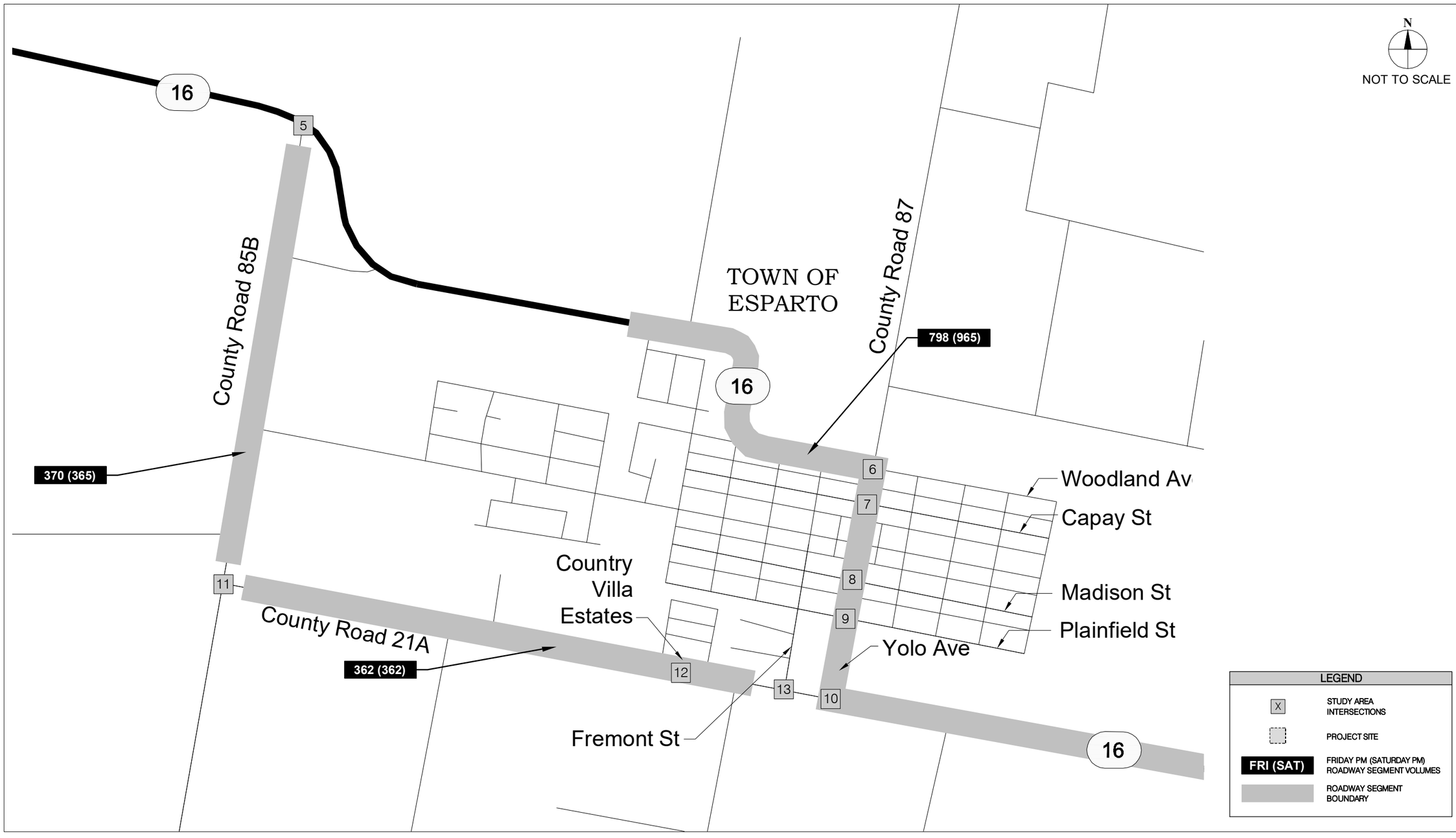

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FIGURE B12

NEAR-TERM + ALTERNATIVE B (USING BYPASS) TWO-WAY ROADWAY SEGMENT TRAFFIC VOLUMES

CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

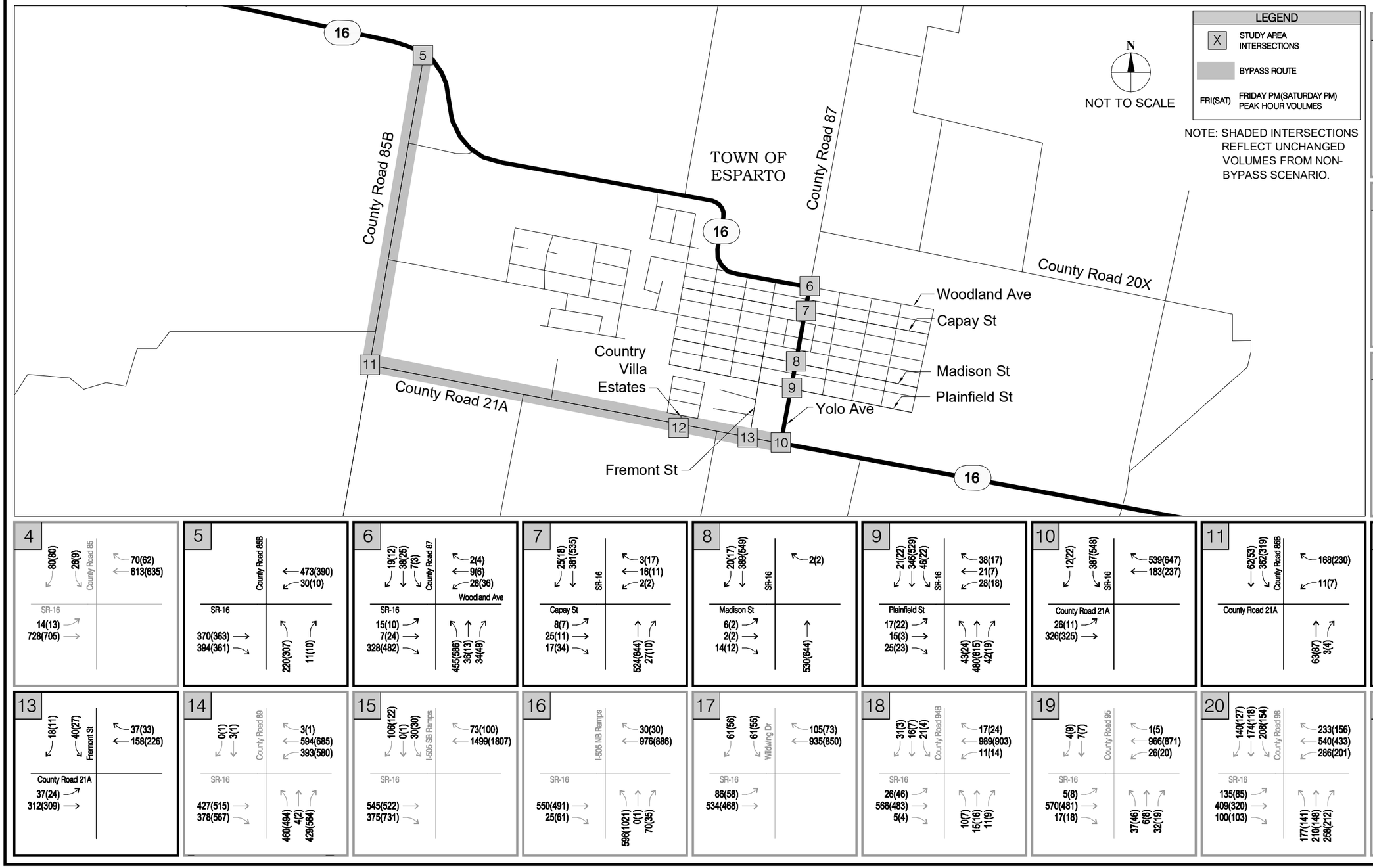

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FIGURE B13
LONG-TERM + ALTERNATIVE B (USING BYPASS) TRAFFIC VOLUMES

CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

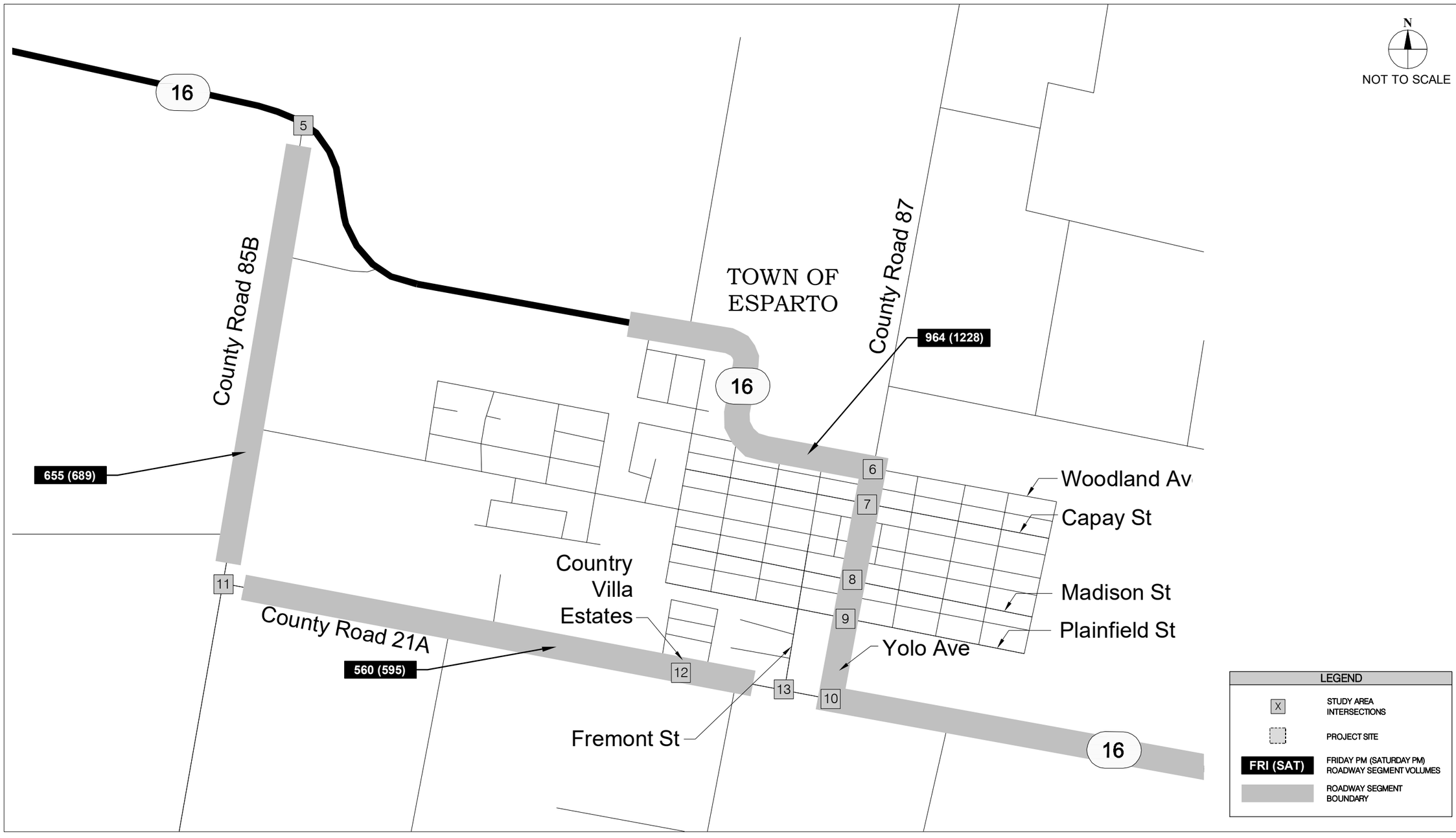

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FIGURE B14

LONG-TERM + ALTERNATIVE B (USING BYPASS) TWO-WAY ROADWAY SEGMENT TRAFFIC VOLUMES

CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

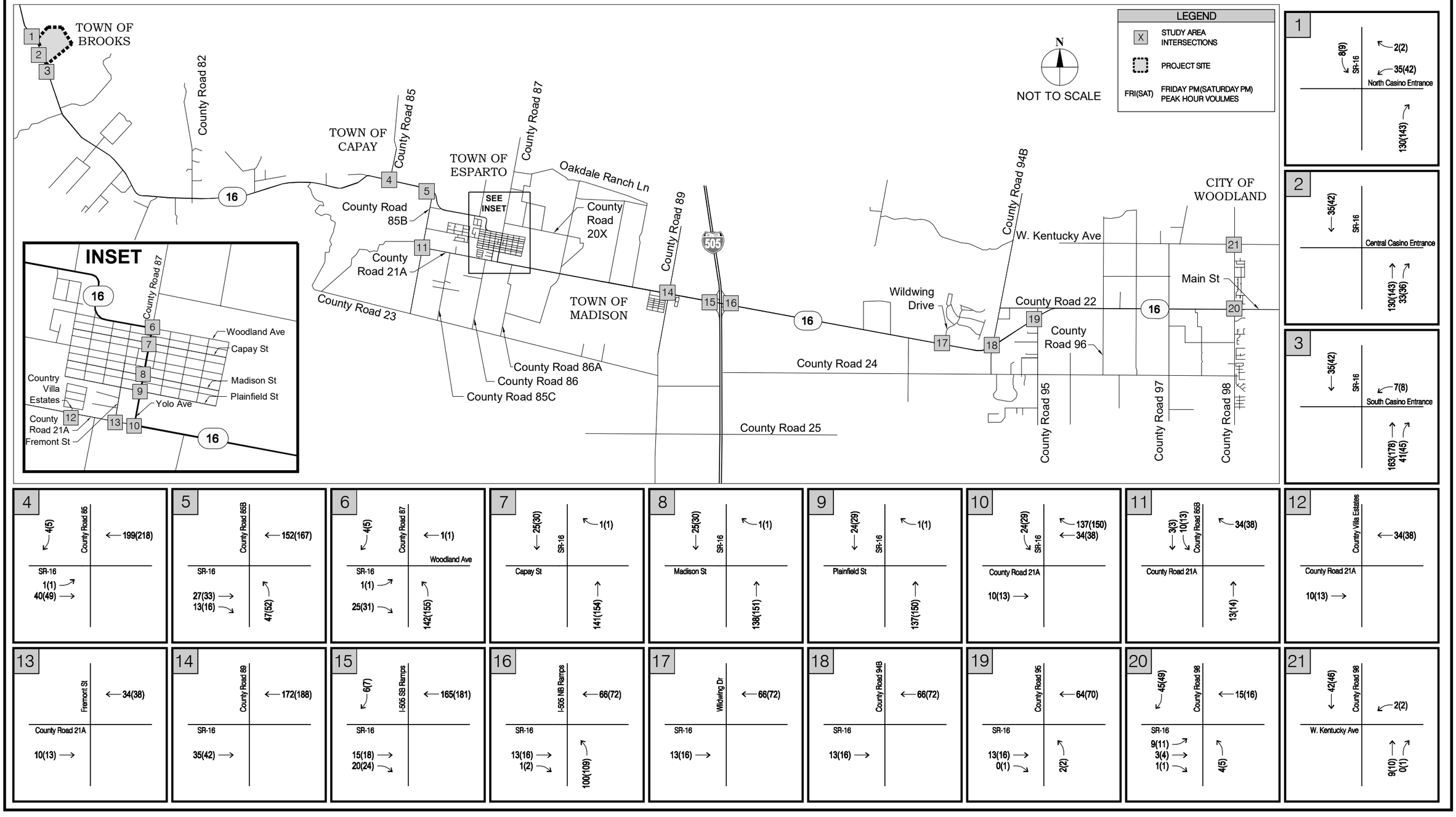

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FIGURE B15
ALTERNATIVE B PROJECT (WITH MAJOR EVENT) TRAFFIC VOLUMES

CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

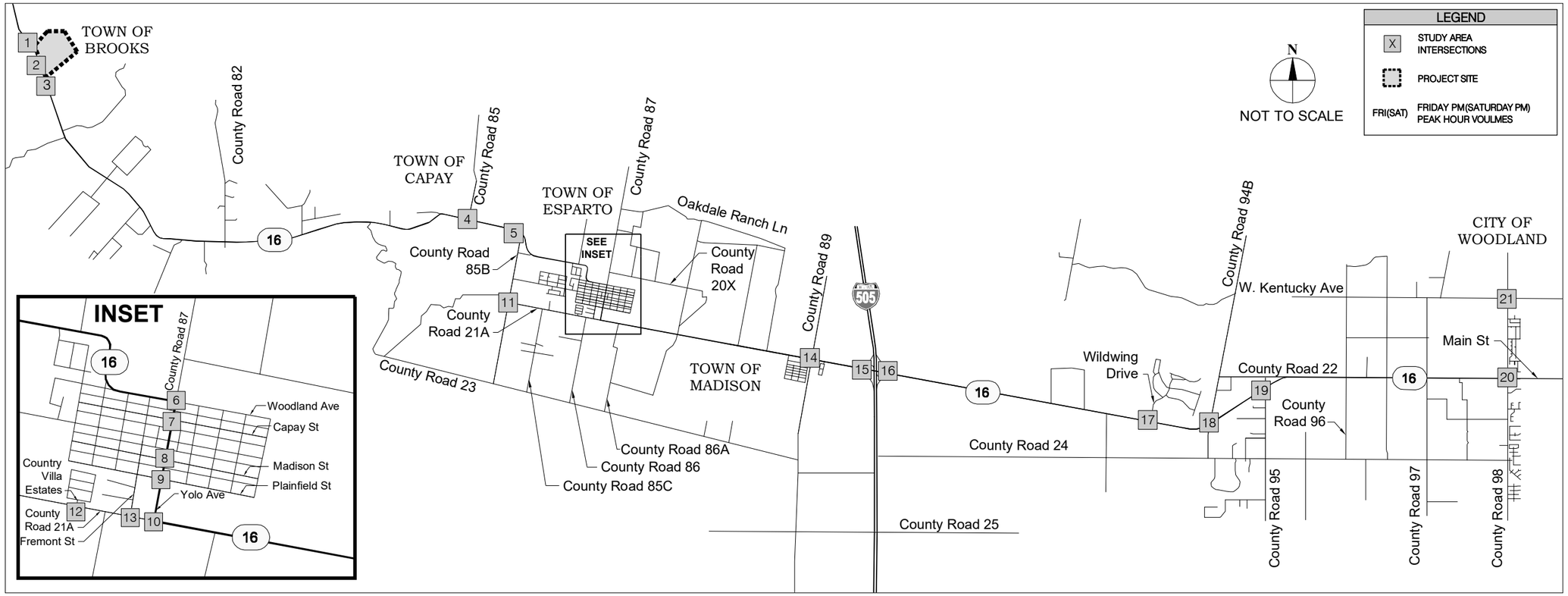

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FIGURE B16
NEAR-TERM + ALTERNATIVE B (WITH MAJOR EVENT) TRAFFIC VOLUMES
CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

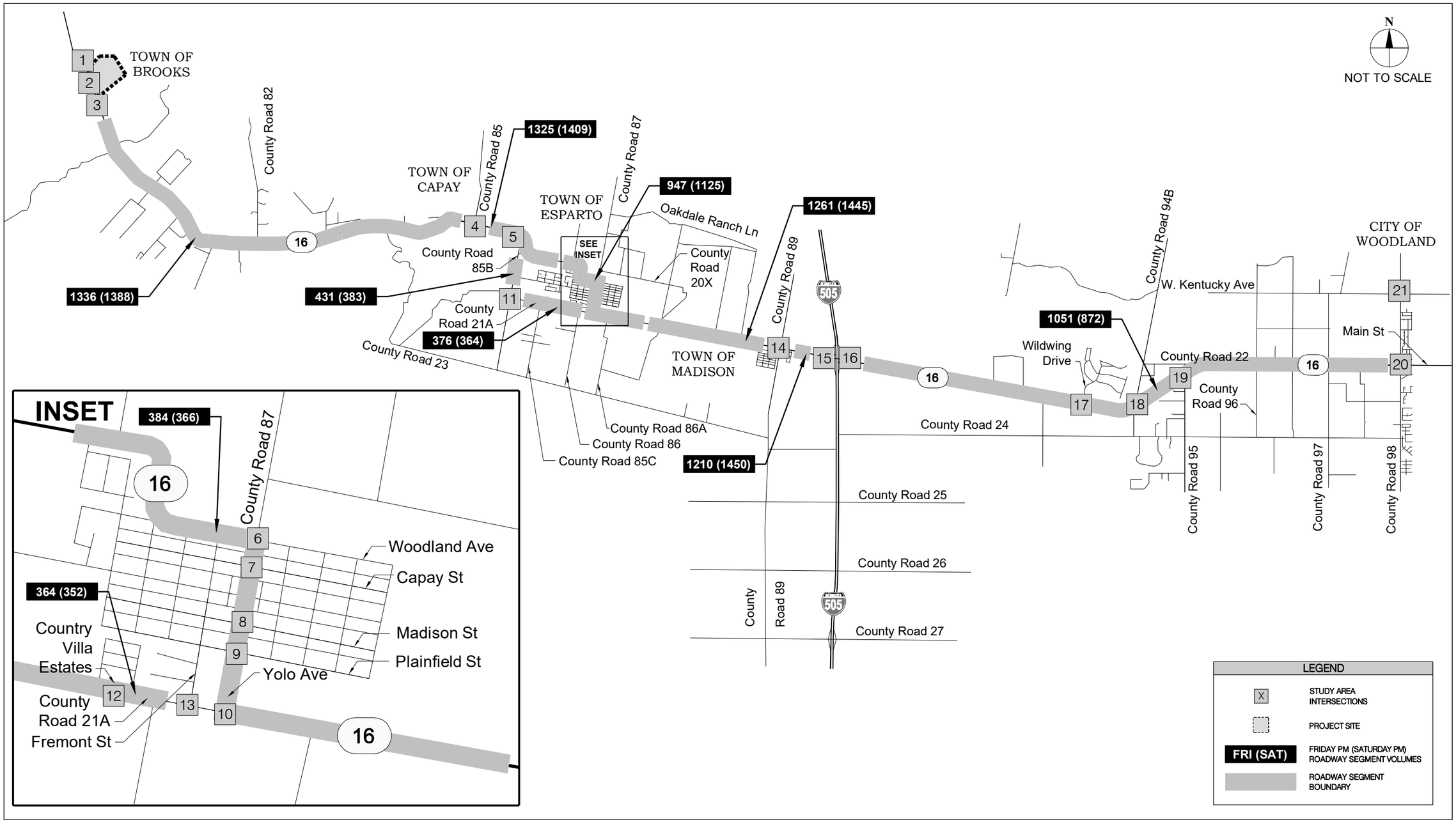

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FIGURE B17

NEAR-TERM + ALTERNATIVE B (WITH MAJOR EVENT) TWO-WAY ROADWAY SEGMENT TRAFFIC VOLUMES

CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

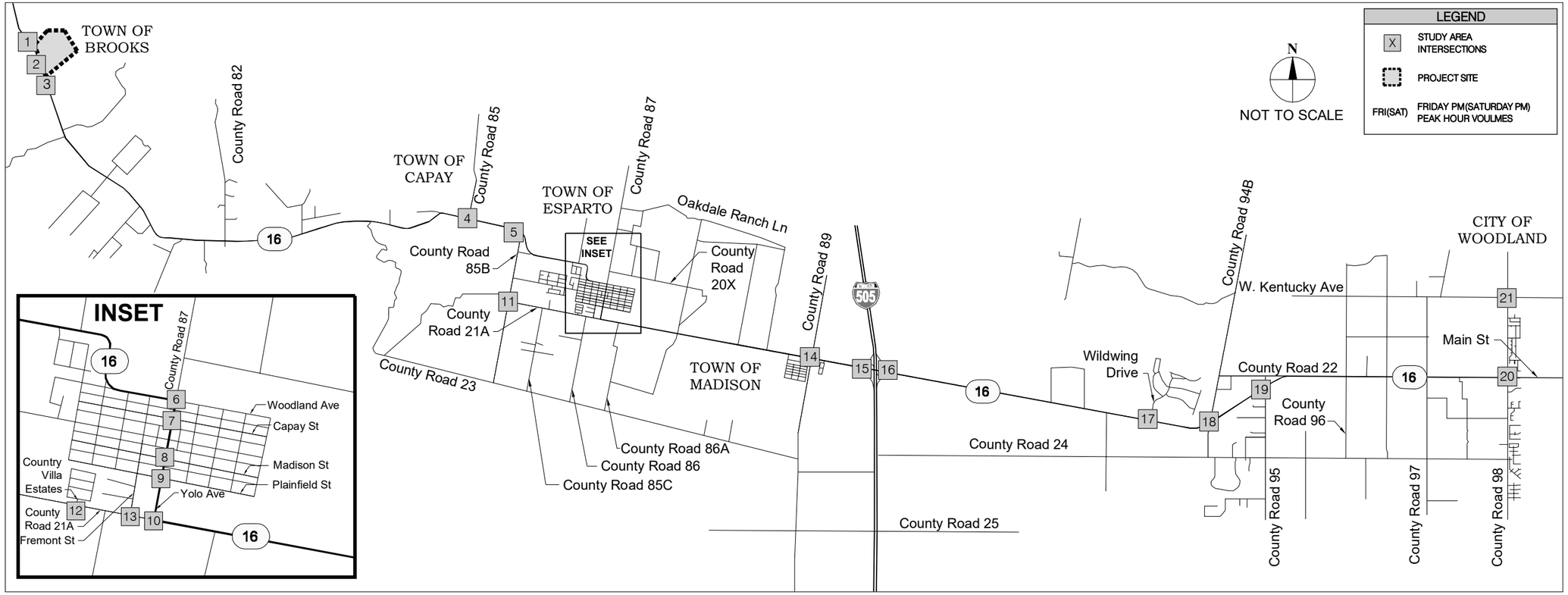

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FIGURE B18
LONG-TERM + ALTERNATIVE B (WITH MAJOR EVENT) TRAFFIC VOLUMES
CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

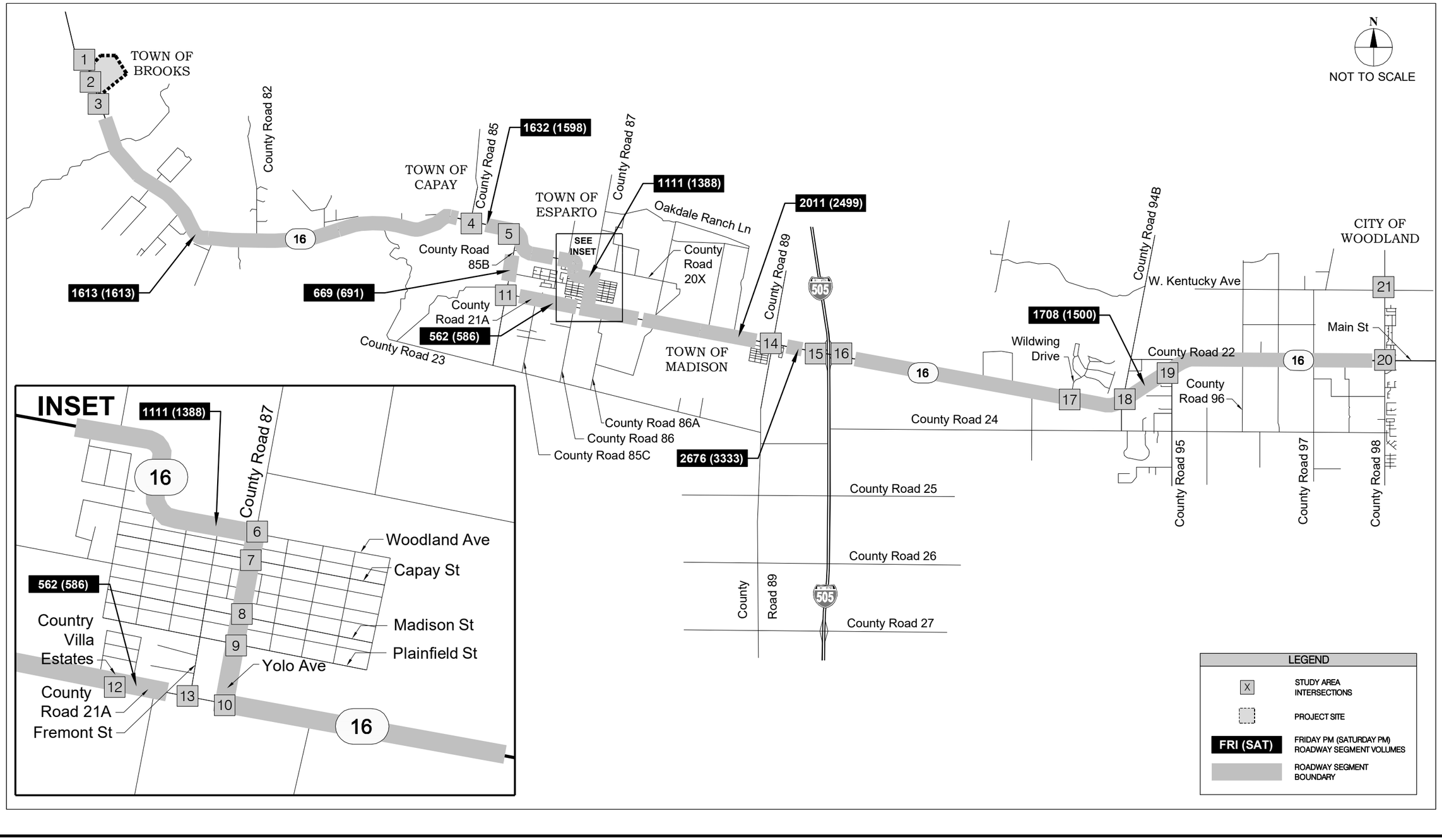

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FIGURE B19

LONG-TERM + ALTERNATIVE B (WITH MAJOR EVENT) TWO-WAY ROADWAY SEGMENT TRAFFIC VOLUMES

CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

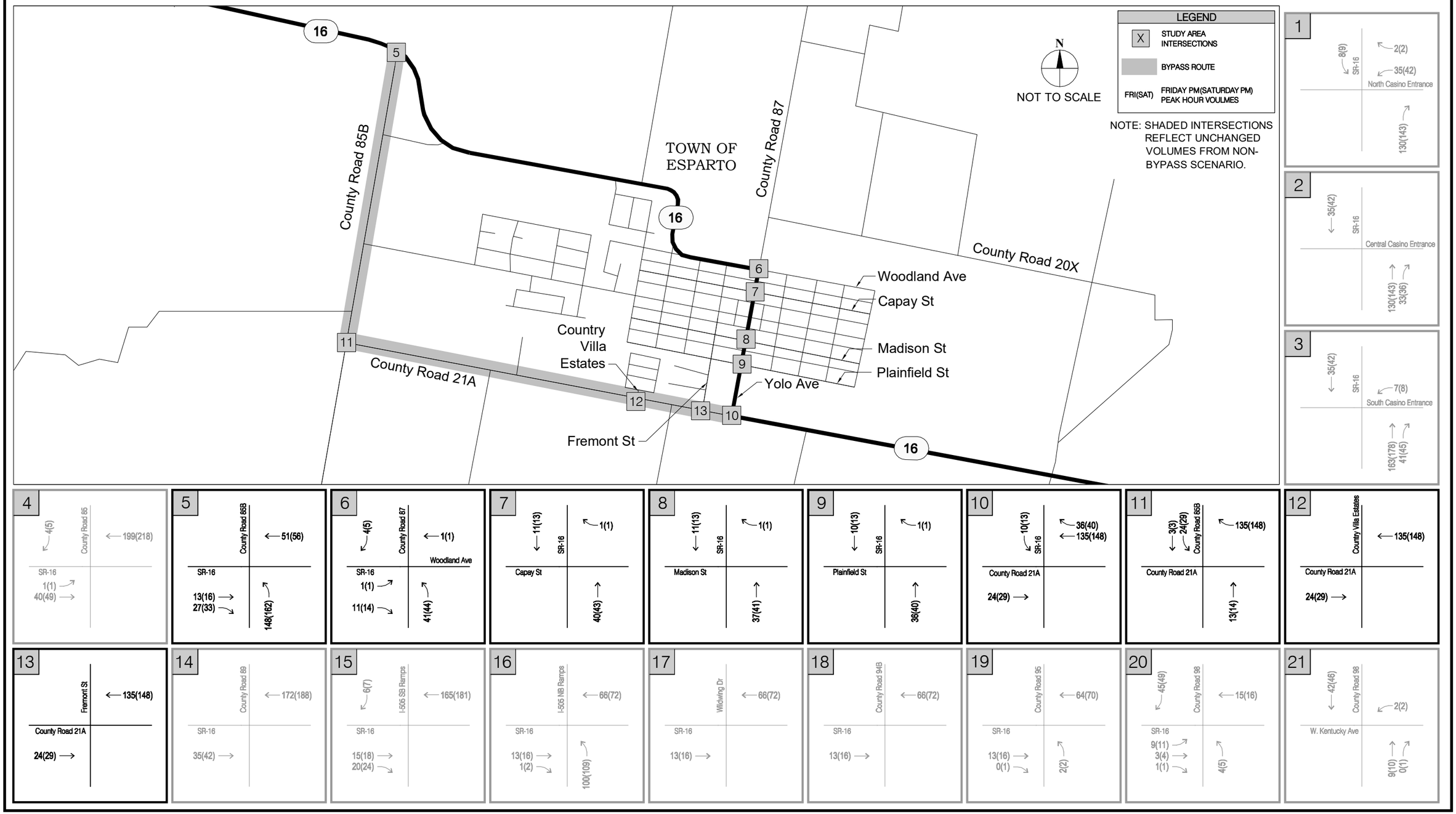

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FIGURE B20
ALTERNATIVE B PROJECT (WITH MAJOR EVENT USING BYPASS) TRAFFIC VOLUMES
CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

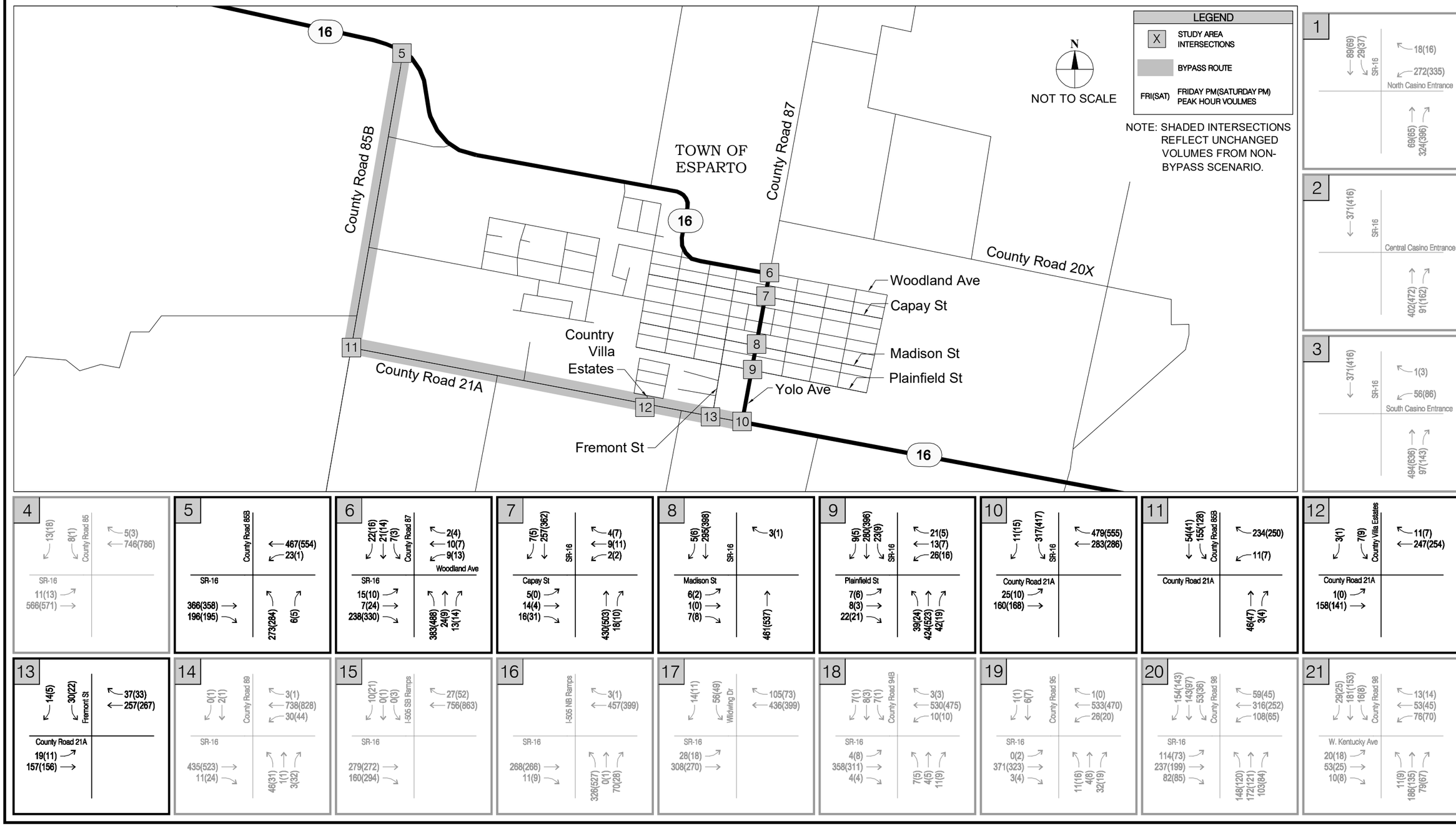

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FIGURE B21
NEAR-TERM + ALTERNATIVE B (WITH MAJOR EVENT USING BYPASS) TRAFFIC VOLUMES
CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

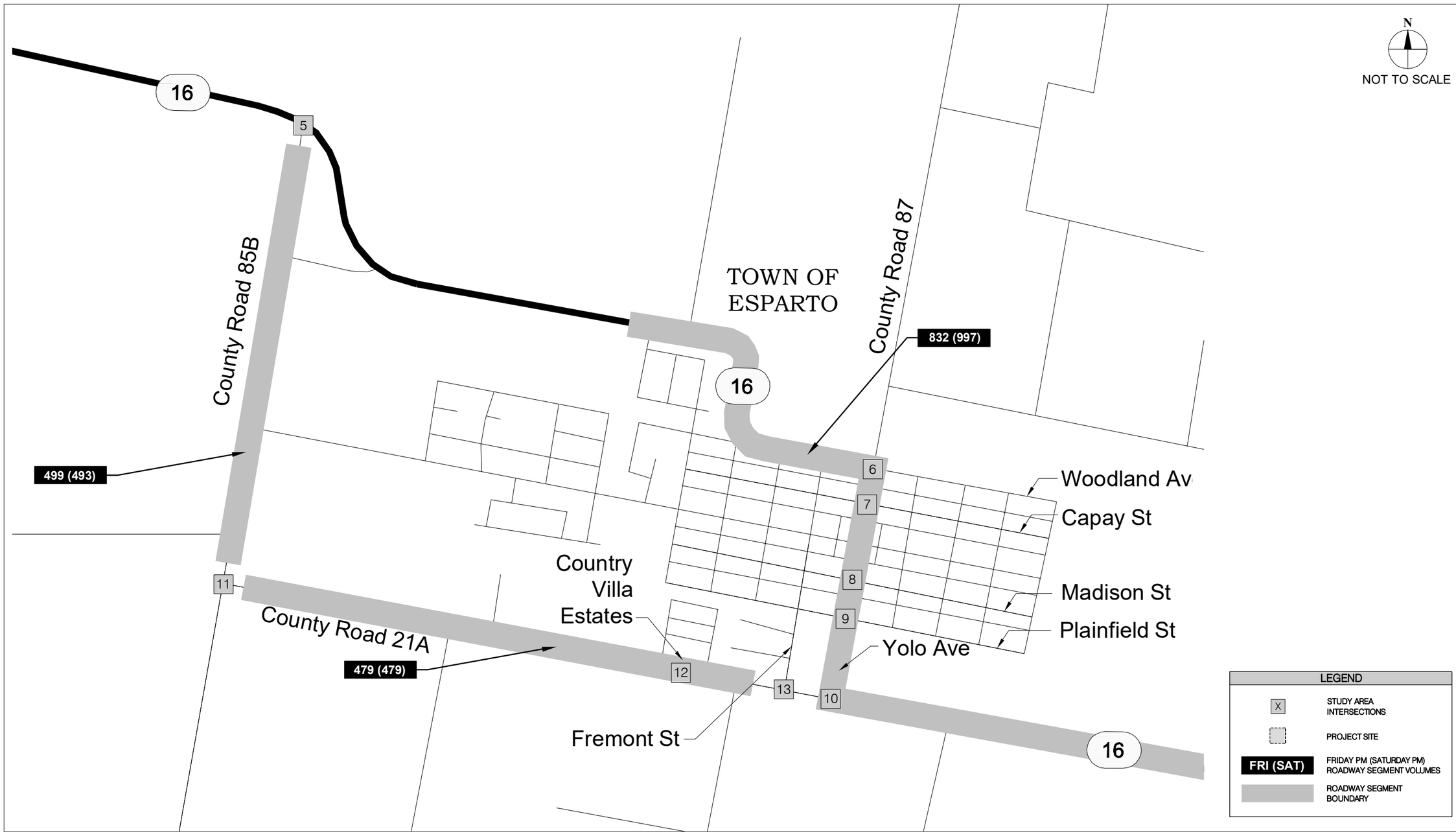

FIGURE B22
NEAR-TERM + ALTERNATIVE B (WITH MAJOR EVENT USING BYPASS)
TWO-WAY ROADWAY SEGMENT TRAFFIC VOLUMES
CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

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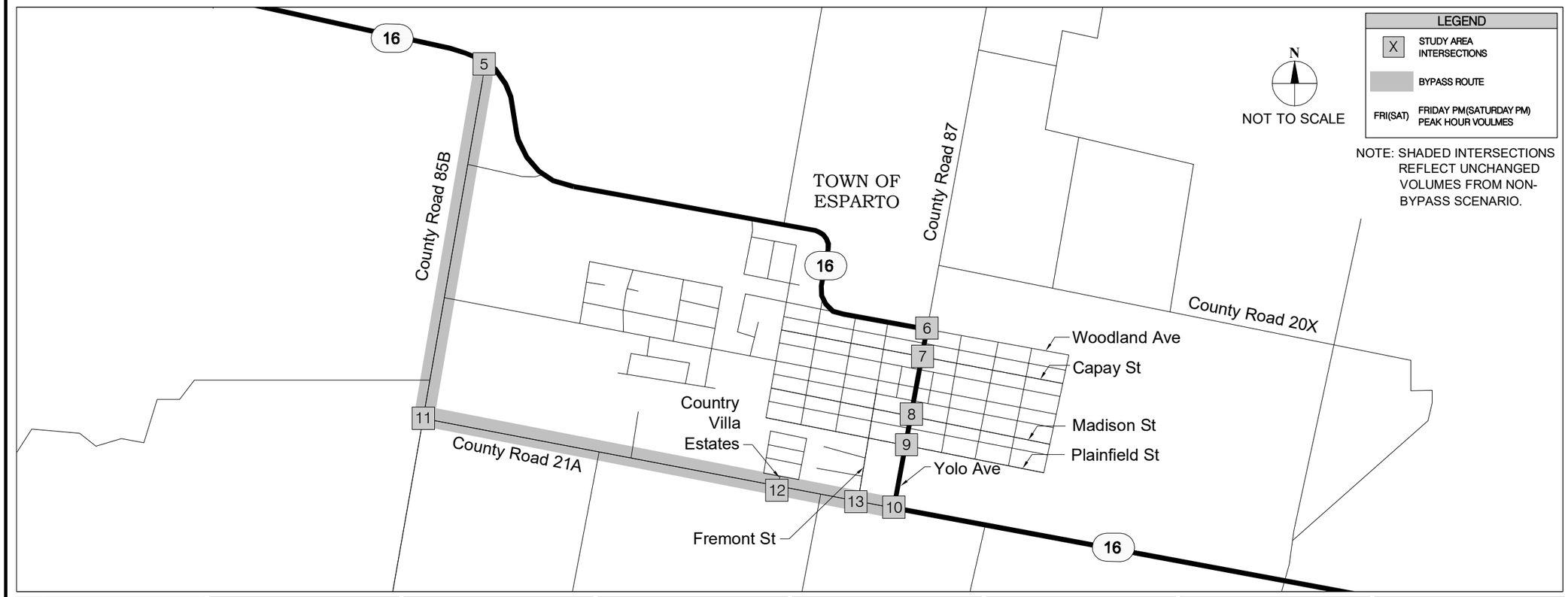

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FIGURE B23
LONG-TERM + ALTERNATIVE B (WITH MAJOR EVENT USING BYPASS) TRAFFIC VOLUMES

CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

N

NOT TO SCALE

16

5

County Road 85B

TOWN OF ESPARTO

County Road 87

996 (1262)

16

784 (818)

6

7

Woodland Av

Capay St

Country Villa Estates

8

Madison St

11

9

Plainfield St

County Road 21A

Yolo Ave

677 (712)

12

13

10

Fremont St

16

LEGEND

X	STUDY AREA INTERSECTIONS
	PROJECT SITE
FRI (SAT)	FRIDAY PM (SATURDAY PM) ROADWAY SEGMENT VOLUMES
	ROADWAY SEGMENT BOUNDARY

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FIGURE B24
LONG-TERM + ALTERNATIVE B (WITH MAJOR EVENT USING BYPASS) TWO-WAY ROADWAY SEGMENT TRAFFIC VOLUMES

CACHE CREEK CASINO RESORT EVENT CENTER PROJECT

REFERENCES CONSULTED

- 2006 – 2008 U.S. Census American Community Survey
- Cache Creek Destination Resort Project Traffic Impact Study, Abrams Associates, April 2008
- Caltrans Highway Design Manual, Topic 613 – Traffic Considerations, July 1, 2008
- Capay Valley General Plan, 2007
- City of Woodland 2020 Travel Forecast provided by City of Woodland
- Collision History provided by California Highway Patrol
- Draft Traffic Impact Study for Cache Creek Casino Expansion, Fehr and Peers, June 2008
- Email communications with Katie Wurzel, City of Woodland
- Esparto General Plan, April 2007
- Guide for the Preparation of Traffic Impact Studies, Caltrans, December 2002
- Intersection signal timing sheets provided by Caltrans
- ITE Trip Generation, 8th Edition
- Meeting with Caltrans and Yolo County, April 2010
- Meeting with Caltrans, March 2010
- Patrick Blacklock (Yolo County) letter to Pete Bontadelli (AES), February 12, 2010
- State Route 16 Safety Improvement Project, Caltrans, December 2009
- State Route 16 Transportation Concept Report, December 2004
- Telephone and email communications with Alyssa Begley, Caltrans
- Telephone and email communications with Arthur Murray, Caltrans
- Telephone and email communications with David Hamamoto, Caltrans
- Telephone and email communications with Marlo Tinney, Caltrans,
- Woodland General Plan Policy Document, 2002
- Yolo County 2030 Countywide General Plan, 2009
- Yolo County 2030 Countywide General Plan EIR, LSA Associates, Inc., April 2009
- Yolo County 2030 Travel Forecast provided by Yolo County
- Yolo County Traffic Impact Study Guidelines, February 2010

APPENDIX E

CAPAYIGSM UPDATE AND SCENARIO ANALYSIS DRAFT REPORT

YOCHA DEHE
WINTUN NATION

CapayIGSM Update and Scenario Analysis Final Report

Prepared by:

RMC
water and environment

July 2016

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Appendices

Appendix A - **Calibration Well Hydrographs**

List of Abbreviations

AF	acre-feet
AFY	acre-feet per year
bgs	below ground surface
CCCR	Cache Creek Casino Resort
cfs	cubic feet per second
CIMIS	California Irrigation Management Information System
CUAW	consumptive use of applied water
DWR	California Department of Water Resources
ET_o	Reference evapotranspiration
GMS	Groundwater Modeling System
gpd	gallons per day
gpm	gallons per minute
IGSM	Integrated Groundwater and Surface water Model
NED	National Elevation Dataset
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resource Conservation Service
Olive Mill	Séka Hill Olive Mill
Project	Cache Creek Hotel Expansion Project
SCS	Soil Conservation Service
TEIR	Tribal Environmental Impact Report
USDA	United States Department of Agriculture
USGS	United States Geological Survey
WDL	Water Data Library
WWTP	Waste Water Treatment Plant

Executive Summary

The modeling analysis presented in this Report was conducted for the Tribal Environmental Impact Report (TEIR) for the proposed Cache Creek Hotel Expansion Project (Project). The current modeling analysis included updates to the Capay Integrated Groundwater and Surface water Model (CapayIGSM), which was originally developed in 2010, and development of three model scenarios: Baseline, Proposed Project, and Reduced Intensity Alternative Scenario. Sections 1 through 3 of the Report provide background on the original CapayIGSM development and calibration process. Sections 4 and 5 describe modifications to the 2010 Historical Model and development of the Baseline and the two development scenarios. The 2010 Historical Model was updated with new data to reflect updated land and water use and to extend the model period through water year 2015. Performance of the updated Historical Model was evaluated by comparing simulated and observed groundwater levels for the extended time period. Evaluation of the updated Historical Model indicated that it produced reasonable results and was suitable to use for development of the Baseline and Project scenarios.

The Baseline Scenario was developed using hydrology from 1971-2015 with land use and urban demand fixed at the 2015 level. The Proposed Project Scenario represents land use and urban demand changes planned for the Project and incudes expansion of the existing hotel at Cache Creek Casino Resort (CCCR) by 459 rooms, as well as expansion of some CCCR restaurant facilities. The Reduced Intensity Alternative Scenario is similar to the Proposed Project Scenario, but includes a smaller hotel expansion of 399 rooms. Both development scenarios incorporate land use and urban demand changes from the Tribe's planned housing development on its newly acquired trust land. The Proposed Project Scenario and Reduced Intensity Alternative Project results were compared with the Baseline Scenario to assess potential changes in the groundwater system due to groundwater use. Findings from this assessment are summarized as follows:

- Under the Proposed Project Scenario and Reduced Intensity Alternative Scenario, groundwater levels would decline compared to the Baseline Scenario. The Proposed Project would have slightly greater impacts than the Reduced Intensity Alternative. The largest decline from the Proposed Project within the Project area would be up to 9.7 feet at the end of the 45-year simulation, with the largest changes occurring near the CCCR wells and the proposed future new well located within the Tribe's planned housing development. Declines in groundwater levels progressively diminish away from the CCCR wells and the proposed future new well for the Tribe's planning housing development (Figure 6-1 through Figure 6-4). Declines at non-tribal wells would be much smaller. Overall, the impact of the Proposed Project on groundwater levels is considered small in light of (i) the historical fluctuations in groundwater levels of approximately 20 feet in the Project area and (ii) the fact that the tribal water supply wells (i.e., CCCR wells) are deep wells completed from 285 feet below ground surface (bgs) to 470 feet bgs.
- The largest modeled decline at non-tribally owned wells was 2.2 feet at well 10N03W02R002M. Among the wells selected for the impact analysis, well 10N03W02R002M shows the maximum drawdown, but this drawdown is considered small based on the range of historical groundwater levels of approximately 20 feet at well 10N03W02R002M. This analysis did not include a detailed analysis of every conceivable potential well location on all non-tribal land within the Project area. Determination of specific effects to all potential non-tribal well locations in the Project area would require significant additional information that is not available and cannot feasibly be obtained. However, CapayIGSM covers a full range of well locations, and the modeled results for well 10N03W02R002M represent the maximum potential impact on non-tribal wells considered in this analysis.
- The groundwater response was depicted at seven locations (four within the Project area and two near the Project area) (Figure 6-5). Groundwater hydrographs show the effect of Project pumping in addition to hydrologic variability over the 45-year simulation (Figure 6-6 through Figure 6-21).

Consistent with the groundwater contour maps, reduction in groundwater levels would be greatest near the CCCR wells and within the Project area (see results for wells B3 and S1) and less away from the Project area. Overall, the decline in groundwater levels would be greater in model layer 4 (with a depth of 500 feet bgs) than model layer 1 (with a depth of 60 feet bgs) for both the Proposed Project and Reduced Intensity Alternative. This result is consistent with the fact that the CCCR wells for the hotel expansion and the future supply well for the Tribe's future housing development are pumping in model layer 4 (Figure 6-1 through Figure 6-4). On a regional scale, the Proposed Project Scenario and Reduced Intensity Alternative Scenario result in similar impacts to groundwater levels near the Project area, but the Reduced Intensity Alternative Scenario results in smaller drawdown around the CCCR wells due to the reduced water demand under this scenario. Both development scenarios result in groundwater level decline near the Tribe's planned housing development due to the increased projected pumping for the proposed development (Figure 6-1 through Figure 6-4).

- The impact of the Proposed Project Scenario and the Reduced Intensity Alternative Scenario on Cache Creek stream flows near the golf course diversion location are simulated as being very small. On an annual basis, the percentage impacts to stream flow are small, representing only a fraction of a percent of the simulated Cache Creek flow at that location (Figure 6-24 through Figure 6-27). The Project would result in an increase in stream flows downstream of the golf course diversion due to an increase in recycled water for the golf course irrigation in-lieu of surface water diversion.

Section 1 Introduction

The purposes of this Report are to (1) present the modeling analysis completed by RMC Water and Environment (RMC) to update the Capay Integrated Groundwater and Surface water Model (CapayIGSM) and (2) evaluate the potential impacts of the proposed Cache Creek Hotel Expansion Project (Project). The modeling work was conducted as part of the Tribal Environmental Impact Report (TEIR) for the Project. The updated model was used as an analytical tool to analyze the impact of the proposed Project.

The original CapayIGSM was developed in 2010 by WRIME (WRIME, 2010) as a refined, localized hydrological model for the Capay Valley calibrated to available historical data from federal, state, and local sources. This Report documents the recent updates to the 2010 CapayIGSM and includes the key components of the 2010 CapayIGSM development that are pertinent to the current modeling updates such that this Report can be used as stand-alone documentation.

1.1 Organization of Report

This Report is organized in 7 Sections as follows:

- Section 1 – Introduction: This section describes the Project area and the modeling approach used by WRIME to develop the CapayIGSM in 2010.
- Section 2 – Model Input Data: This section discusses the data, assumptions, and methodologies used by WRIME to develop the CapayIGSM data files in 2010.
- Section 3 – Model Calibration: This section discusses the original CapayIGSM calibration process developed by WRIME and presents the results of the calibration.
- Section 4 – CapayIGSM Update: This section describes the model data and methodologies used for updating the Historical Model through September 2015.
- Section 5 – Baseline and Project Scenarios: This section describes the development of the Baseline representing non-Project conditions and two development Scenarios.
- Section 6 – Project Impacts: This section presents the results of the development Scenarios compared to the Baseline Scenario.
- Section 7 – Impact Assessment: This section discusses the potential impacts due to the Project.
- Section 8 – References: This section lists the documents used in connection with the preparation of this Report.

1.2 Study Area

The study area is the Capay Valley in Yolo County, California, which is located along the west side of the Sacramento Valley (Figure 1-1). The Capay Valley is approximately 17 miles long and 2.5 miles wide. The southeastern end of the valley is located approximately 6 miles west of the town of Esparto. The major hydrologic feature in the valley is Cache Creek, which flows into the valley from the northwest and flows out of the valley to the southeast. State Highway 16 is the major road that runs through the valley.

1.2.1 Project Area

The Project area is in the southern end of the Capay Valley. It includes the Cache Creek Casino Resort (CCCR), the Yocha Dehe Golf Club, tribal agricultural land west of Highway 16, tribal housing community, as well as several private parcels around the CCCR. Figure 1-2 shows the location of the Project Area relative to the Study Area.

1.3 Modeling Approach

The CapayIGSM was developed using the YoloIGSM that was developed by WRIME as a hydrologic model of Yolo County and the Capay Valley. The calibration period of YoloIGSM is 1971-2000 and that model has a grid resolution of 0.5 miles. YoloIGSM consists of two geologic layers in the Capay Valley area. The CapayIGSM model boundaries, similar to YoloIGSM, are limited to the valley floor and do not extend into the hard rock outside of the valley floor. The geologic layers of the CapayIGSM is determined based on review of available well logs.

The following sections present the modeling approach used by WRIME in 2010 to develop the original CapayIGSM.

1.4 Modeling Description

The following is a brief description of the key components and features of the CapayIGSM. A comprehensive and detailed description of the IGSM model, including its theoretical and mathematical underpinning, can be found in IGSM User's Manual (WRIME, 2003).

1.4.1 Model Overview

The CapayIGSM is a comprehensive hydrologic model that simulates surface water and groundwater flow systems. The key features of the CapayIGSM are:

- Groundwater flow simulation;
- Surface water flow simulation;
- Soil moisture accounting;
- Unsaturated flow simulation;
- Stream-aquifer interaction;
- Land and water use analysis;
- Small watershed subsurface and surface runoff; and
- Crop consumptive use computation.

1.4.2 Hydrologic Process Modeling

The CapayIGSM divides the hydrologic system into four major subsystems as shown in Figure 1-3. These are:

- Soil zone;
- Stream system;
- Vadose or unsaturated zone; and
- Groundwater zone.

The hydrologic components of these four physical subsystems are shown in Figure 1-4 and are briefly discussed below.

1.4.3 Soil Zone

The CapayIGSM simulates soil zone processes including evapotranspiration, direct runoff, infiltration, and deep percolation from rainfall and applied water. Evapotranspiration is computed based on crop consumptive use requirements and available soil moisture. Direct runoff from rainfall and applied water is computed by using a modified Soil Conservation Service (SCS) runoff curve number method.

Input data for soil zone simulation include:

- Initial soil moisture;
- Rainfall;
- Land use category;
- SCS hydrologic soil group;
- Minimum soil moisture requirements for each crop type;
- Crop consumptive use;
- Root zone depth for each crop; and
- Surface drainage pattern.

1.4.4 Stream System

To simulate stream flow in the CapayIGSM, the water balance equation is solved for each stream element. The stream elements are a series of one-dimensional line elements used to describe the stream system within the model area. The gain or loss due to stream-aquifer interaction is computed using mathematical equations that are based on water levels in the stream and the underlying aquifer. The depth of water in the stream is computed using stage-discharge relationships at the corresponding stream node.

Input data for the stream system simulation include:

- Stream configuration;
- Stream node elevation;
- Cross-section;
- Stage-discharge relationship;
- Stream inflows at model boundary;
- Tributary inflows;
- Wastewater discharges to streams; and
- Stream flow diversions.

1.4.5 Vadose Zone

Water that percolates down from the soil zone travels through the vadose zone as unsaturated flow and eventually reaches the saturated groundwater zone. For vadose zone simulation, the mathematical equation of unsaturated flow is solved numerically at every time step. The vadose zone is divided into a number of discrete layers of specified thickness. The deep percolation of applied water and precipitation that passes through the soil zone becomes the inflow to the uppermost vadose zone layer. Outflow from the overlying layer becomes inflow to the layer beneath, and so on. The outflow from the last vadose zone layer becomes inflow to the saturated groundwater zone.

Input data for the vadose zone simulation process include the thicknesses of vadose zone layers.

1.4.6 Groundwater Zone

For simulating groundwater flow in the CapayIGSM, the model flow domain is broken down horizontally into a collection of small, three-sided or four-sided polygonal areas called finite elements. The vertices of these elements are called nodes. The network of finite elements and nodes is called a model grid. The groundwater flow domain is also broken down vertically into several discrete layers that represent the underlying groundwater aquifers. These aquifers are separated by aquicludes that limit the vertical movement of water. Aquicludes are generally composed of low hydraulic conductivity materials, such as silt and clay, or interbedded sequences where the hydraulic conductivity is governed by silt and clay. The

aquifers, on the other hand, are primarily composed of materials with relatively high hydraulic conductivity. The predominant flow paths in groundwater aquifers are horizontal. The horizontal flow system is simulated by solving a two-dimensional groundwater flow equation by the finite element technique. The vertical flow system is simulated by solving a leakage equation based on the groundwater elevations in two adjacent aquifers.

Input data for groundwater flow simulation include:

- Well locations;
- Well diameter and perforation interval of wells;
- Monthly pumping;
- Boundary conditions,
- Initial groundwater elevations;
- Aquifer and aquiclude thickness at each node;
- Hydraulic conductivity of aquifer and aquiclude material;
- Specific yield;
- Specific storage; and
- Leakance.

1.4.7 Hydrologic Water Balance

The primary purpose of hydrologic modeling is to solve the water balance equation of the selected model area or watershed. The CapayIGSM is a unique hydrologic model that places significant emphasis on hydrologic water balance. As discussed above, the CapayIGSM tracks the movement of all of the primary sources of water coming into and leaving the basin, including rainfall, stream flows, applied water, consumptive use, and subsurface inflows and outflows. As a result, the CapayIGSM is capable of generating the following water budget outputs:

1. Land and water use budgets;
2. Groundwater budgets;
3. Small watershed budgets;
4. Stream reach budgets; and
5. Soil moisture budgets.

Review and refinement of the above five budgets generated from the CapayIGSM help ensure that the key hydrologic components of the different physical subsystems of the groundwater basin (e.g., soil zone, stream subsystem, vadose zone, groundwater zone) are properly represented in the model. During model calibration, these water budgets are analyzed and refined for the entire model area as well as for previously defined model subareas (termed model subregions), which represent distinct land uses within the model.

Figure 1-1: Study Area

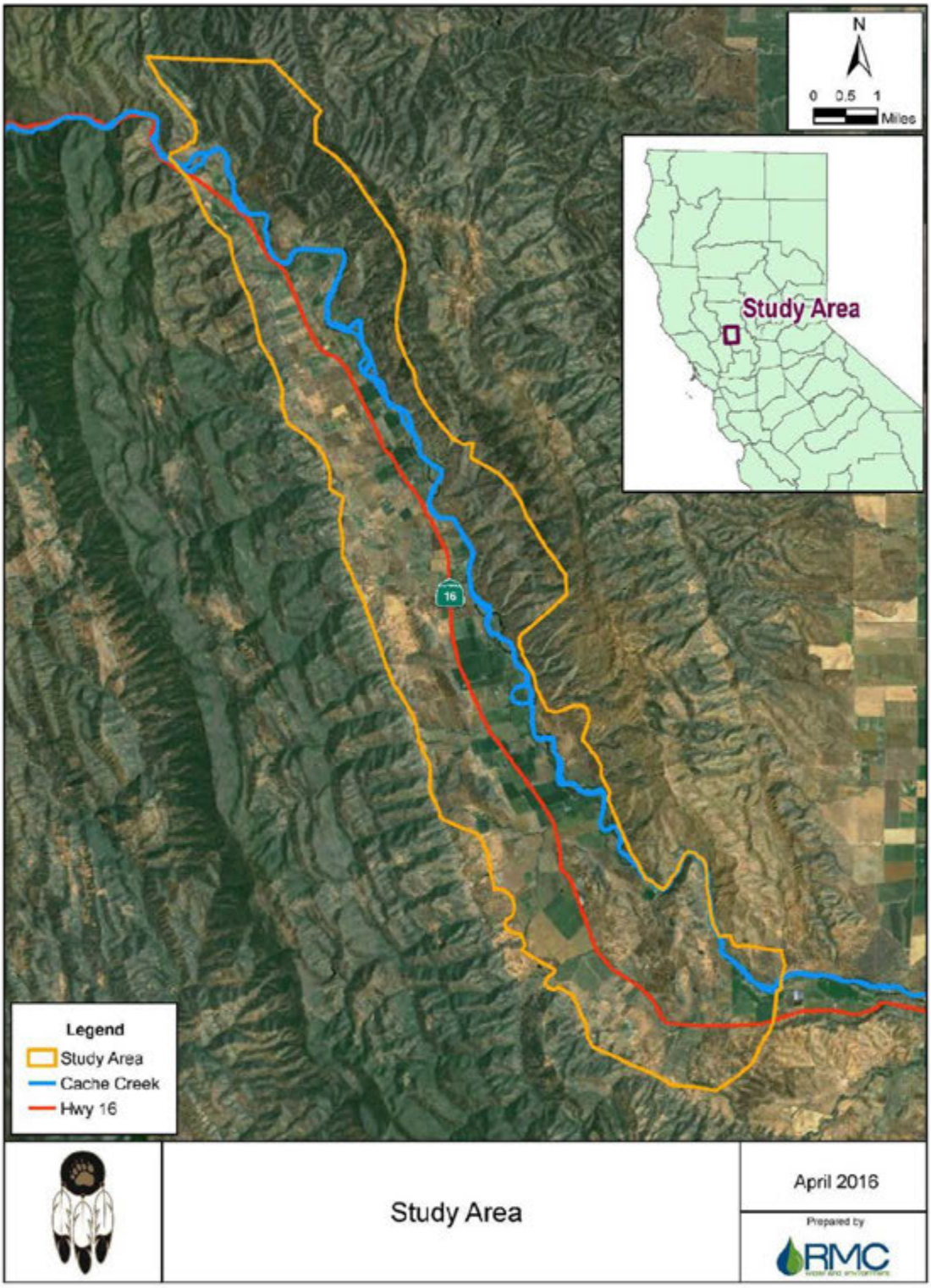


Figure 1-2: Project Area

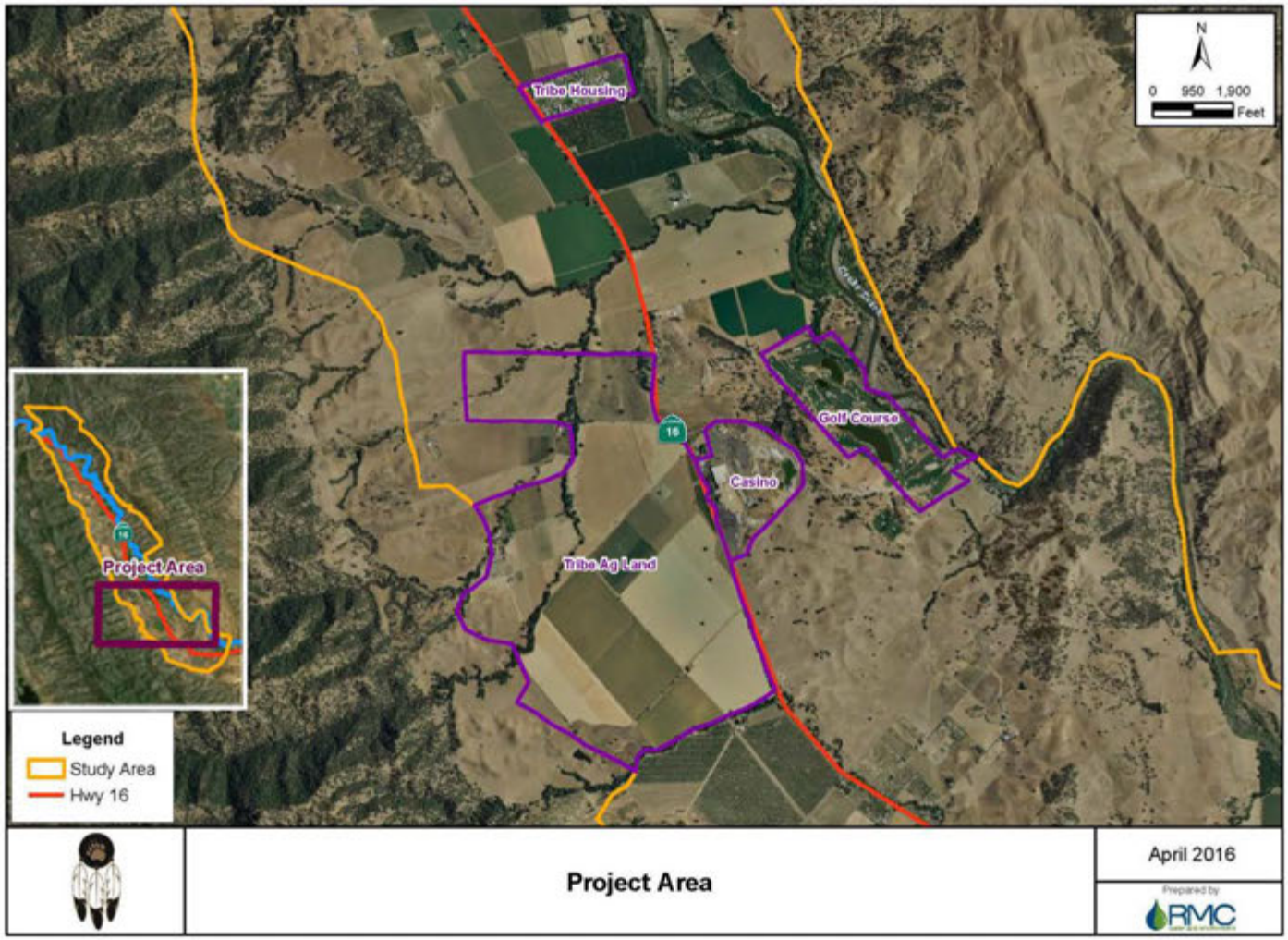


Figure 1-3: Hydrologic System Interactions

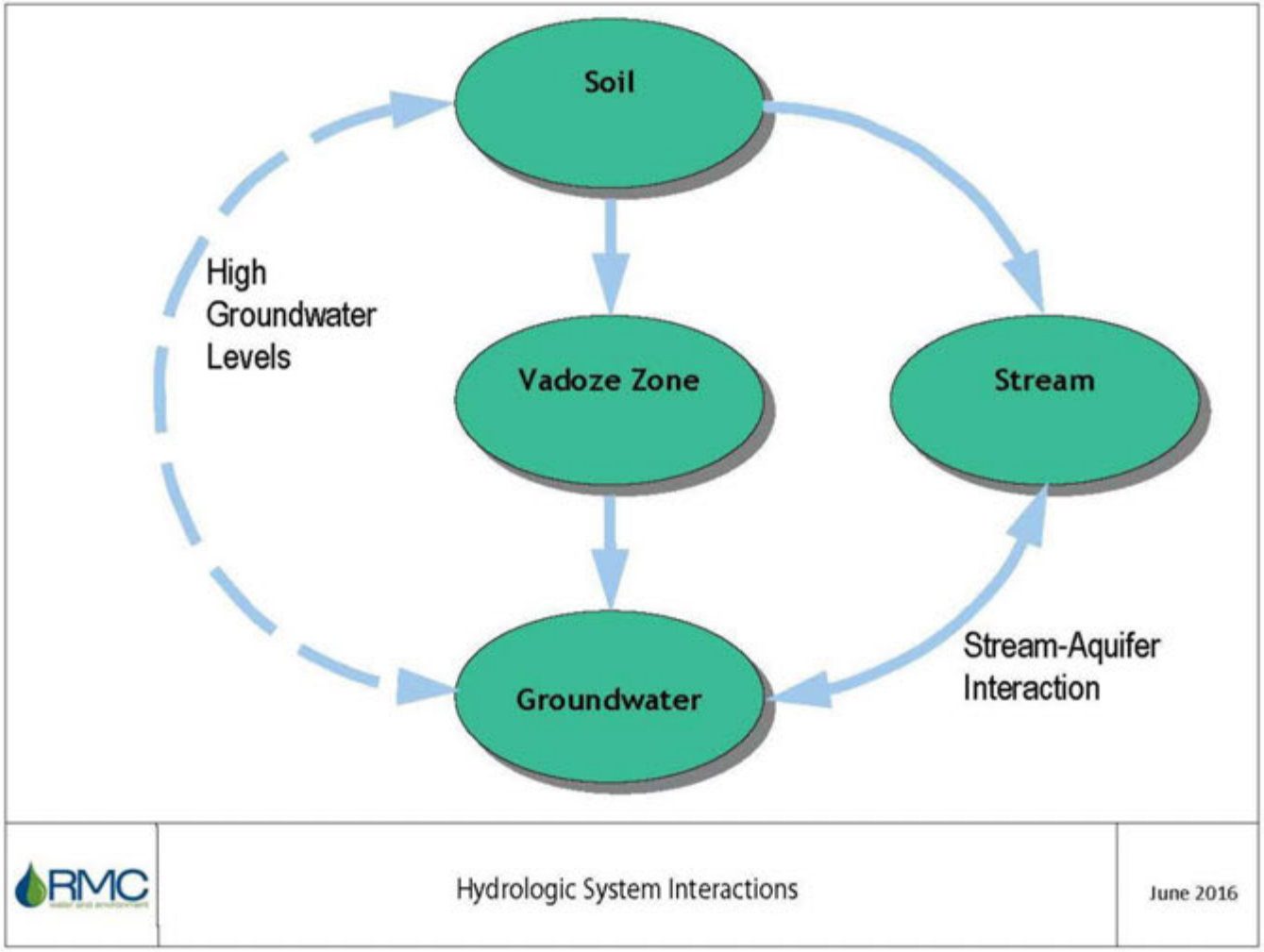
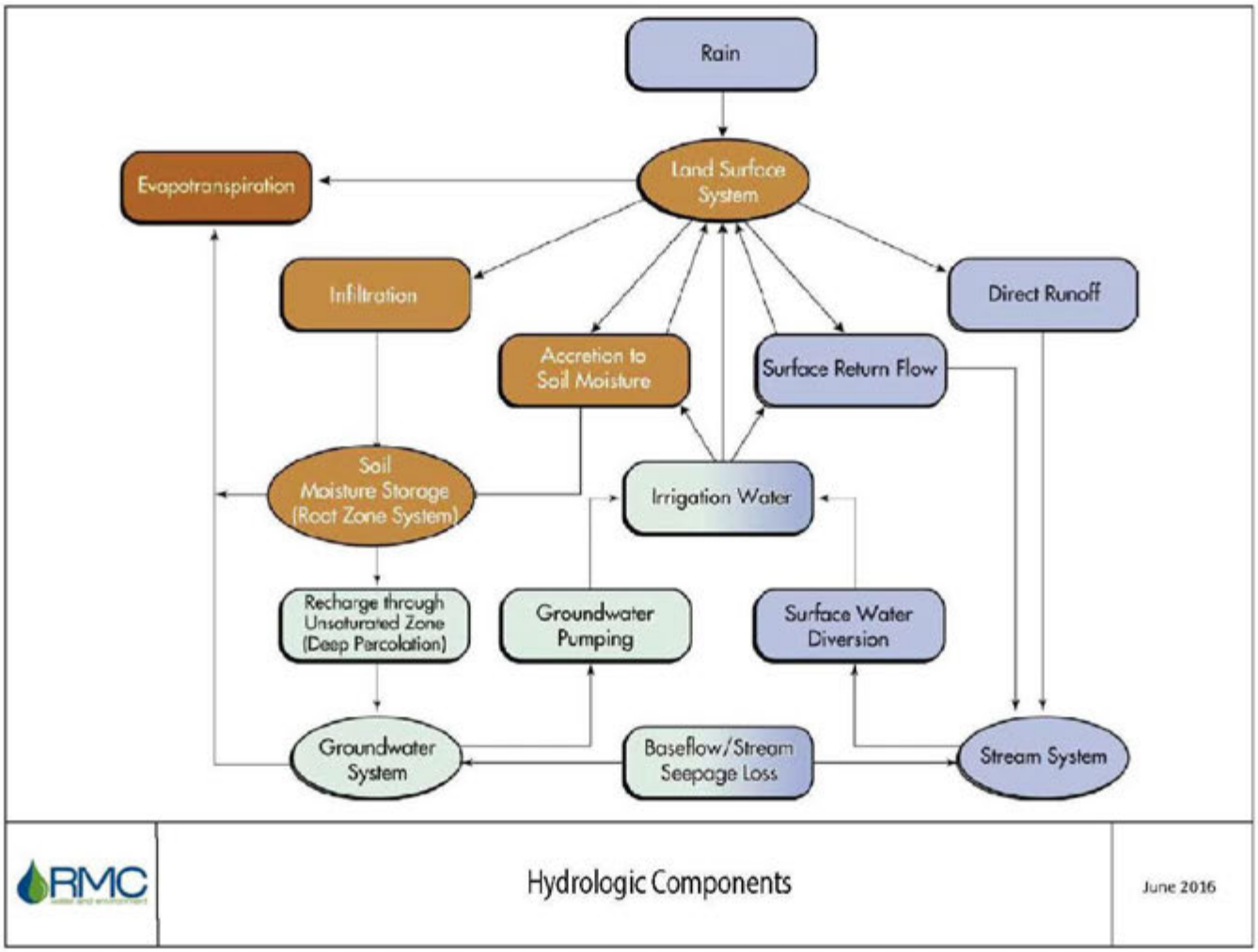


Figure 1-4: Hydrologic Components



Section 2 Model Input Data

This section describes data sources, assumptions, and methodologies used by WRIME for development of the CapayIGSM data files. Data are organized into the following categories and each category is described below:

- Model characterization data;
- Hydrogeology and geography data;
- Hydrology and climatology data;
- Land use and crop data;
- Water supply and demand data;
- Initial conditions and boundary conditions; and
- Project area data.

Model data sources and assumptions used for the current modeling analysis are described separately in Section 4 – CapayIGSM Update.

2.1 Model Characterization Data

The CapayIGSM model is a 42 square mile model of the Capay Valley. The model overlies the Capay Valley Groundwater Subbasin as defined by California Department of Water Resources (DWR) in the 2003 Update to Bulletin 118. The southeast end of the model extends about 1 mile to the east beyond the Capay Valley Groundwater Subbasin out to the Capay Dam on Cache Creek.

The CapayIGSM model is physically characterized by the following data groups:

- Element Configuration;
- Nodal Coordinates;
- Subregion Definition; and
- Surface Hydrology Configuration.

2.1.1 Element Configuration

The CapayIGSM element configuration was developed using Environmental Modeling System, Inc.'s Groundwater Modeling System (GMS) software. The size of elements ranges from as large as 75 acres to as small as 1 acre with an average element size of 6.5 acres. The small size of the elements allows the model to accurately reflect physical features in the model area. The element sizes are smaller and more refined (average size of 3.8 acres) along Cache Creek and also in the Project area to increase the model accuracy in those locations. The model has 4,141 elements, which are shown in Figure 2-1.

2.1.2 Nodal Coordinates

For the XY coordinates of the groundwater nodes, the CapayIGSM uses the 1983 North America Datum for the geographic coordinate system. The projected coordinate system used is Universal Transverse Mercator California Zone 10 North (UTM Zone 10N) with a linear unit of meters. The model has 3,711 groundwater nodes.

2.1.3 Subregion Definition

The CapayIGSM model is divided into subregions to allow for the proper development of model input data, especially water supply and demand. Subregions are also used for reporting purposes in the model hydrologic budget output files.

The CapayIGSM is divided into eight subregions. The CCCR, golf course, tribal agricultural land, and tribal housing are divided into their own subregions so that detailed supply and demand data can be used for those regions. The remaining four model subregions are divided by east/west roads that cross the valley. Table 2-1 lists and describes each model subregion and Figure 2-2 shows the spatial location of the eight subregions.

Table 2-1: Subregion Definitions

Subregion Number	Area (Acres)	Subregion Name
1	17,694	Capay Valley North of Road 69 / Road 70 / Road 71
2	1,271	Between Road 69 / Road 70 / Road 71 and Road 76
3	53	Tribal Housing
4	1,897	Between Road 76 and Road 78 / Wintun Road
5	1,040	Tribal Agriculture Land West of Highway 16
6	118	CCCR Area
7	176	Golf Course Area
8	4,864	Capay Valley South of Road 78 / Wintun Road

2.1.4 Surface Hydrology Configuration

Cache Creek is simulated in the model by a series of stream nodes, which correspond to the underlying groundwater node. The stream nodes were selected based on aerial photographs to accurately represent Cache Creek as shown in Figure 2-3.

To simulate the groundwater and surface water interactions between Cache Creek and the underlying aquifer, the model requires stream cross sections and stream bed elevations at each stream node. These data were obtained from USGS Water-Resources Investigations Report 88-4188 titled *Streamflow, Sediment Discharge, and Streambank Erosion in Cache Creek, Yolo County, California 1953-1986*.

2.2 Hydrogeology and Geography Data

The hydrogeology data and geography data used as input data in the CapayIGSM is discussed below. The hydrogeology and geography data can be categorized into four primary groups:

- Ground surface elevation;
- Geologic data;
- Surface drainage pattern; and
- Hydrologic soil groups.

2.2.1 Ground Surface Elevation

Ground Surface Elevation data were obtained from the USGS National Elevation Dataset (NED). The dataset has ground surface elevations at a 30-meter resolution. The dataset was overlaid with the model XY coordinates to accurately obtain the ground surface elevation at each model node.

2.2.2 Geologic Data

The Capay Valley is defined by DWR as being in the Capay Valley Groundwater Subbasin of the Sacramento Valley Groundwater Basin. A summary of the geology and hydrogeology in the Capay Valley Groundwater Subbasin is provided in AES (2008), as follows. Aquifers in the subbasin are composed of recent stream channel deposits (alluvial deposits) and the Tehama Formation, which is underlain by older, brackish water-bearing Cretaceous marine rocks. Surficial geology is shown in Figure 2-4. Recent stream channel deposits consist of silt, sand, gravel, and occasional cobbles deposited along former riverbeds of

Cache Creek and its tributaries. These recent deposits are moderately to highly permeable, and range in thickness from 0 to 150 feet. Below these sediments, the Tehama Formation consists of moderately compacted silt, clay, and fine sands with lenses of sand, silt, and gravel; sand and gravel; and cemented conglomerate. The Tehama Formation is generally less than a few hundred feet thick, and has variable permeability. Underlying Cretaceous marine rocks make up the basement rock of the subbasin. These consolidated sediments generally contain saline connate water and are not considered usable water-bearing formations (DWR, 2004). Groundwater flow typically follows the topographical line of the valley running southeast.

As part of the model development, well logs were collected from across the Capay Valley. These logs were used to analyze typical screened intervals and subsurface materials in an effort to locate zones of higher and lower permeability. The screened intervals of the wells were analyzed to determine the depth of higher-permeability water-bearing sediments. These depth ranges are where drillers attempted to place the well screens in an effort to install a well that produces sufficient water. The analysis showed a large number of domestic and irrigation wells screened within the top 60 feet of the surface. Shallow wells are particularly common close to Cache Creek. Additional domestic and irrigation wells extend from 60 feet to 160 feet, but these are less common. Generally only larger wells operated by the Tribe are screened from 160 feet to 460 feet, and no wells were found to be screened below 460 feet.

The logs of subsurface materials were entered into a RockWorks database for 3D visualization of coarse and fine grained sediments. The logs showed a highly heterogeneous subsurface environment, and the number and quality of well logs were insufficient to delineate major aquifer layers or zones. As such, the analysis of screened intervals was used as an indicator of zones of higher-permeability water-bearing sediments that extend beyond the immediate area of the well, rather than the point data recorded in the boring log, with additional information from regional geology maps.

Modeled Stratigraphy

All of the compiled geologic data were used to generate the model stratigraphy, which includes aquifer thickness and layering. The model was divided into five layers based primarily on the screen intervals of the collected well logs. The thickness of each layer is generally at a maximum in the center of the valley, and the layers thin out near the hills surrounding the valley. The location of where the different aquifer layers outcrop is based on the Capay Valley surficial geology shown in Figure 2-4.

Layer 1 and Layer 2 represent alluvial deposits which are a maximum of 160-feet deep. Layer 1 is defined as the top 60 feet of the alluvial deposits and is associated with shallow agricultural groundwater production wells. Layer 2 is defined as the bottom 100 feet of the alluvium and is associated with some deeper agricultural wells and also with rural residential production wells.

Layer 3, Layer 4, and Layer 5 represent the Tehama Formation, which is a maximum of 1,000 feet deep. Layer 3 is defined as the top 90 feet of the Tehama Formation where it outcrops at the CCCR. Layer 3 allows the model to accurately simulate groundwater production from the prior CCCR wells and to simulate the CCCR wastewater effluent disposal into on-site leach fields. Layer 4 is defined as the Tehama formation to a depth of 500 feet below ground surface and is associated with the current casino groundwater production wells. Layer 5 is defined as the bottom 500 feet of the Tehama formation. No groundwater production takes place in Layer 5.

Table 2-2 summarizes the CapayIGSM layer characteristics. Figure 2-5 shows a north to south Cross section though the Capay Valley illustrating the model stratigraphy. Figure 2-6 shows a west to east cross section through the southern Capay Valley at the CCCR. The locations of these two cross sections are shown in Figure 2-4.

Table 2-2: CapayIGSM Layer Characteristics

Model Layer #	Geologic Formation	Maximum Layer Thickness	Layer Description	Groundwater Production Associated with Layer
1	Alluvial Deposits	60 Feet	Upper Alluvial Deposits	Shallow agricultural and rural domestic wells
2	Alluvial Deposits	100 Feet	Lower Alluvial Deposits	Deeper agricultural wells and rural domestic wells
3	Tehama Formation	90 Feet	Tehama Formation Outcrop	On-site tribal production drinking water wells
4	Tehama Formation	500 Feet	Upper Tehama Formation	New CCCR and tribal housing wells
5	Tehama Formation	500 Feet	Lower Tehama Formation	None

2.2.3 Surface Drainage

The USGS NED ground surface elevation data previously discussed were also used to determine the drainage pattern for rainfall and agricultural runoff in the model area. This analysis was performed using ArcGIS Spatial Analyst Hydrology Tools. The drainage pattern was checked against aerial photos and other stream coverages for accuracy.

2.2.4 Hydrologic Soils

The United States Department of Agriculture Natural Resource Conservation Service (USDA NRCS) Soil Data Mart was used to obtain soil characteristics for the model. The soil types identified in the soil survey data are associated with four hydrologic soil groups according to their runoff potential and infiltration characteristics. Table 2-3 lists the hydrologic soil groups and their runoff characteristics. Figure 2-7 shows the distribution of hydrologic soil groups in the model.

Table 2-3: Hydrologic Soil Groups

Hydrologic Soil Group	Runoff Characteristics	IGSM Value
A	Low runoff potential: mainly sands and gravel that are deep and well to excessively drained; high transmissivity.	1
B	Low to moderate runoff potential: soils of moderately fine to moderately coarse textures; moderately deep and drained; medium transmissivity.	2
C	Moderate to high runoff potential: soils of moderately fine-to-fine texture, with an impeding clay layer; low transmissivity.	3
D	High runoff potential: mainly clay soils with a high swelling potential, shallow soils over nearly impervious materials and soil with high permanent water table; poor transmissivity.	4

2.3 Hydrology and Climatology Data

The main data source for hydrologic and climatologic data for the CapayIGSM model were the YoloIGSM data sets. However, the YoloIGSM simulation period is from 1971 – 2000 while the original CapayIGSM simulation period was from 1971 – 2007. Therefore, most of the hydrologic data from the YoloIGSM needed to be updated through 2007. Whenever possible, the methods used for generation of the YoloIGSM data were also used for the data extension.

Descriptions of the hydrologic and climatologic data included in the CapayIGSM are organized as follows:

- Rainfall;
- Evapotranspiration; and
- Stream flow.

2.3.1 Rainfall Data

Figure 2-8 shows the location of the rainfall gages from the National Oceanic and Atmospheric Administration (NOAA) and from the California Irrigation Management Information System (CIMIS) in the model area. The stations in the model area were evaluated, but it was determined that none of the stations had sufficient data to be used in the CapayIGSM because of insufficient length-of-record or too many data gaps.

The two closest gages to the model area with sufficient data were the NOAA Winters Gage and the NOAA Woodland Gage. The Winters Gage was selected for the model because its average rainfall was closer to the average rainfall for the model area based on the rainfall contours shown in Figure 2-8.

NOAA data for the Winters Gage was only readily available through 2006. For 2007, the rainfall data used in the model was obtained from the CIMIS Esparto Gage. These data were scaled down by 86 percent since the average rainfall at the Winters Gage was 86 percent of the Esparto Gage during periods of data overlap between the two stations.

The rainfall data used in the 2010 CapayIGSM and the data used in the current modeling update through 2015 are presented together in Section 4.

2.3.2 Evapotranspiration Data

Reference evapotranspiration data (ET_o) for the model were obtained from the CIMIS Davis Gage from 1982 – 2007. Historical ET_o data from 1971 – 2000 were also obtained from the YoloIGSM. The overlap data between 1982 and 2000 was examined to ensure that there were no inconsistencies. The variation of ET by crop type was obtained from the YoloIGSM.

The average monthly ET data used in the 2010 CapayIGSM and the data used in the current modeling update through 2015 are presented together in Section 4.

2.3.3 Stream Flow Data

Figure 2-9 shows the location of the USGS and DWR stream flow gages in and above the model area that were used for the model inflow or for model calibration. Table 2-4 lists the period of record for each of the gages shown in Figure 2-9.

Table 2-4: Stream Flow Gage Statistics

Table Site Name	Agency	Site Number	Period of Record
Stream Inflow Data Stations			
Cache Creek above Rumsey	USGS	11451760	1960–1986
Cache Creek at Rumsey Bridge	DWR	RUM	1993 – 2007 (with many data gaps)
Cache Creek near Lower Lake CA	USGS	11451000	1944 - 2007
North Fork Cache Creek near Clearlake Oaks CA	USGS	11451300	1983 - 2007
Bear Creek above Holsten Chimney Canyon near Rumsey CA	USGS	11451715	1997 - 2007
Stream Flow Calibration Data Stations			
Cache Creek near Brooks	USGS	11451950	1983–1986
Cache Creek near Capay	USGS	11452000	1942–1976

Development of Cache Creek Inflow

The CapayIGSM requires daily stream flow for Cache Creek entering the model boundary. Cache Creek inflow data from 1971 – 2000 was available from the YoloIGSM model. To obtain 2001 – 2007 inflow data, flow data from the Cache Creek above Rumsey gage from DWR were examined; however, it was determined that this data set had too many data gaps to be used in the original model.

Therefore, the inflow data to the model was estimated by combining the measured flow at Cache Creek and its tributaries upstream of the model area. The major upstream tributaries and associated gages are:

- Cache Creek Main Fork - Cache Creek near Lower Lake CA;
- Cache Creek North Fork - North Fork Cache Creek near Clearlake Oaks CA; and
- Bear Creek - Bear Creek above Holsten Chimney Canyon near Rumsey CA.

Cache Creek Main Fork flows out of Clear Lake and is a regulated flow. Cache Creek North Fork flows out of Indian Valley Reservoir and is also a regulated flow. Bear Creek is a natural flow with no major upstream reservoirs. In order to estimate inflow into the model area, the flow from the three gages was added together. An additional 118% of the Bear Creek Gage was also added to the total to represent the ungaged drainage area below the three gages but above the model boundary. This 118% value was estimated by adding up the ungaged watershed area of Cache Creek in ArcGIS and comparing it against the documented drainage area of the USGS Bear Creek gage.

This methodology created an estimated Cache Creek model inflow from 1997 to 2007. When combined with the YoloIGSM inflow data, the two data sets combined to create the 1971 – 2007 data set needed for the original Cache Creek model inflow.

To verify the methodology, the YoloIGSM data from 1997-2000 was compared with the estimated Cache Creek model inflow and no significant differences were detected. The estimated Cache Creek model inflow was also compared with the Cache Creek above Rumsey gage during the time periods where the gage had data, and no significant differences were detected.

Average annual stream inflow used in the 2010 CapayIGSM and the stream inflow data used in the current modeling analysis are presented together in Section 4.

2.4 Land Use and Crop Data

The CapayIGSM requires two sets of input files for land use: (1) annual crop acreage by model subregions; and (2) elemental land use distribution for land survey years. Both the land use data and crop acreage data are described below.

2.4.1 Land Use Data

The CapayIGSM elemental land use data uses three general land use categories:

- Agricultural Areas;
- Urban Areas; and
- Undeveloped/Idle/Native Vegetation.

DWR Land Use survey data for Yolo County for 1989 and 1997 were available in GIS shapefiles and were directly incorporated into the model by using ArcGIS overlay analysis tools. Non-digital hard copy land use surveys exist for Yolo County for 1973, 1976, and 1981; however, these surveys were not readily available and would have required an economically infeasible level of effort to convert into IGSM format.

Figure 2-10 and Figure 2-11 show the majority land use for each element for 1989 and 1997 respectively. Overall, native vegetation and agricultural areas dominate the general land use in the Capay Valley. Urban areas are limited to the communities of Rumsey and Guinda, the CCCR, and rural residential parcels.

2.4.2 Crop Data

Irrigated crop acreage data for the model were also obtained from DWR land use surveys for the specific survey years. The surveys contain over 80 different crop types. Eleven specific crops were selected and the remaining crops were aggregated into six generic crop types as shown in Table 2-5. As IGSM requires annual crop data, crop data for each year was estimated by interpolation and extrapolation of the data in the two survey years.

Table 2-5: CapayIGSM Crop Types

Specific Crop Types			
Alfalfa	Almond	Corn	Dry Beans
Prunes	Rice	Tomatoes	Safflower
Sugar Beets	Walnuts	Vineyards	
Generic Crop Types			
Subtropical Fruits	Deciduous Fruits and Nuts	Field Crops	Grain and Hay Crops
Pasture	Trucks, Nursery, and Berry Crops		

2.5 Water Supply and Demand Data

The agricultural and urban areas identified in the land use analysis are the areas of water use within the CapayIGSM. Agriculture is the single largest user of applied water in the model. Urban areas are small relative to the agricultural area and their corresponding water use is smaller. This section describes the water use data within the CapayIGSM model area, including:

- Agricultural water demand;
- Agricultural water supply; and
- Urban water demand and supply.

Note this section discusses only general water supply and demand for the entire model area. Specific water supply and demand related to the CCCR area discussed below in Section 2.7 - Project Area Data.

2.5.1 Agricultural Water Demand

The agricultural water demand is calculated using the consumptive use model component of the IGSM. The consumptive use of a crop is the amount of water required to satisfy evapotranspirative demand of the crop, which includes evaporation and transpiration loss from crop foliage and adjacent soils. The portion of the consumptive use that is met by irrigation water is called the consumptive use of applied water (CUAW). The agricultural water demand is equal to CUAW divided by the irrigation efficiency. The irrigation efficiency data for the model subregions was obtained from the YoloIGSM regional model.

2.5.2 Agricultural Water Supply

DWR land use surveys document the source of irrigation water for each land use parcel. Based on the 1997 survey, Figure 2-12 shows the parcels that are surface water users, that are groundwater users, and that use a mix. For modeling purposes, it is assumed that surface water parcels meet 100 percent of their demand with surface water, groundwater parcels meet 100 percent of their demand with groundwater, and mixed parcels meet 50 percent with both sources.

It is assumed that parcels receiving surface water north of Guinda receive their supply via Rumsey Ditch, and parcels south of Guinda are riparian pumpers and pump their water directly from Cache Creek. It is also assumed that parcels receiving groundwater receive their supply from private groundwater wells.

2.5.3 Urban Water Supply and Demand

Urban water demand in the CapayIGSM is entirely rural water use. Rural water use data are not available for the model area, so it is estimated based on land use area by applying a water use factor of 2.0 acre-feet (AF) per acre. This value is very similar to the Winters unit water use of 2.1 AF per acre for rural urbanized area used in YoloIGSM. The urban water supply within the model area is entirely groundwater.

2.6 Initial Conditions and Boundary Conditions

This section describes the initial and boundary conditions originally developed and used for the 2010 CapayIGSM.

2.6.1 Initial Conditions

Historical groundwater level data were collected from the DWR water data library (WDL) for fall of 1969 and fall of 1970. 25 wells were found that had data for either or both years. A groundwater level surface was estimated from the data for these 25 wells using ArcGIS Spatial Analyst interpolation tools. Figure 2-13 shows the location of the 25 wells and the interpolated groundwater level surface. This surface was then overlaid with the CapayIGSM model nodes to obtain initial groundwater levels at each node.

2.6.2 Boundary Conditions

Boundary conditions are specified at the CapayIGSM boundary nodes to account for surface and subsurface flows across the model boundary. There are two major boundaries for the CapayIGSM:

- Southeastern boundary that defines where the Capay Valley transitions into the Sacramento Valley
- Rest of the model boundary where the Capay Valley is bounded by hills.

Southeastern Boundary Conditions

To determine the groundwater flux between the Capay Valley Groundwater Subbasin and the greater Sacramento groundwater basin, groundwater levels were extracted from the YoloIGSM model at the CapayIGSM boundary.

Since the YoloIGSM data only extends from 1971 – 2000, boundary condition data from 2001 to 2007 needed to be obtained. The assumption was that the 2000 boundary conditions could be repeated for 2001 to 2007. In order to justify this assumption, four wells near the model boundary in the DWR WDL were identified that had groundwater level data for the 2001 – 2007 period. The hydrographs from these wells showed that groundwater levels were relatively static at the model boundary for the seven year period.

Ungaged Watershed Boundary Conditions

To determine the surface water flow into the model from the surrounding hills, the IGSM ungaged watershed inflow computation method was used. 117 individual small watersheds were delineated using the USGS NED ground surface elevation data and ArcGIS Spatial Analyst hydrology tools. The total calculated watershed area was compared against the California Interagency Watershed Map to ensure that the areas were comparable. Figure 2-14 shows the 117 delineated watersheds compared with the California Interagency Watershed Map.

Each small watershed contributes surface water flow into the model at the model boundary, which the model calculates based on the watershed area, rainfall data, and other hydrologic parameters. This surface water then either percolates into the aquifer at defined groundwater nodes or flows into Cache Creek based on model soil and aquifer parameters.

2.7 Project Area Data

In order to ensure the accuracy of the model in the area of CCCR, efforts were made to collect all available data that could be incorporated into the CapayIGSM. The following lists the areas where specific data were collected:

- CCCR (Subregion 6)
- Golf course (Subregion 7)
- Tribe agriculture land west of Highway 16 (Subregion 5)
- Tribal housing (Subregion 3)
- Private agriculture land near the project area (Subregion 4)

This section describes the data collected and how it was incorporated into the original CapayIGSM in 2010. The updated Project area data for the current modeling analysis are described separately in Section 4.

2.7.1 Land Use

The latest land use survey used in the 2010 CapayIGSM was from 1997. The Project area land use data were collected in order to update the CapayIGSM annual land use data between 1997 and 2007. Table 2-6 summarizes the land use updates in the Project area. Figure 2-15 shows a map of the land use data representing 2007 conditions in the 2010 CapayIGSM. The more recent land use data used in the current modeling analysis are discussed and presented in Section 4.

Table 2-6: Land Use Updates to the Project Area

Area	Land Use Changes since 1997	Date of Change
CCCR	Current CCCR facility constructed	2004
Golf course	Golf course constructed	2006
Tribe agriculture land west of Highway 16	Approximately 500 acres irrigated land switched to being fallowed or dry farmed	2004
Tribal housing	Tribal housing complex built	2004
Private agriculture land near the Project area	Parcel north of the CCCR with vineyards	1998

2.7.2 Production Wells

The location and pumping layers associated with wells in the Project area were incorporated into the CapayIGSM. These wells include the CCCR production wells, rural residential production wells, and agricultural production wells to ensure that the modeled groundwater production in the Project area is occurring in the correct location. Figure 2-16 shows the location and pumping layer for the wells used in the model.

2.7.3 Groundwater and Surface Water Supply

This section describes groundwater and surface water supply data used in the 2010 CapayIGSM in the Project area. The Project area data compiled and used in the 2015 model update are described in Section 4.

CCCR

Casino water use data were available from 1985 when the original facility was built to the present. These data were incorporated into the model to assure that the model accurately represents the historical CCCR water supply sources.

Golf Course

Surface water deliveries for the golf course from Cache Creek were collected for 2008 and 2009. For modeling purposes, it was assumed the 2006 and 2007 deliveries are equal the average of the 2008 and 2009 deliveries.

Tribal Housing

It was assumed that the tribal housing uses 2.0 AF per acre, which is the same assumption used for the rest of CapayIGSM rural urban areas. This water use is supplied by groundwater production from wells YDH-1, YDH-2, and YDH-3.

Recycled Water Use and Treated Wastewater Disposal

Daily data for the wastewater treatment plant effluent disposal distribution was obtained from 2003 to 2007 and incorporated into the model. This data includes deliveries of reclaimed water to the golf course and disposal of effluent disposal to on-site CCCR leach fields.

Figure 2-1: CapayIGSM Grid

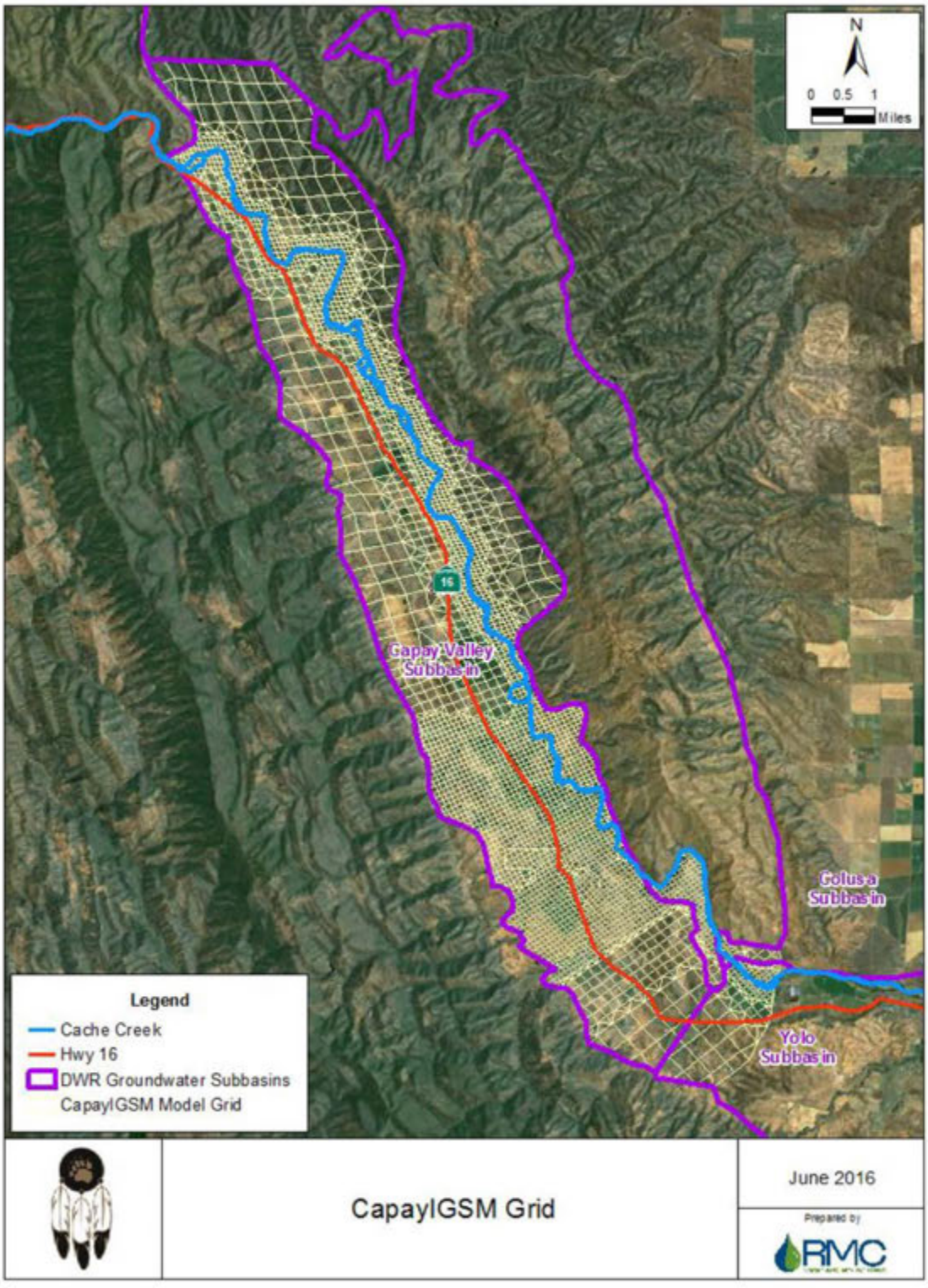


Figure 2-2: CapayIGSM Subregions

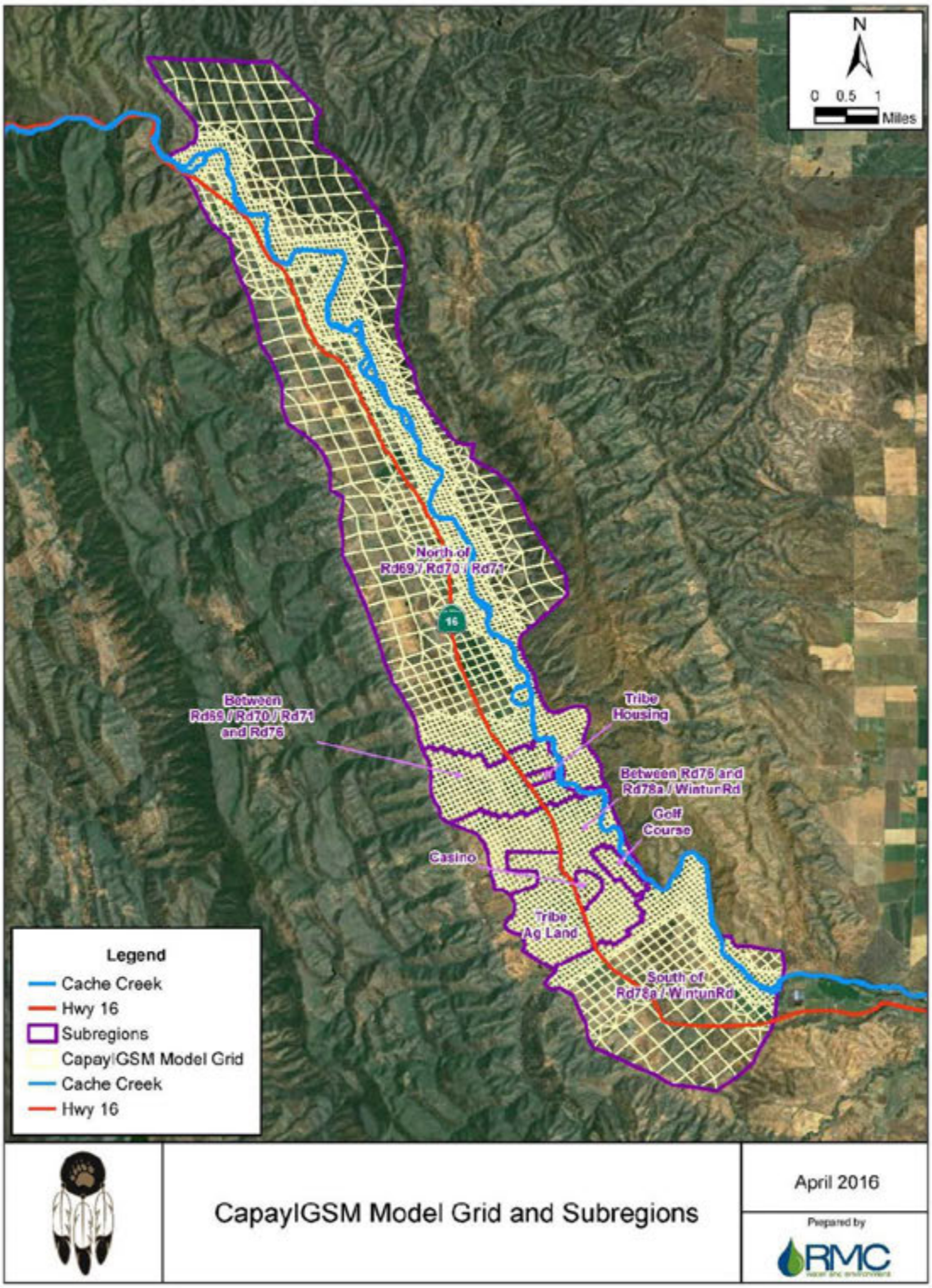


Figure 2-3: CapayIGSM Stream Nodes

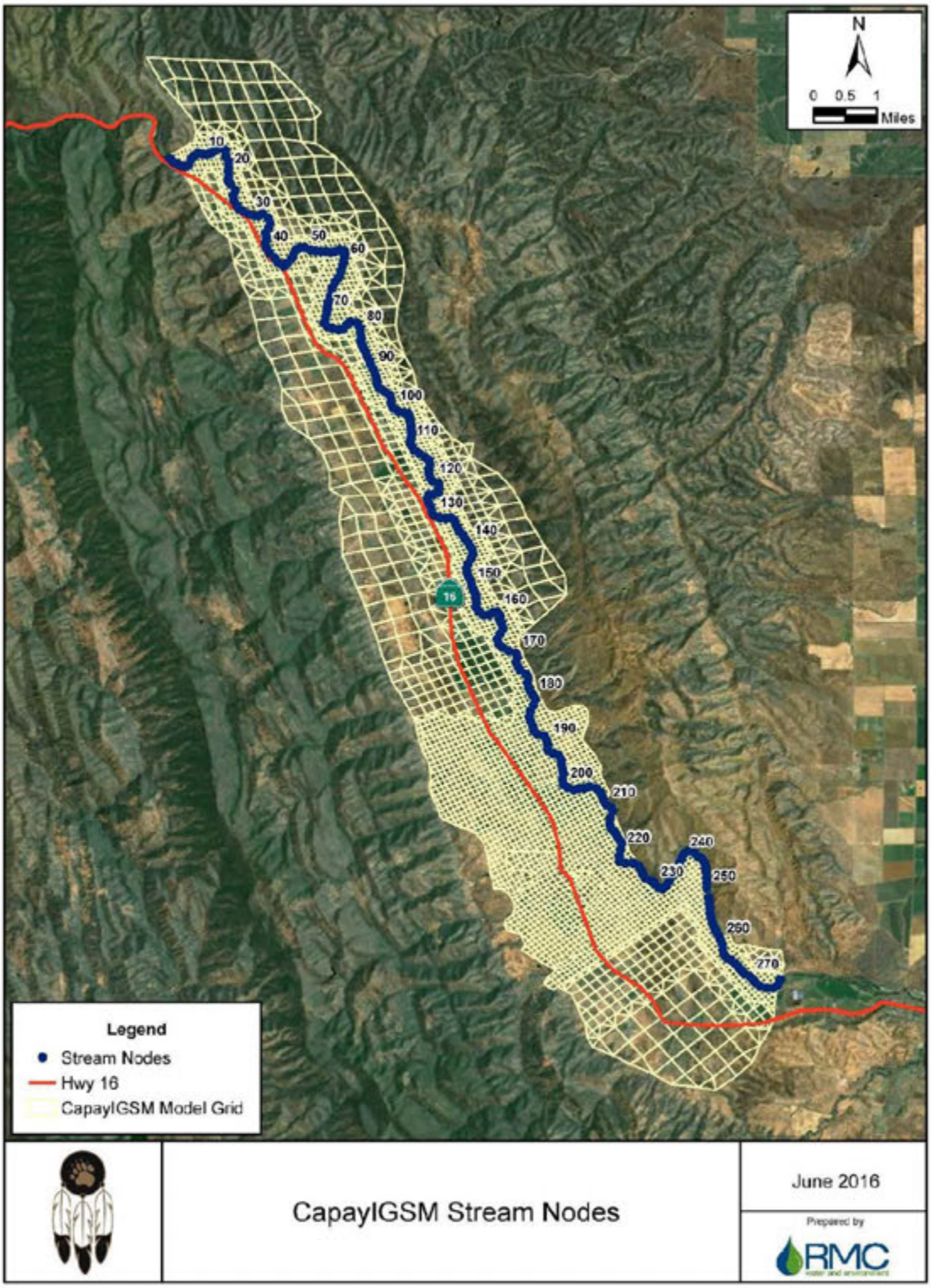


Figure 2-4: Surface Geology

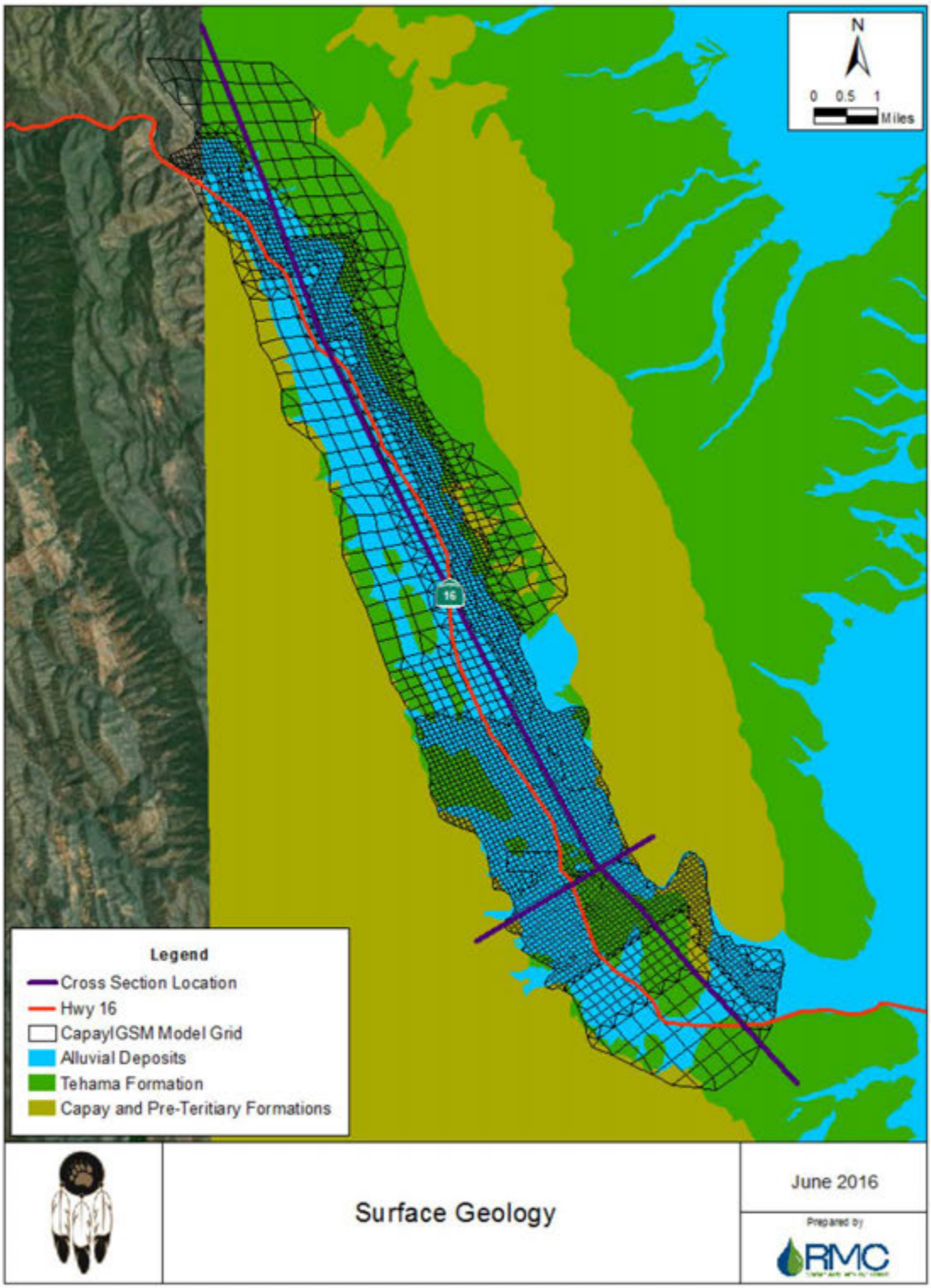


Figure 2-5: North to South Cross Section

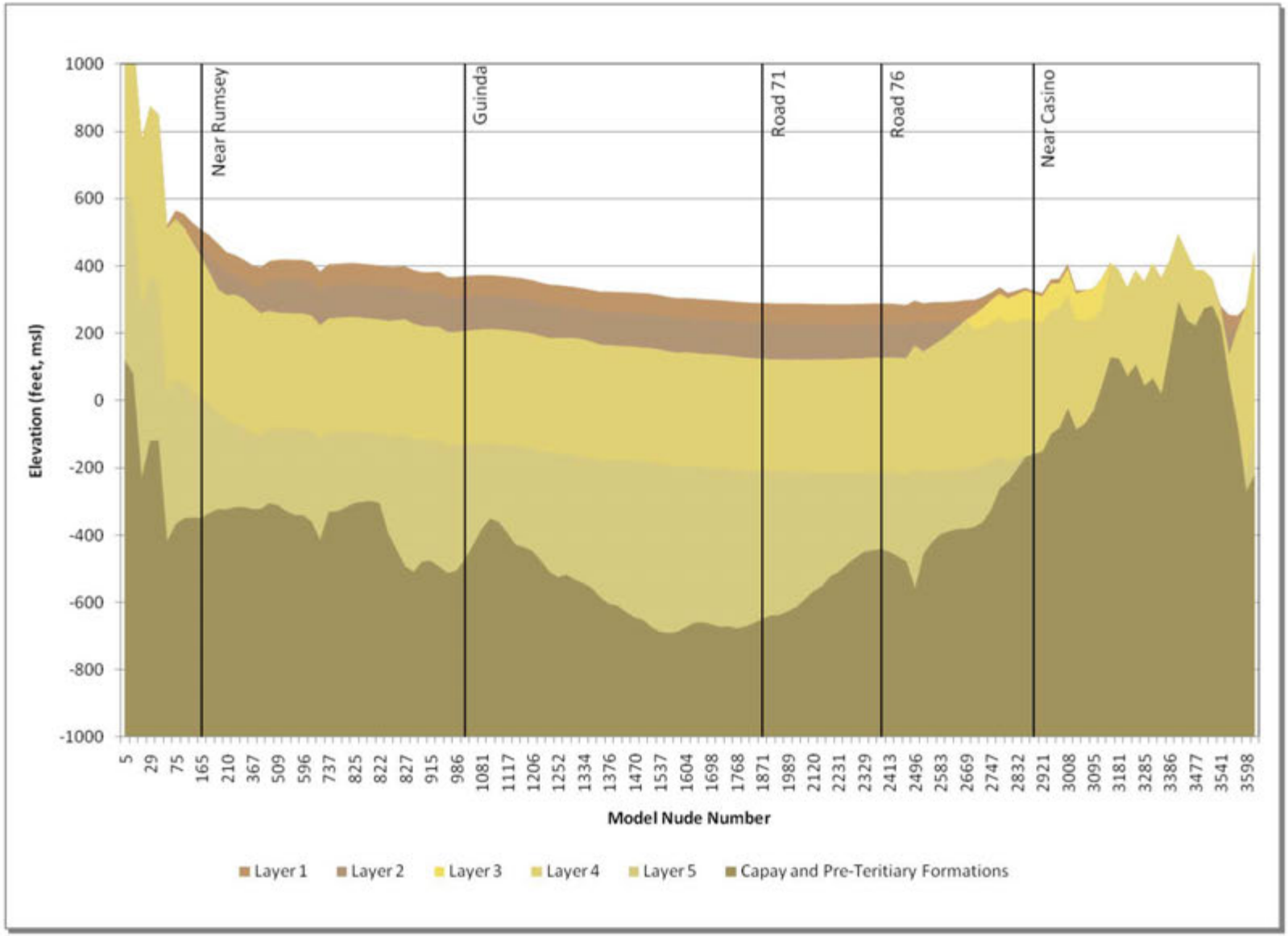


Figure 2-6: West to East Cross Section

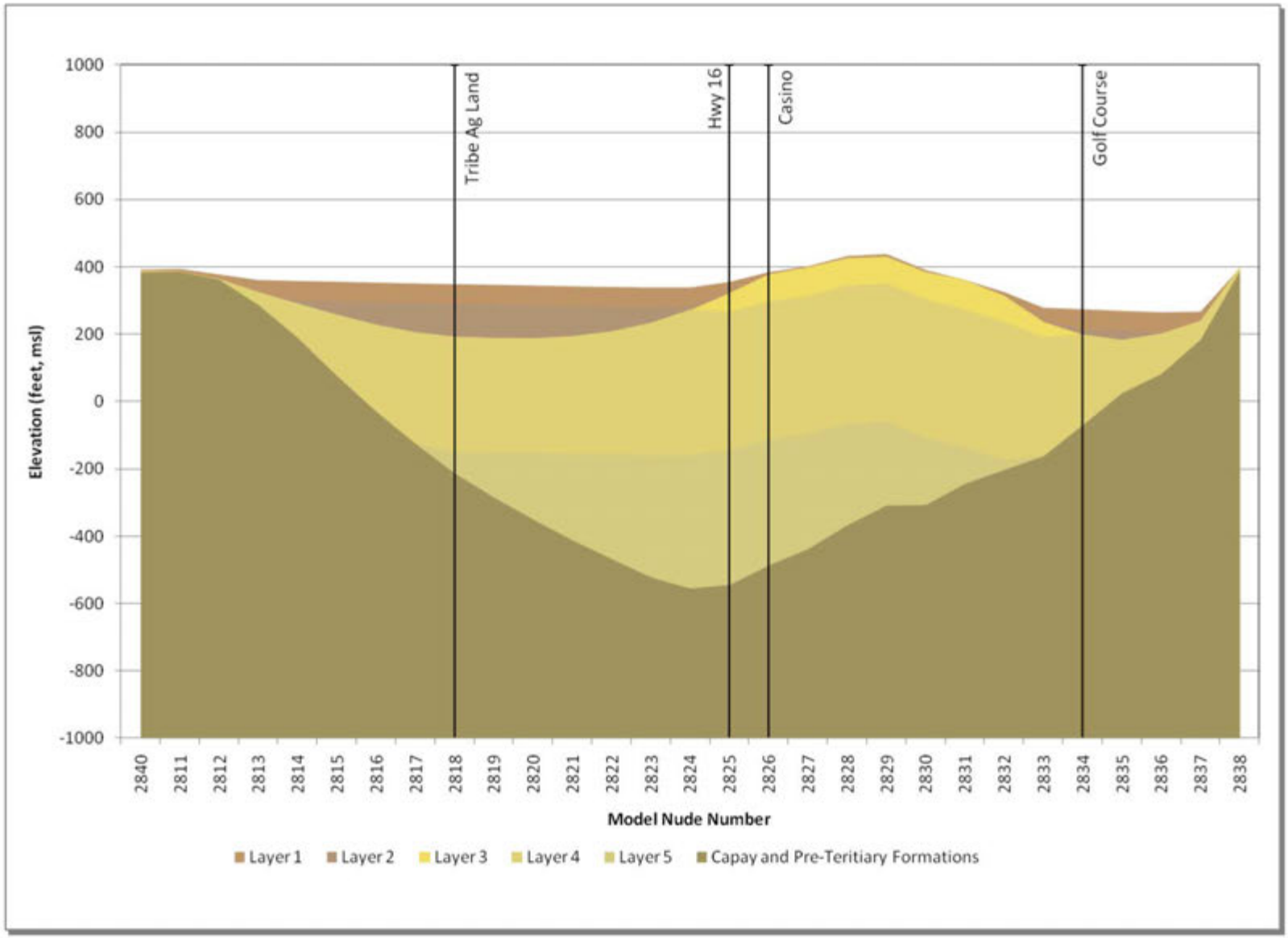


Figure 2-7: Hydrologic Soil Groups

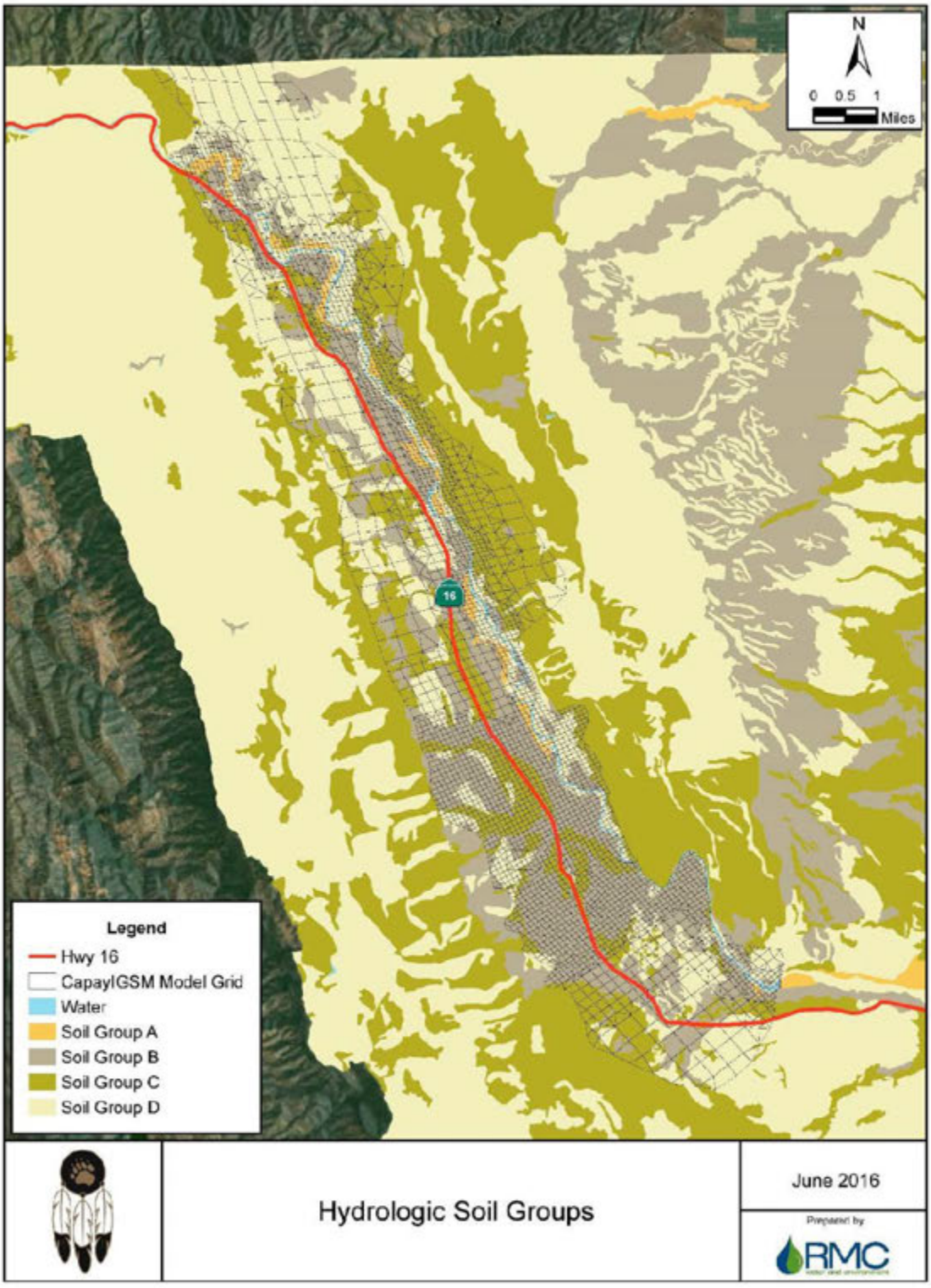


Figure 2-8: Selected Rainfall Gage Locations and Rainfall Isohytes

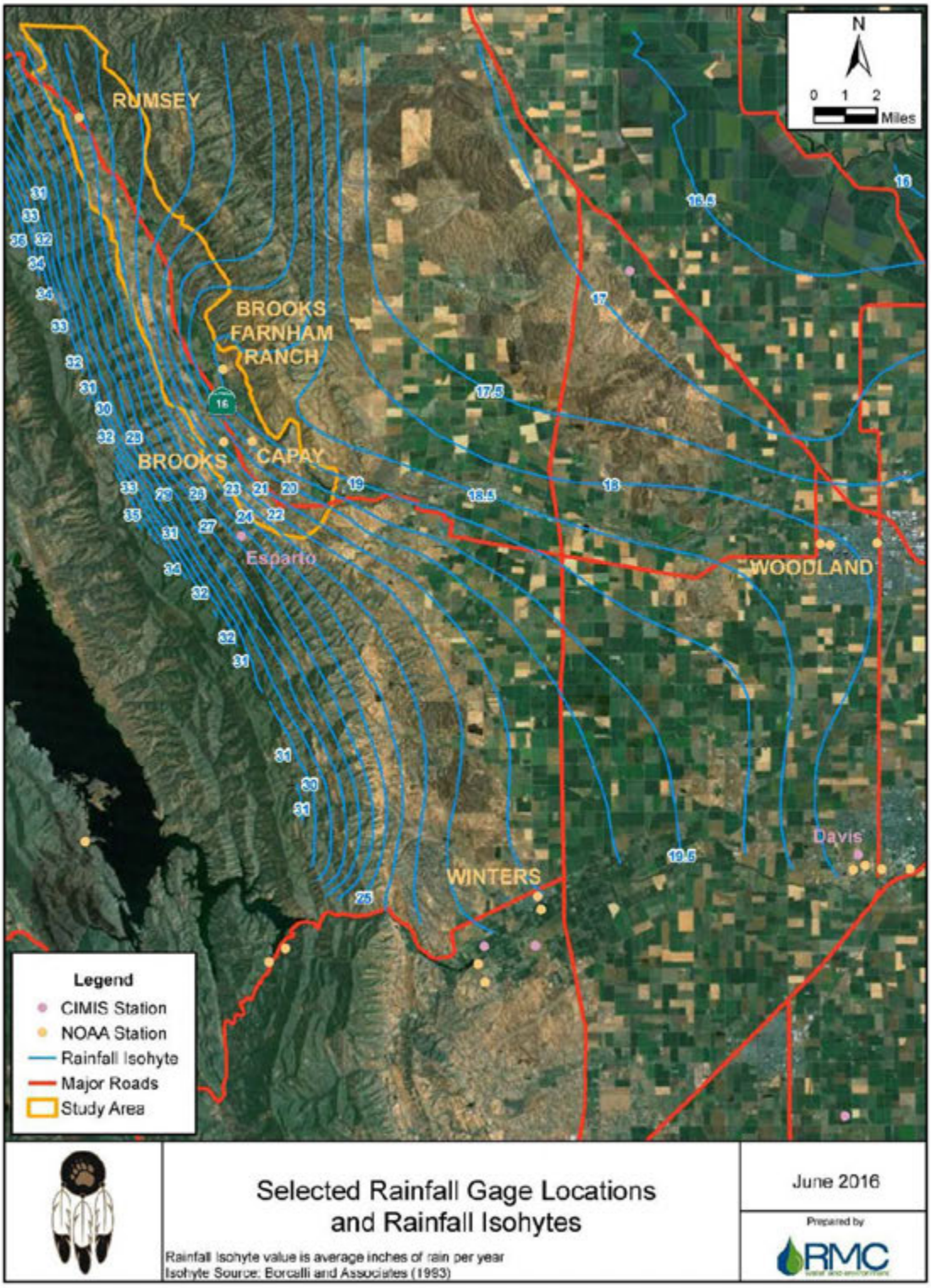


Figure 2-9: Stream Gage Locations

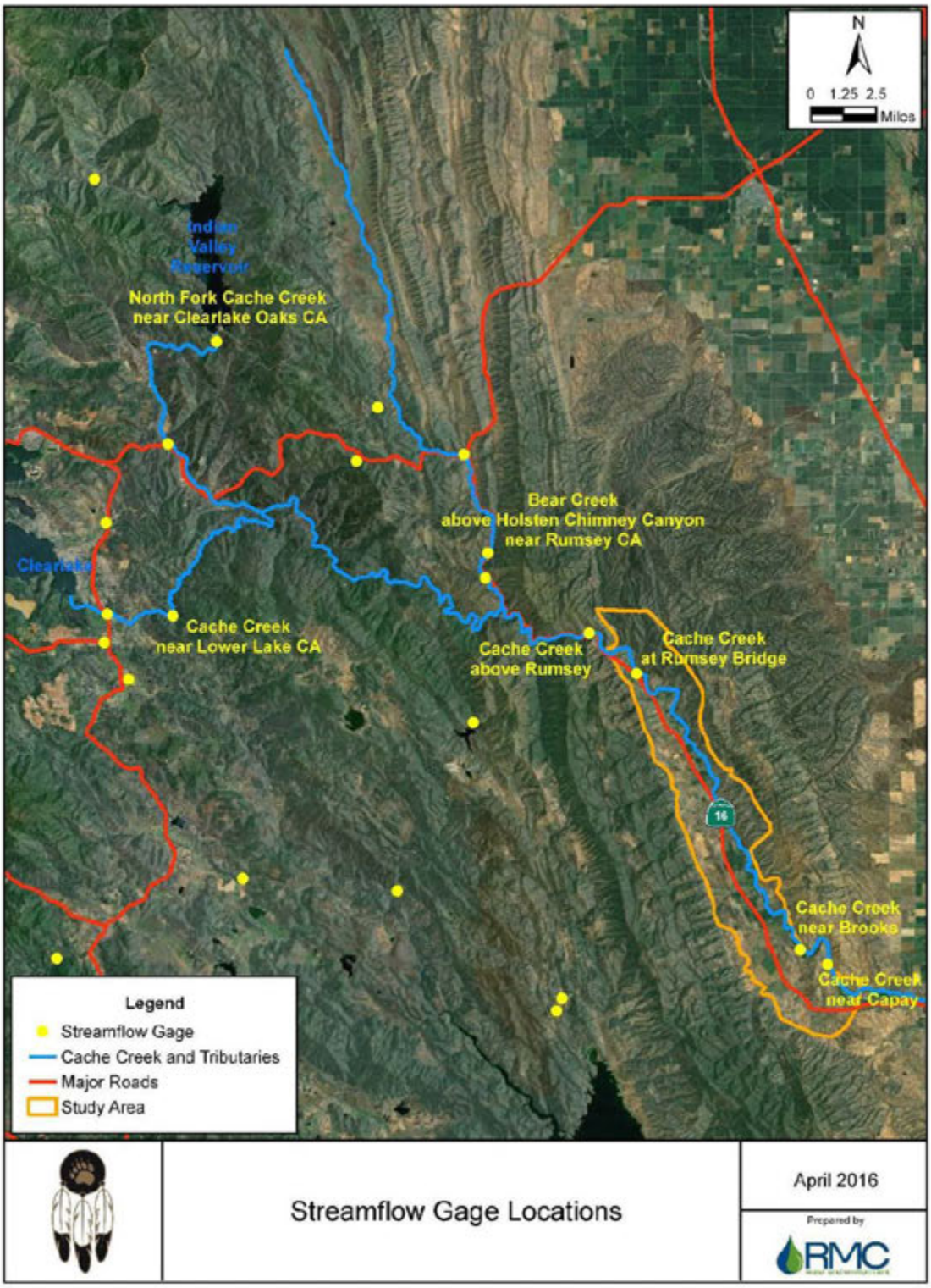


Figure 2-10: 1989 General Land Use

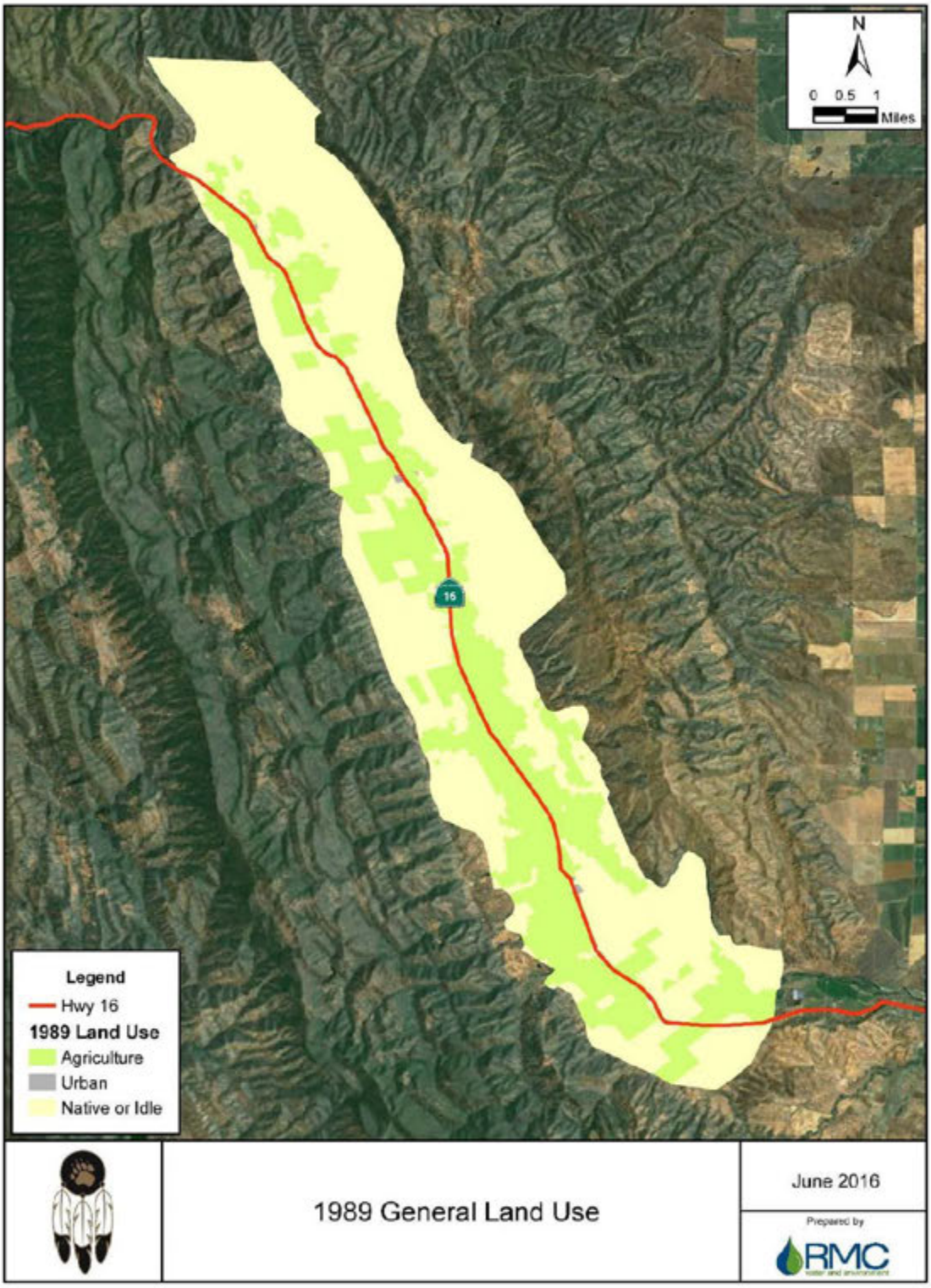


Figure 2-11: 1997 General Land Use

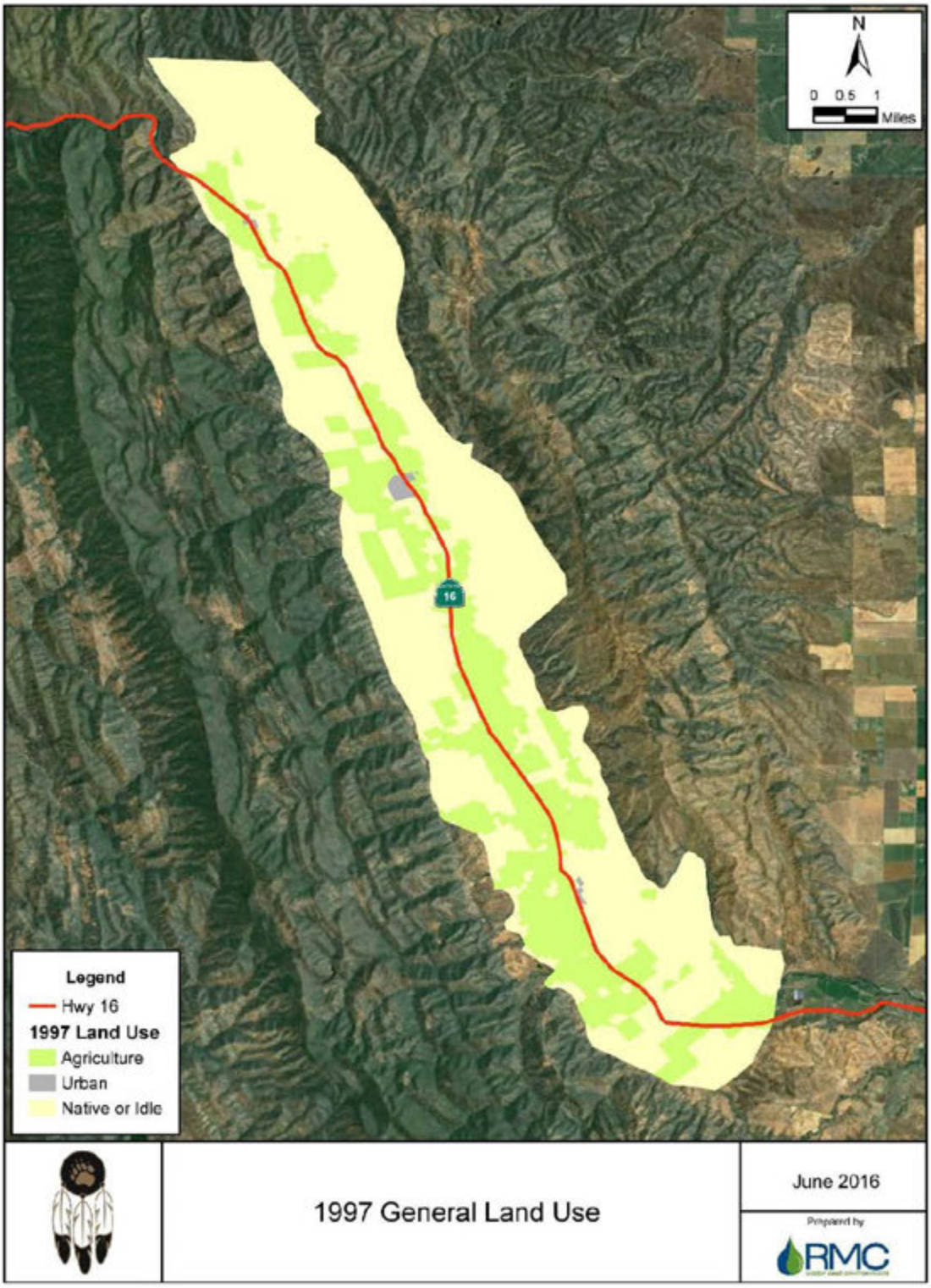


Figure 2-12: Location of Surface Water Use

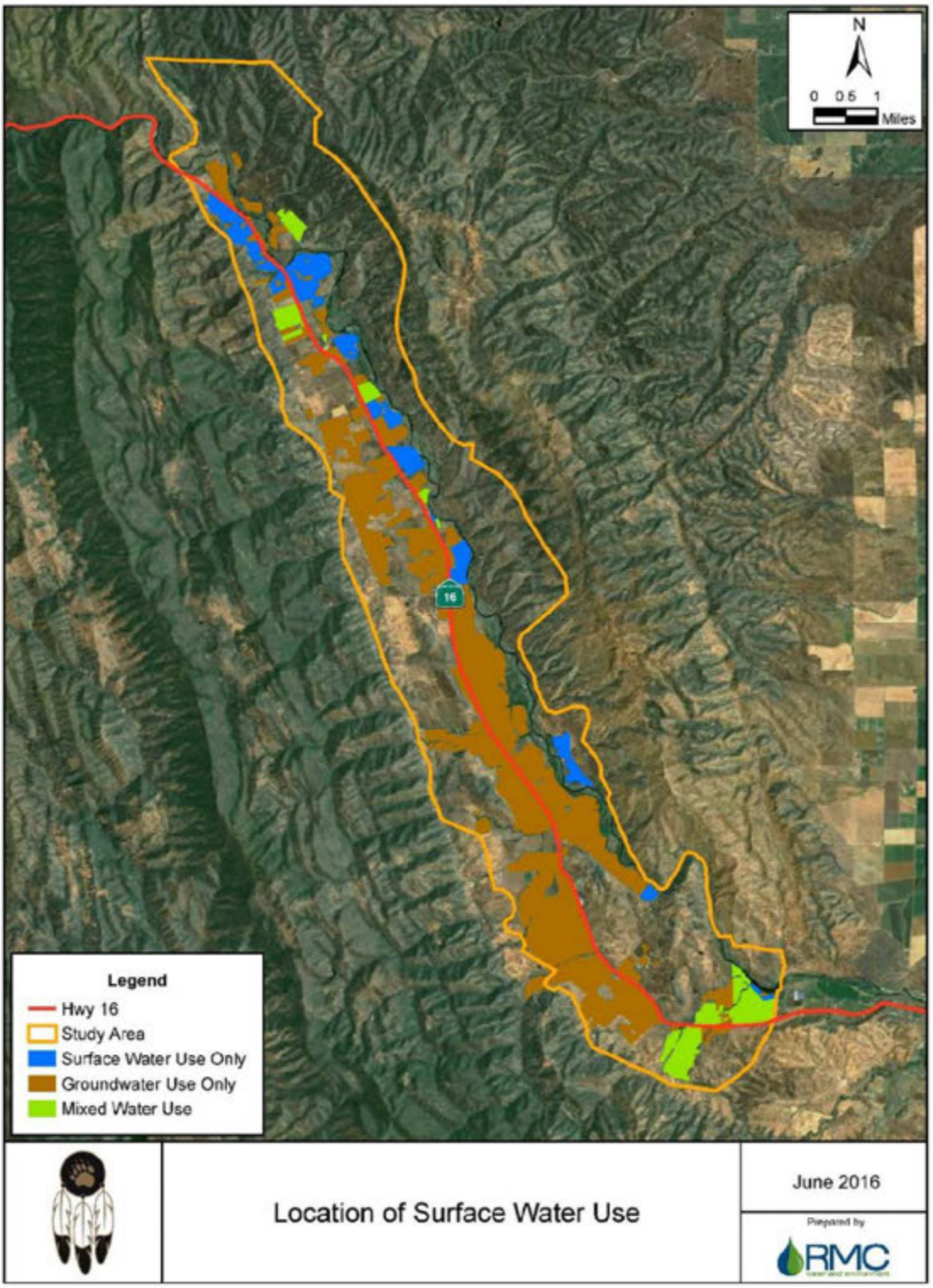


Figure 2-13: Initial Conditions Groundwater Level

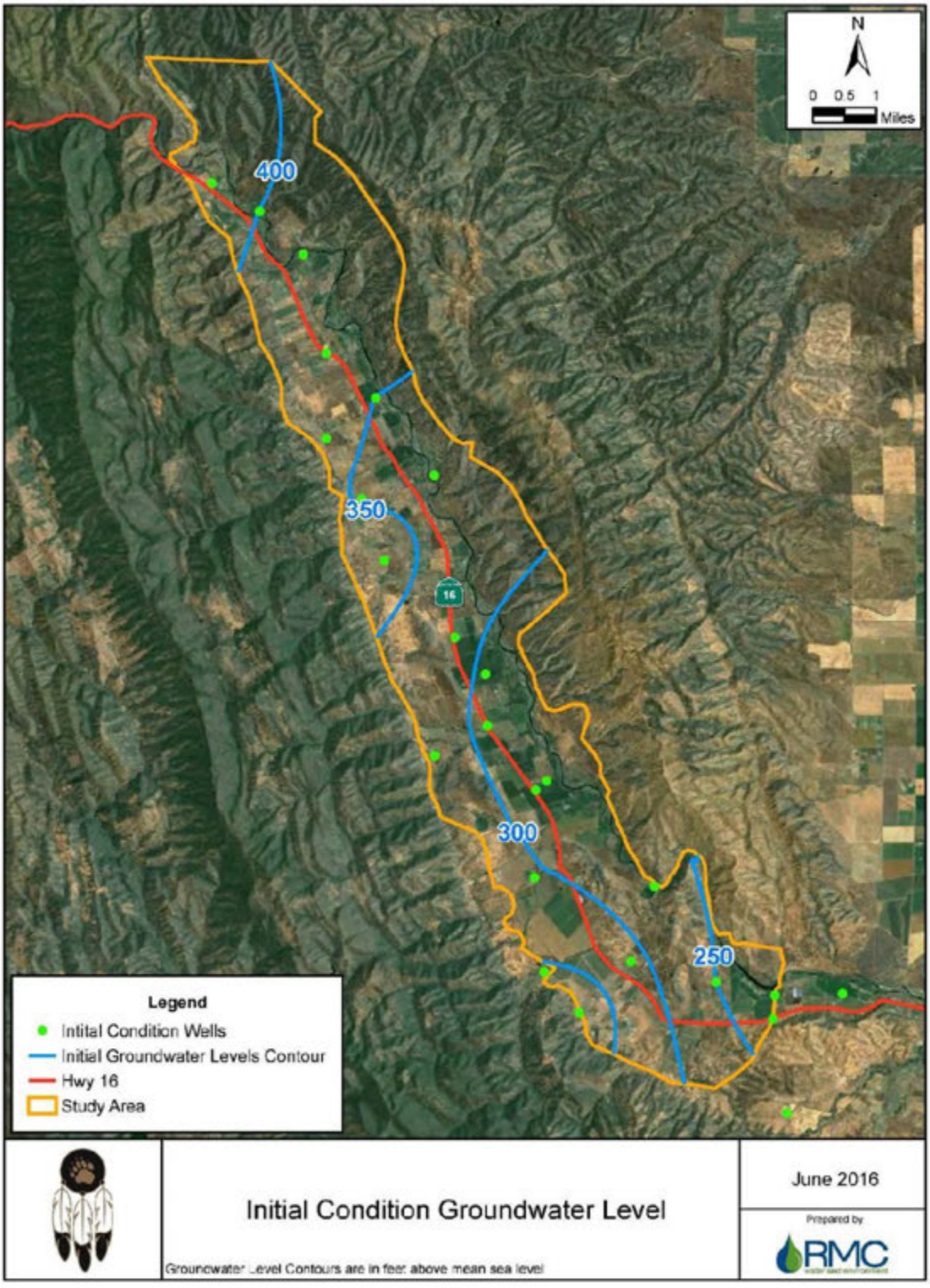


Figure 2-14: CapayIGSM Ungaged Watersheds

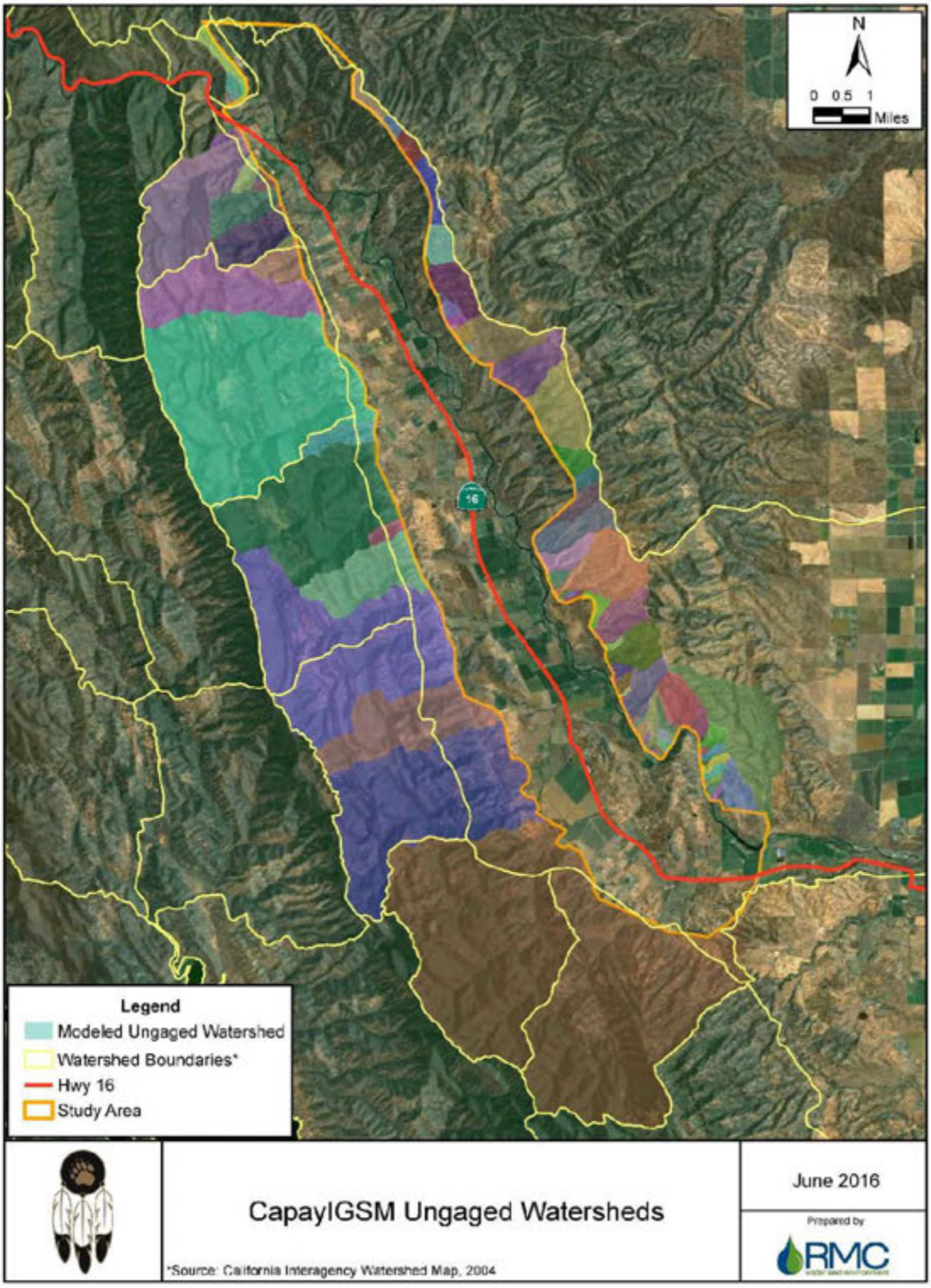


Figure 2-15: 2007 General Land Use

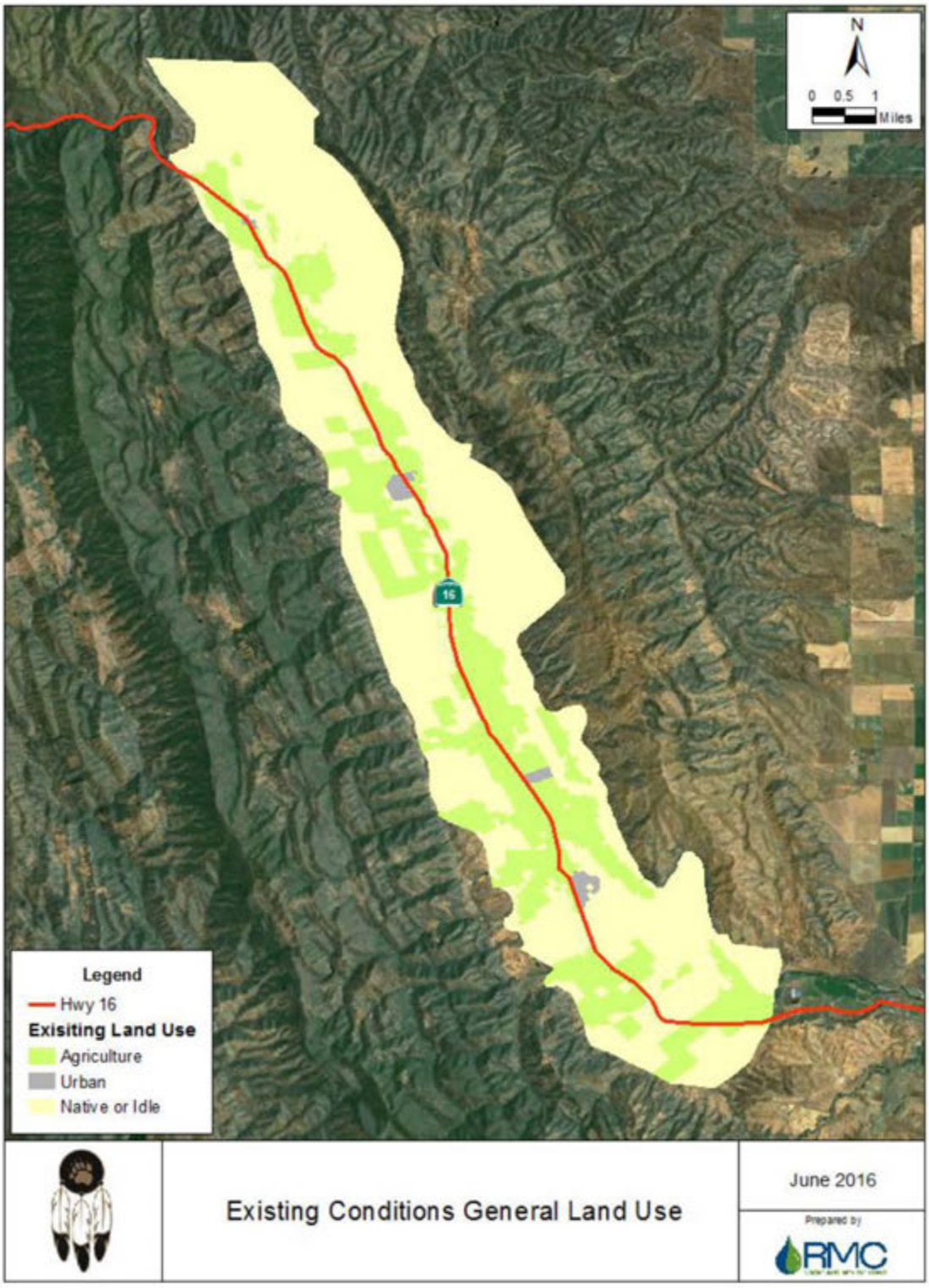
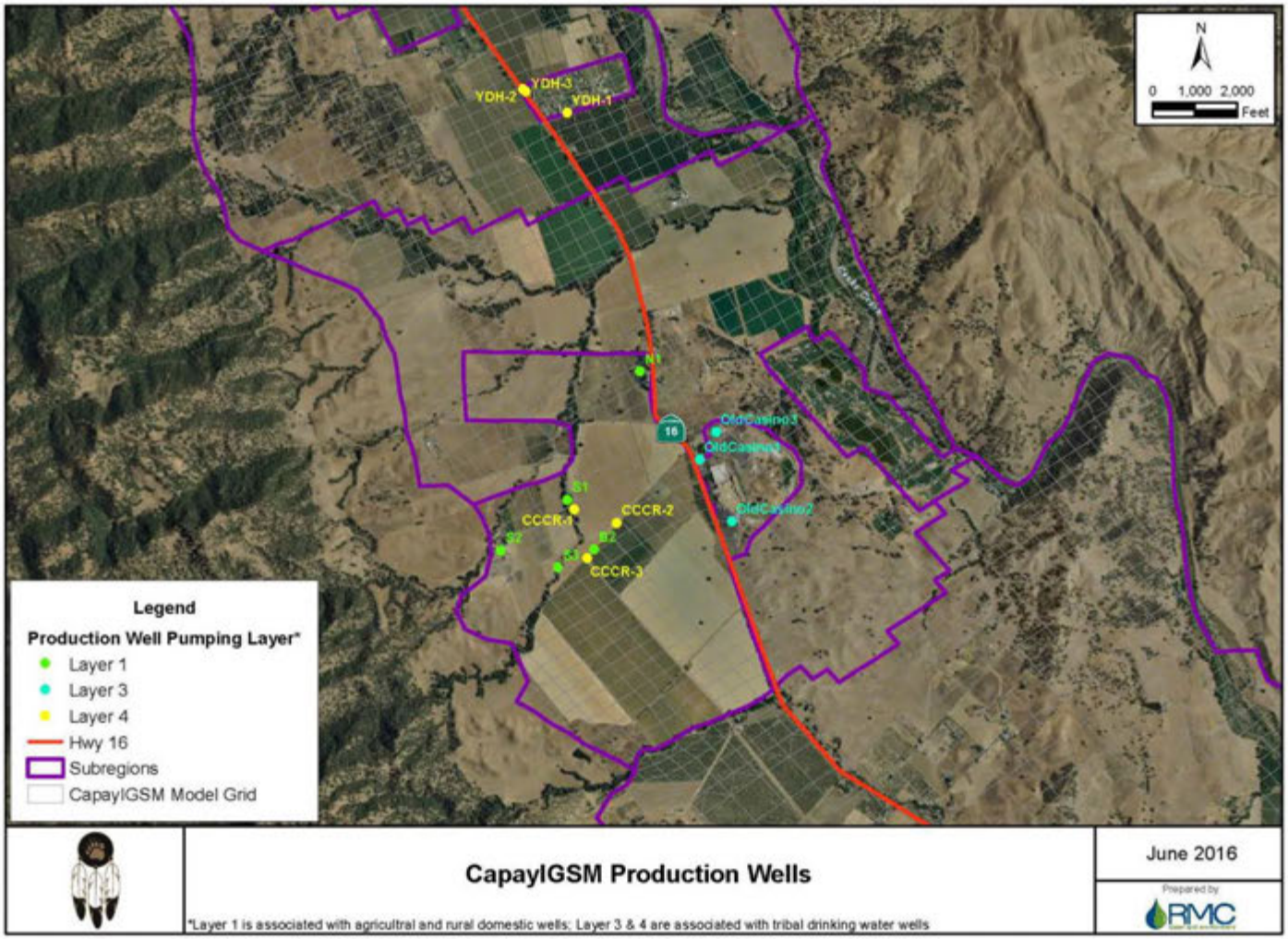


Figure 2-16: CapayIGSM Production Wells



Section 3 Model Calibration

Model calibration can be defined as "..a process that uses a model to achieve a match between the recorded (i.e., historical) and simulated distribution(s) of dependent variable(s) by choosing a range of possible values of the independent variable(s)" (AWWA, 2001). In a hydrologic modeling situation such as the CapayIGSM, the challenge is to solve the inverse problem, that is, the distribution of the dependent variable (such as groundwater elevation) is known and measurable, while the distribution of the independent variable (such as hydraulic conductivity of an aquifer) is unknown or can only be estimated within a range of possible values. In such a situation, the independent variables are adjusted for model calibration and these variables are called model '*parameters*'. For example, in the CapayIGSM, the most important model parameters are the aquifer properties such as hydraulic conductivity, specific yield, specific storage, and leakance.

It should be noted that "a calibrated groundwater model provides 'best' or 'most reasonable' estimates of such model parameters, which are then used to predict the future response of a dependent variable (such as groundwater elevation) under a changed land use or water use plan" (AWWA, 2001).

The purpose of this section is to present the process originally used by WRIME in 2010 to calibrate the CapayIGSM and conduct sensitivity analysis of selected model parameters and inputs. This section discusses the calibration targets, calibration steps, calibration data and the results.

3.1 Calibration Process

The purpose of model calibration is to evaluate the scientific adequacy of the model in representing a physical system and to corroborate scientific hypotheses that are already established through data analyses and field observations. A well-calibrated model confirms the model's ability to adequately represent the physical system and its suitability for use in the analysis of water management planning.

The model calibration begins after the data development and input are complete. The intent of calibration is to compare model output with observed conditions and values and to adjust model parameters so that simulated conditions reasonably represent observed conditions.

The model calibration can be considered a systematic process, which includes the following series of activities:

1. Set calibration targets;
2. Calibrate to overall water budgets for the model area;
3. Calibrate simulated groundwater levels to observed groundwater levels;
4. Compare calibration performance with the calibration targets established in Step 1; evaluate and refine the calibration targets with reference to the available data, modeling and data assumptions, and potential use of the models;
5. Calibrate simulated stream flows to the observed stream flows; and
6. Conduct additional refinements to calibration as necessary.

A detailed process diagram for the model calibration is shown in Figure 3-1.

3.2 Calibration Targets

Calibration targets are typically designed to set specific calibration targets that are numerically measurable. The initial calibration targets for the CapayIGSM are summarized in Table 3-1. These initial targets are based on an evaluation of available data in the basin. It should be noted that the initial calibration targets are often refined and revised as data, assumptions, water budget, and additional information are further

evaluated during the model development and calibration process. The calibration performance of the CapayIGSM are be evaluated with reference to these targets.

Table 3-1: Calibration Performance Targets

Criterion	Target
Mean absolute residual between simulated and observed groundwater levels	15 feet
Percent of simulated water levels within 20 feet of observed groundwater levels	75%
Percent of simulated water levels within 10 feet of observed groundwater levels	60%
Correlation coefficient (R^2) between simulated and observed stream flow	0.9

3.3 Calibration Steps

Model calibration for the CapayIGSM consisted of the following steps that are discussed below:

- Obtain Calibration Data;
- Calibrate Water budgets;
- Calibrate Groundwater levels; and
- Calibrate Stream flows.

3.3.1 Obtain Calibration Data

The first step in model calibration is to obtain regional aquifer parameter data. Having well estimated model parameters based on available data before starting calibration usually means that less parameter adjustments need to be made during the calibration process in order to meet calibration targets. Next, observed groundwater level measurements are obtained for all wells in the model area. The observed data from these wells are compared against model groundwater level output data for the simulation period. Finally, observed stream flow measurements are obtained for all stream flow in the model area. The observed data from these gages are compared against model stream flow output data for the simulation period.

3.3.2 Water Budget Calibration

This step of model calibration is intended to ensure that the model is properly representing the key hydrologic components of the groundwater basin. The CapayIGSM outputs that are reviewed and refined during this stage of calibration include annual and monthly water budgets for land and water use, groundwater, stream flow, soil moisture, and small watersheds. The key components for each of these water budgets are listed in the Table 3-2. Some budget components are reported in more than one budget (such as groundwater pumping).

Some of the key model data and/or parameters that are adjusted during this phase include soil moisture parameters (field capacity, soil hydraulic conductivity, SCS curve numbers, and root zone depth); boundary conditions; water use data; and streambed parameters (hydraulic conductivity and thickness). An important piece of data in this stage of calibration is typically the water use data, including the location, amount, and timing of surface water diversion and groundwater pumping.

Table 3-2: Water Budget Components

	Water Use	Groundwater	Soil Moisture	Stream Reach	Small Watershed
Components	Agricultural Use	Deep Percolation	Rainfall	Model Inflow	Rainfall
	Urban Use	Loss to Cache Creek	Applied Water	Runoff and Return Flow	Evapotranspiration
	Groundwater Pumping	Boundary Inflow	Evapotranspiration	Gain from Groundwater	Surface Water Inflow
	Surface Water Diversions	Artificial Recharge	Direct Runoff	Surface Water Diversions	Groundwater Inflow
	Recycled Water Use	Groundwater Pumping	Return Flow		
			Percolation		

3.3.3 Groundwater Level Calibration

This step of model calibration involves adjustment of the hydrogeologic parameters to obtain a reasonable fit between the observed and simulated groundwater levels. The groundwater level calibration is performed in two stages:

1. The initial groundwater level calibration effort is focused on conforming to the regional scale.
2. The focus of the final groundwater level calibration is the local calibration wells.

During this phase of calibration, adjustments are made to aquifer parameters, including: hydraulic conductivity, specific storage, specific yield, and leakance between aquifer layers.

3.3.4 Stream Flow Calibration

The stream flows are calibrated by comparing the historical time series data at selected stream gages within the model area with corresponding simulated stream flows. The stream flow calibration is focused on achieving a level of model accuracy that will provide a reasonable agreement between the simulated and observed stream flow measurements throughout the model area. This step ensures that the overall stream flow amounts are representative of the field conditions. During this phase of calibration, adjustments are made to model streambed parameters, including streambed thickness, hydraulic conductivity, and amounts of water returned to the aquifer system.

3.4 Calibration Data

Data needed for model calibration include:

- Aquifer Parameter Data;
- Groundwater Level Data; and
- Stream flow Data.

3.4.1 Aquifer Parameter Data

This section discusses the data use in order to estimate the regional aquifer parameters for each model layer. The data collected include horizontal hydraulic conductivity, specific storage, specific yield, and vertical hydraulic conductivity. The main source of aquifer parameter data for CapayIGSM is the documented aquifer properties from DWR Bulletin 90 (*Clear Lake-Cache Creek Basin Investigation*). In addition, transmissivity data from test wells in the current CCCR well field and incorporated into the model. Also, colloquial descriptions of well flow rates and capacities from locals who have wells of various depths and in different locations in the Project area were used to estimate aquifer areas and layers with higher or lower transmissivities. Finally, aquifer parameter data from the YoloIGSM were used in locations where no other data were available.

3.4.2 Groundwater Calibration Data

Observed groundwater level data for wells in the model area were obtained from two sources:

- California Water Data Library (WDL); and
- Local data for tribal wells.

In total, 47 calibration wells were used for model calibration: 27 non-tribal wells from WDL and 19 tribal wells. Locations and model calibration ID number for these 47 wells are shown in Figure 3-2.

3.4.3 Stream Flow Calibration Data

Only two stream flow gages with historical Cache Creek flow are available for model calibration. These gages are: Cache Creek near Brooks and Cache Creek near Capay. Locations of these gages were shown previously in Figure 2-9 and metadata for the gages is presented in Table 2-4.

3.5 Calibration Results

The CapayIGSM was calibrated in accordance with the calibration methodology described above. Through that process, the following aquifer parameters presented in Table 3-3 were determined.

Table 3-3: Parameters by Layer

Parameter	Range of Parameter Values				
	Layer 1	*Layer 2*	*Layer 3*	*Layer 4*	*Layer 5*
Hydraulic Conductivity (feet/day)	25 - 50	10	1	4	2
Storage Coefficient (-)	0.01	0.01	0.008	0.008	0.005
Specific Yield (%)	15	10	8	8	5
Leakance (1/day)	0.5	0.1	0.01	0.01	0.02

CapayIGSM calibration results are presented below under the following categories:

- Water Budget
- Groundwater Level
  - Regional Groundwater Levels
  - Local Groundwater Levels
- Stream flow

3.5.1 Water Budget

The CapayIGSM output results are typically summarized in the following five water budgets tables:

- Land and Water Use Budget;
- Groundwater Budget;
- Soil Moisture Budget;
- Stream Reach Budget; and
- Small Watershed Budget.

Although the model simulation time step is daily, these budgets are examined on an annual basis because a daily time step is not reasonable for this purpose nor can it be supported by field data. The annual water budget tables for the entire CapayIGSM area with the current modeling update (water years 1971–2015) are presented in Section 4.

3.5.2 Groundwater Level Calibration

The calibration of the CapayIGSM to the observed groundwater levels is performed in two stages:

- Calibration to the regional observed groundwater levels at specific times; and
- Calibration to the long-term trends and seasonal fluctuations of groundwater levels at specific well locations during the period of observation. Following are the assumptions and results of each stage of the calibration.

Regional Water Levels

Three time periods were selected to calibration regional groundwater levels:

- Fall 1983 (representing wet conditions);
- Spring 1992 (representing drought conditions); and
- Fall 2007 (representing normal conditions).

The CapayIGSM simulated groundwater levels for fall 1983, spring 1992, and fall 2007 are presented in Figure 3-3, Figure 3-4, and Figure 3-5 respectively. These figures also show observed groundwater levels at each calibration well with available data during that time period. These figures show that the simulated groundwater levels closely match the observed groundwater level values.

Local Groundwater Levels

Simulated groundwater levels at each of the 47 calibration were compared with observed data. In addition to groundwater level, long-term trends and seasonal fluctuations were examined. Appendix A contains groundwater level hydrographs comparing simulated and observed data each calibration well and summary of the calibration status at each well.

Out of the 47 total calibration wells, a subset of eight representative calibration wells was selected. These wells are geographically distributed throughout the model as shown in Figure 3-6.

Five wells selected were from the WDL; these wells were selected due to their long period of observed data to compare with the model output. Figure 3-7 through Figure 3-11 present the simulated vs. observed groundwater level hydrographs for the each of the WDL representative wells. These five wells indicate how the model is accurately calibrated on a regional scale.

Three additional tribal wells were selected. Unlike the WDL wells, these wells only have recent data; however, they were selected to represent the calibration results in the three Project area subregions.

Well S1 is representative of the groundwater levels in the tribal agriculture land west of highway 16 (Subregion 5). Figure 3-12 presents the simulated vs. observed groundwater level hydrograph at this well. The simulated and observed data closely match in groundwater level, trend, and seasonal fluctuation. The larger seasonal fluctuations in the well before 2003 are due to higher levels of agriculture groundwater pumping before 2003.

Old Casino Well 3 is representative of the groundwater levels in the CCCR area (Subregion 6). Figure 3-13 presents the simulated vs. observed groundwater level hydrographs at this well. Historically, the model simulation shows a decline in groundwater levels in 1985 when the original on-site CCCR wells came online and another decline in 1997 when an additional on-site CCCR well was activated. In 2003, the original CCCR wells were shut down (groundwater production was shifted to tribal wells west of highway 16) and in addition a leach field was installed leading to sharp increase in groundwater levels. In 2008, the leach field effluent flow was greatly reduced in order to have more recycled water available for golf course irrigation causing a decline in observed groundwater levels. The close match between the simulated and observed data from 2003 and 2007 demonstrates how the model accurately simulates the groundwater levels in the vicinity of CCCR.

MW-11 is representative of the groundwater levels at the golf course (Subregion 7). Figure 3-14 presents the simulated vs. observed groundwater level hydrographs. There is only one year of data overlap between the observed and simulated data; however, the groundwater levels during the overlap are similar.

Groundwater Level Calibration Statistics

Figure 3-15 shows the histogram of residuals between the simulated and observed groundwater levels for all 47 calibration wells. 73 percent of the simulated values in the CapayIGSM fall within 10 feet of the observed values. Similarly approximately 91 percent of the simulated values fall within 20 feet of the observed values. The average mean absolute residual between the simulated and observed groundwater levels is 8.1 feet. These statistics show that the model calibration exceeds the calibration performance targets outlined in Table 3-1.

3.5.3 Stream Flow Calibration

Figure 3-16 shows the daily observed and simulated Cache Creek flow at Brooks Gage from 1983 to 1986 during the period when the gage has data.

Figure 3-17 shows the daily observed flow on the X-axis plotted against the simulated flow on the Y-axis for all the matching dates. These two figures show that the simulated and observed data closely match except during observed flows of less than 100 cubic feet per second (cfs). Discrepancies between observed and simulated Cache Creek could have resulted from several potential sources including: limited accuracy of gage data and limited channel geometry data at low flow conditions. Figure 3-18 shows the observed and simulated Cache Creek flow at Capay Gage from 1971 to 1976 during the period when the model simulation overlaps with the gage data. Figure 3-19 shows the daily observed flow on the X-axis plotted against the simulated flow on the Y-axis for all the matching dates. Again, these two figures show that the simulated and observed data closely match except during low flows where the model simulation tends to overestimate the Cache Creek stream flow.

Stream Flow Calibration Statistics

The correlation coefficient (R2) between the simulated and observed flow was calculated to be 0.978 for the Brooks gage and 0.958 for the Capay gage. These statistics show that the model calibration exceeds the calibration performance targets outlined in Table 3-1.

3.5.4 Summary of Calibration Results

Overall the simulated and observed values for groundwater levels and stream flows closely match and any differences between the data are within the calibration performance targets. Thus, the calibrated CapayIGSM is an excellent analytical tool to analyze the impact of the proposed Project.

Figure 3-1: Model Calibration Process

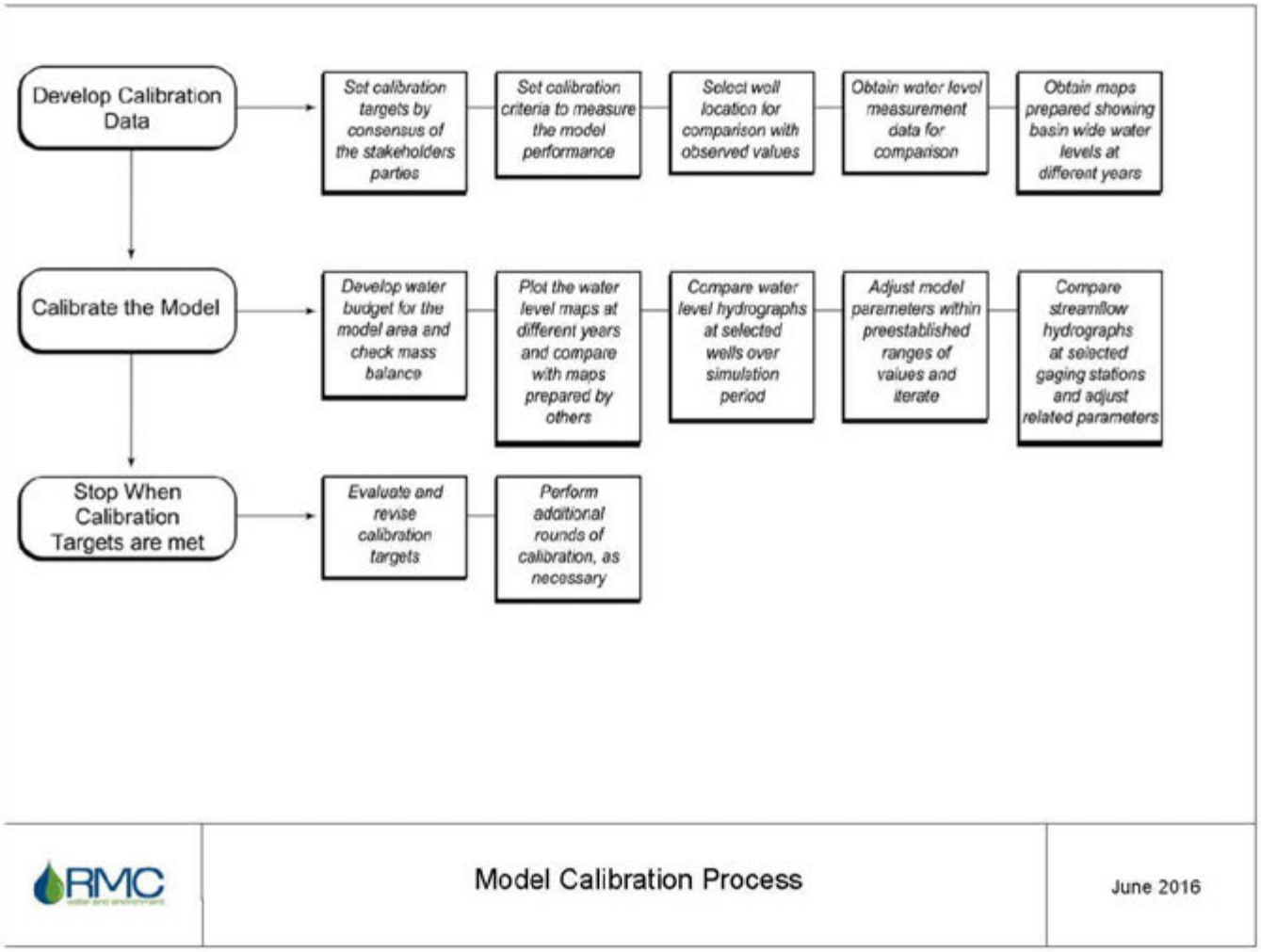


Figure 3-2: Location of Calibration Wells

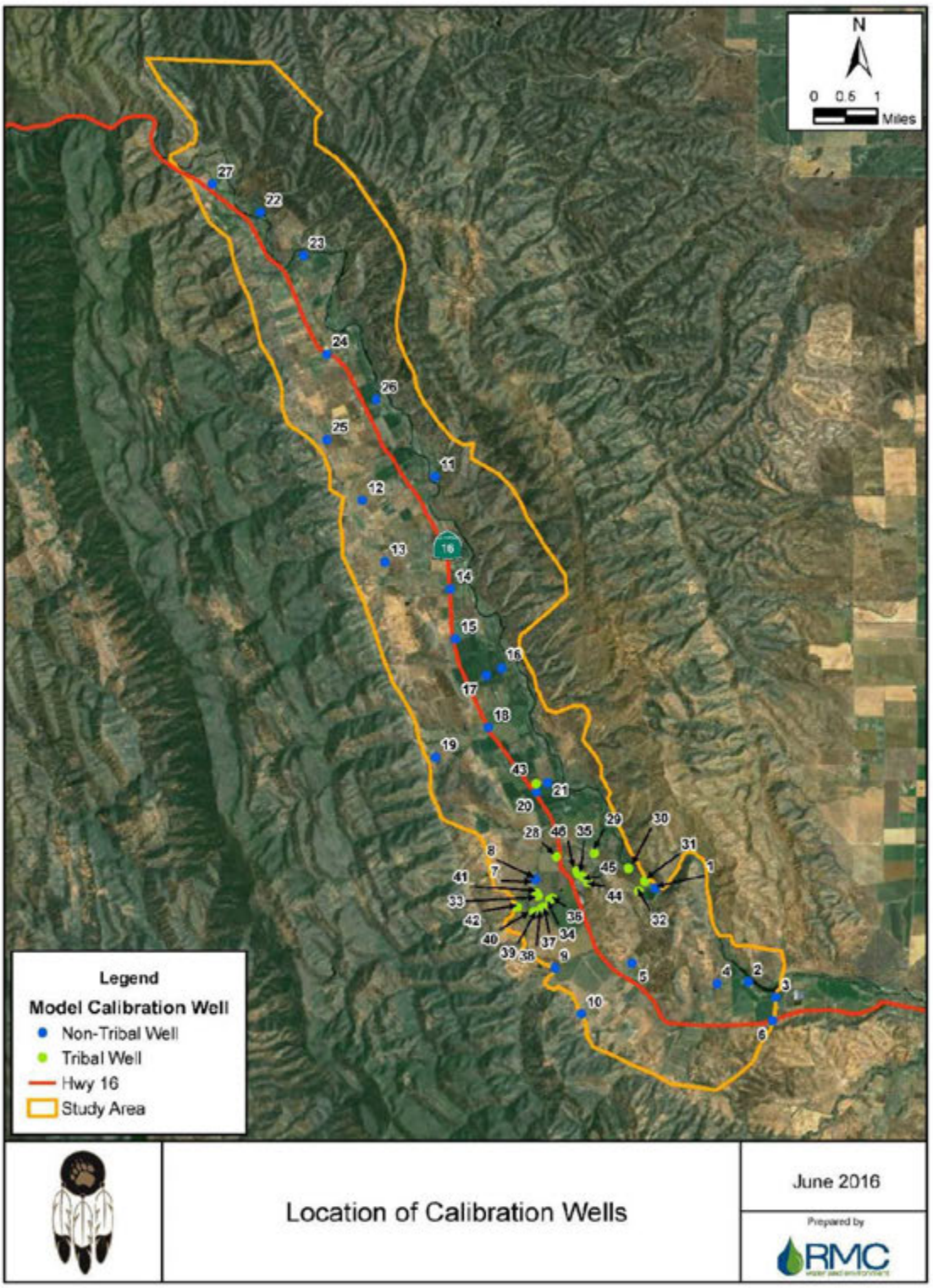


Figure 3-3: Observed and Simulated Groundwater Levels (Fall 1983 – Wet Conditions)

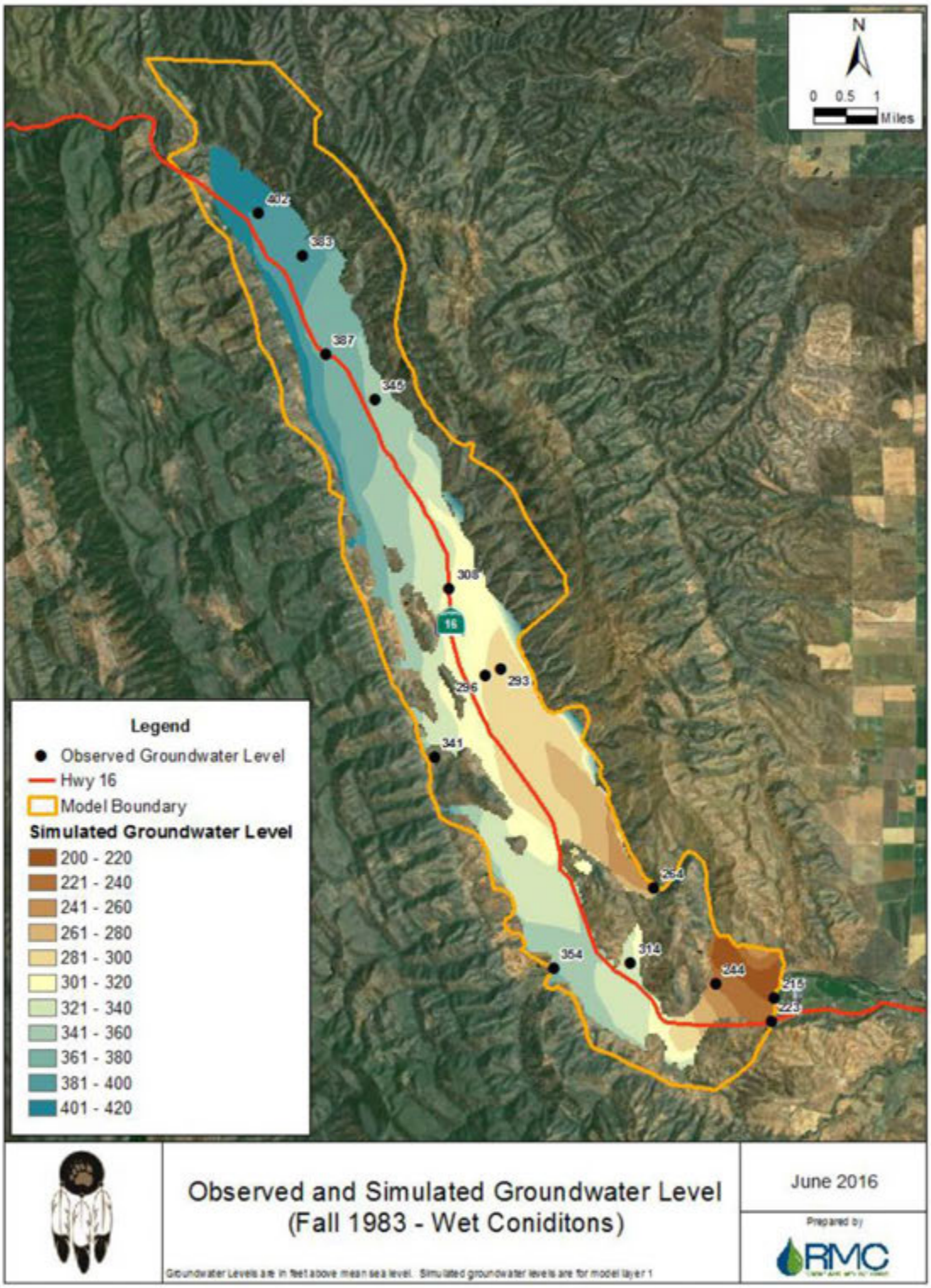


Figure 3-4: Observed and Simulated Groundwater Levels (Spring 1992 – Drought Conditions)

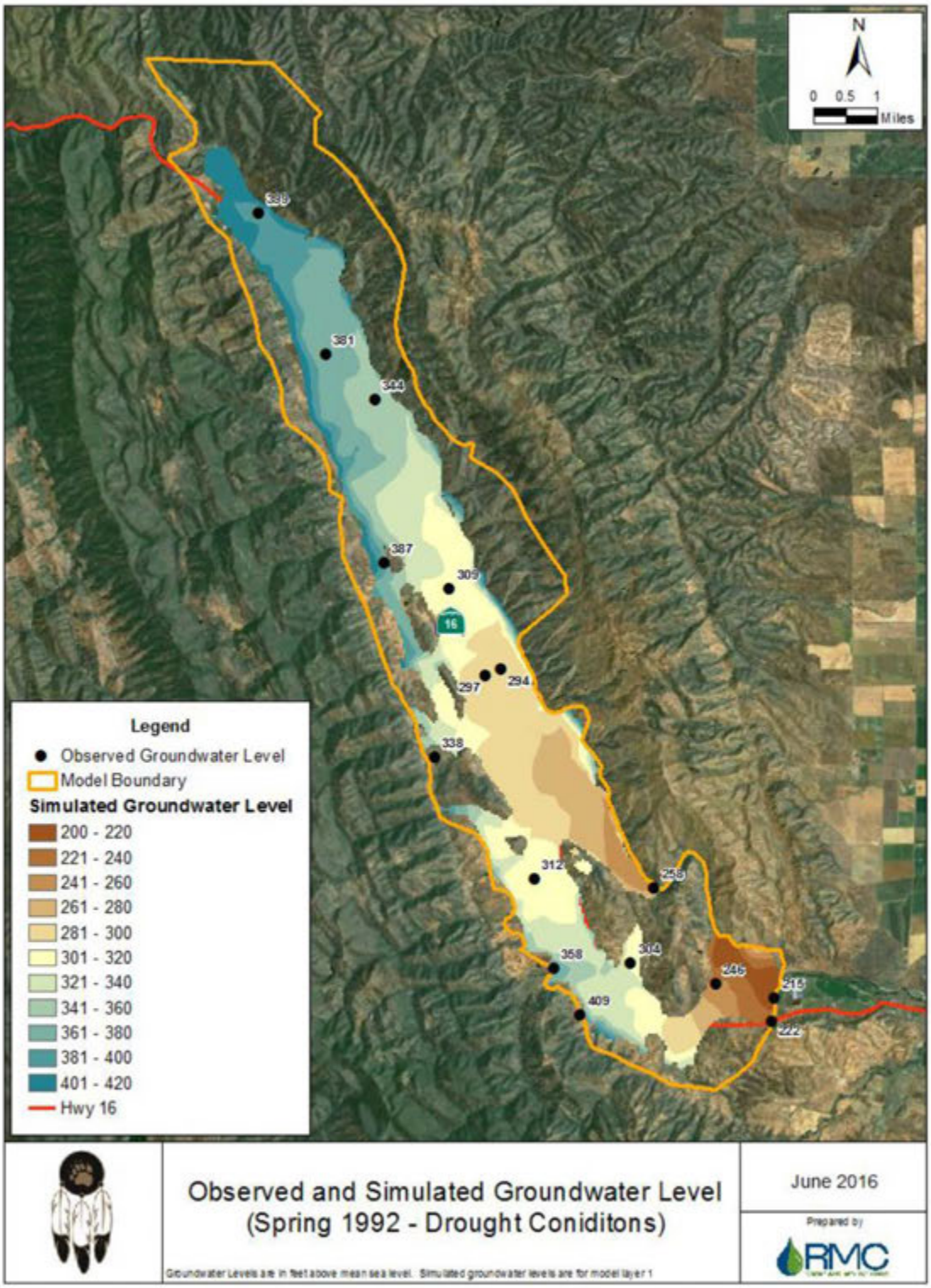


Figure 3-5: Observed and Simulated Groundwater Levels (Fall 2007 – Normal Conditions)

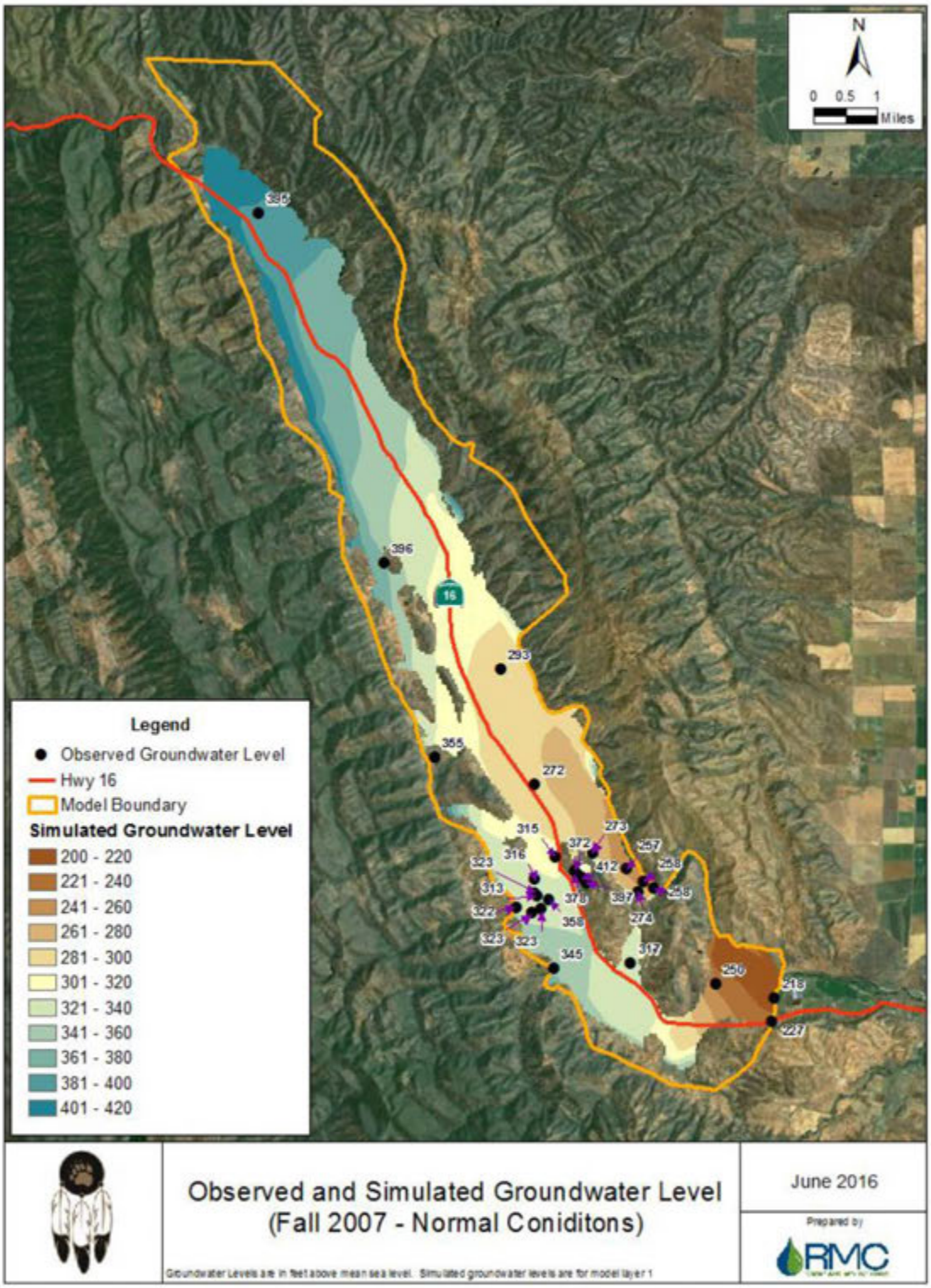


Figure 3-6: Location of Representative Calibration Wells

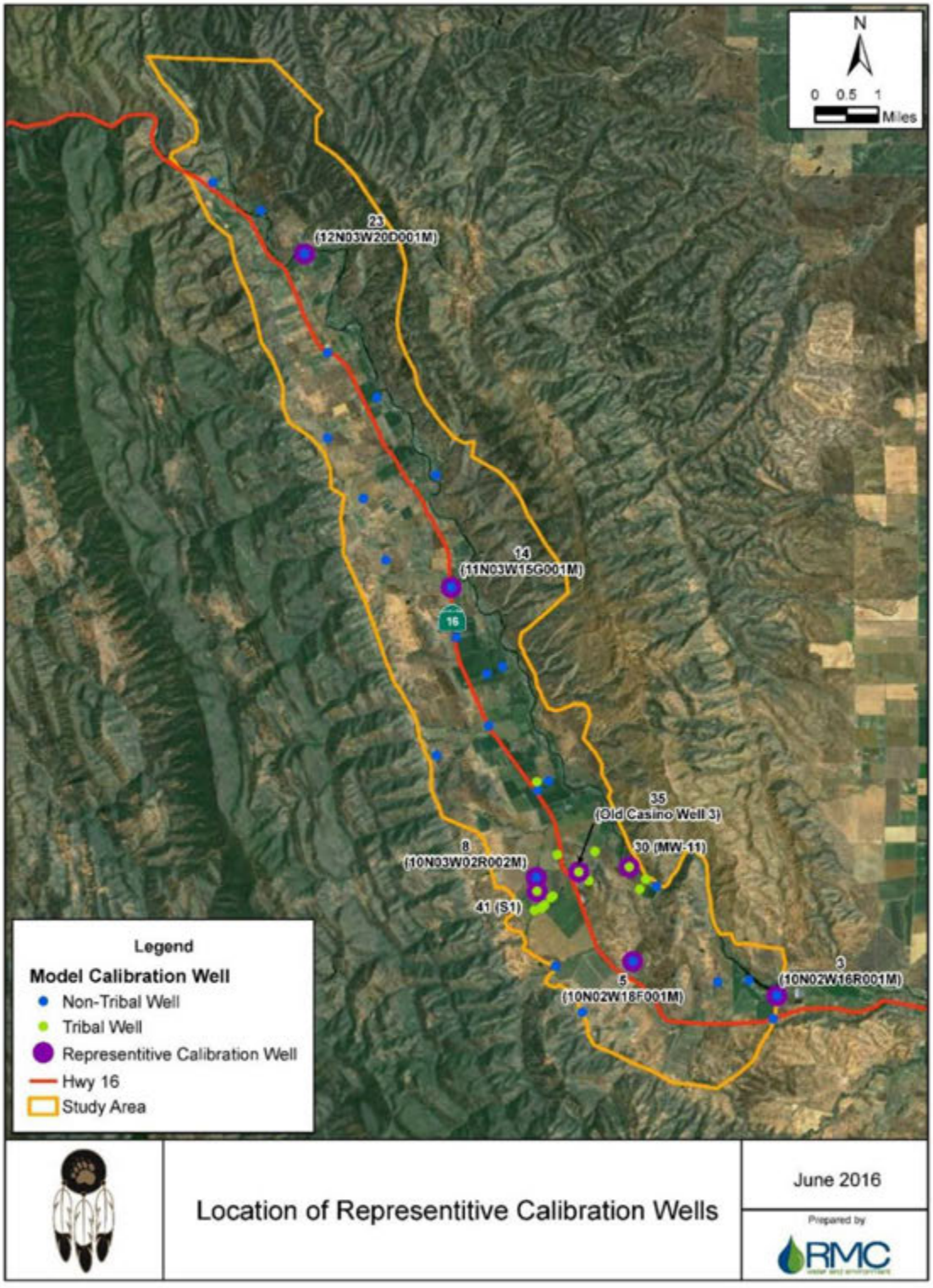


Figure 3-7: Groundwater Level for Calibration Well #23 (12N03W20D001M)

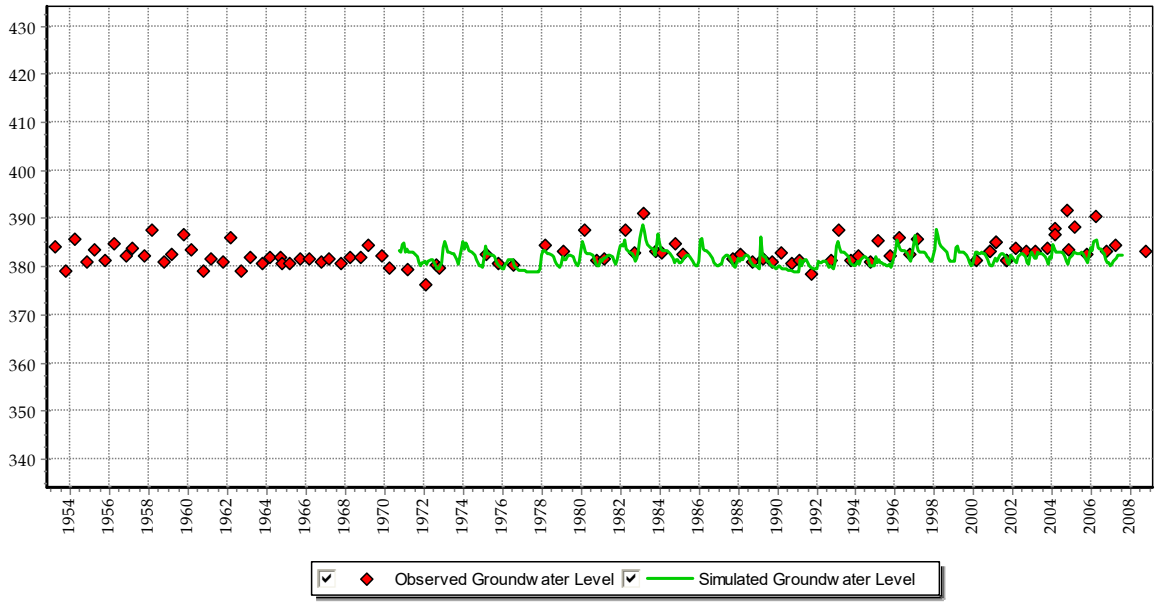


Figure 3-8: Groundwater Level for Calibration Well #14 (11N03W15G001M)

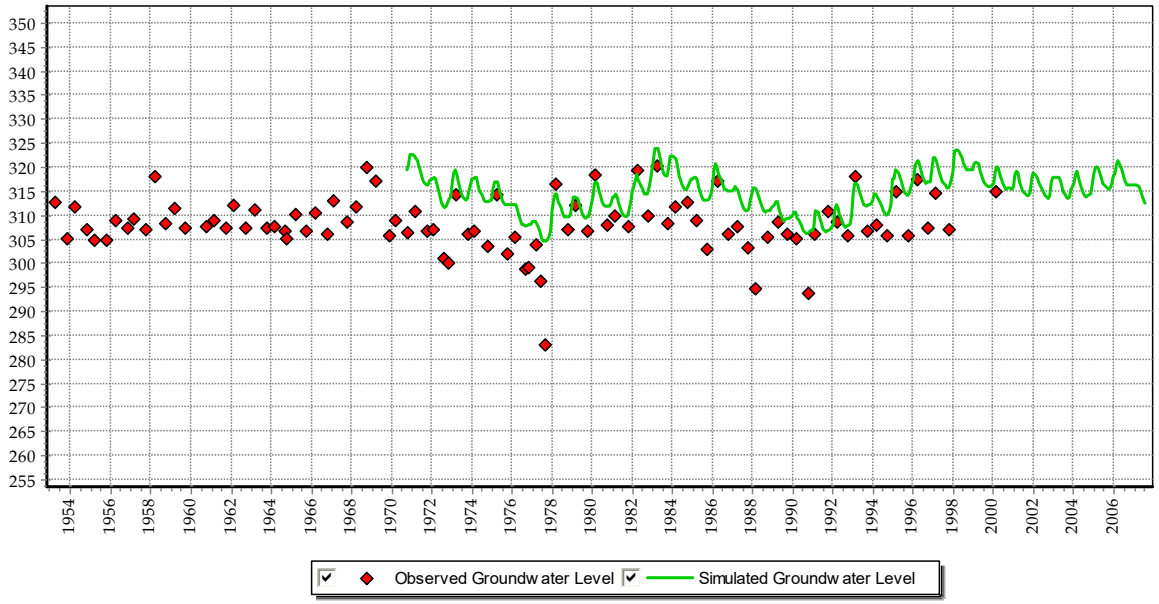


Figure 3-9: Groundwater Level for Calibration Well #8 (10N03W02R002M)

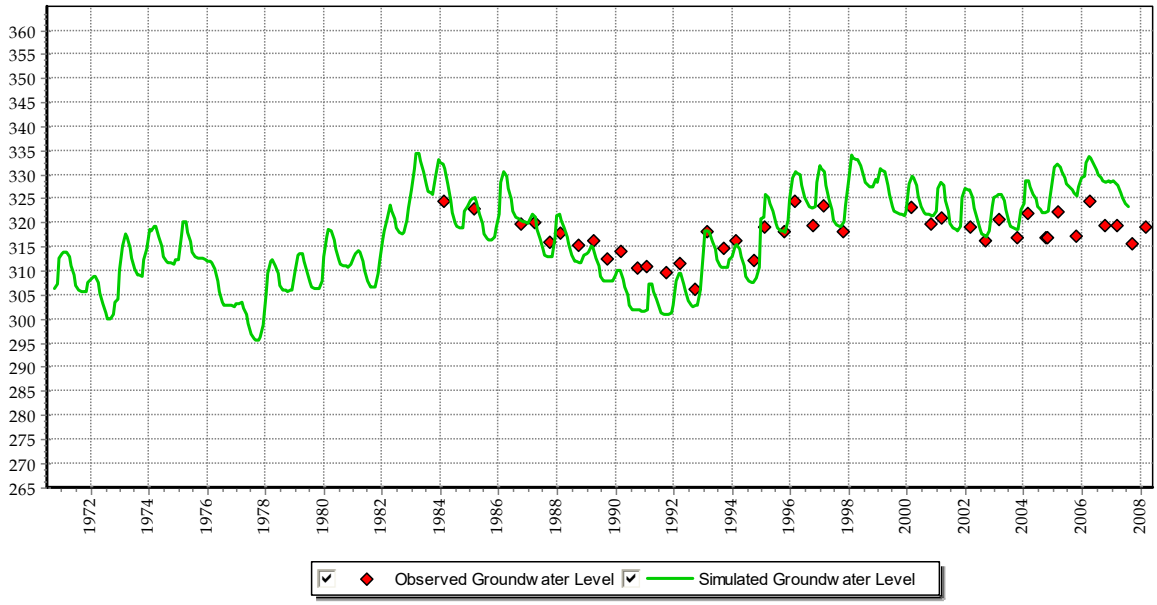


Figure 3-10: Groundwater Level for Calibration Well #5 (10N02W18F001M)

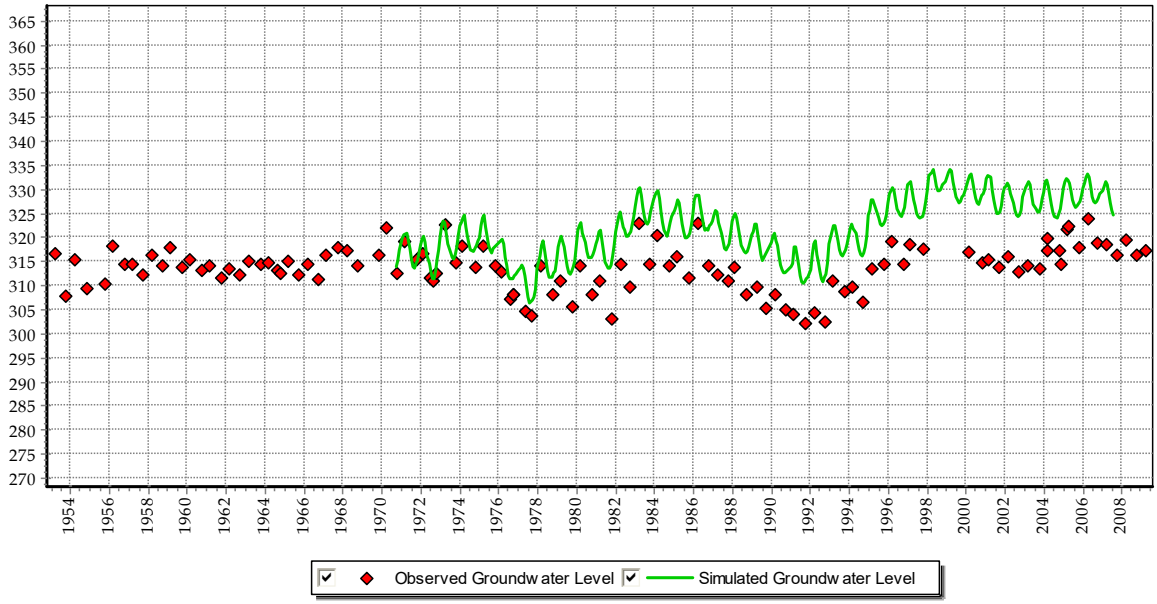


Figure 3-11: Groundwater Level for Calibration Well #3 (10N02W16R001M)

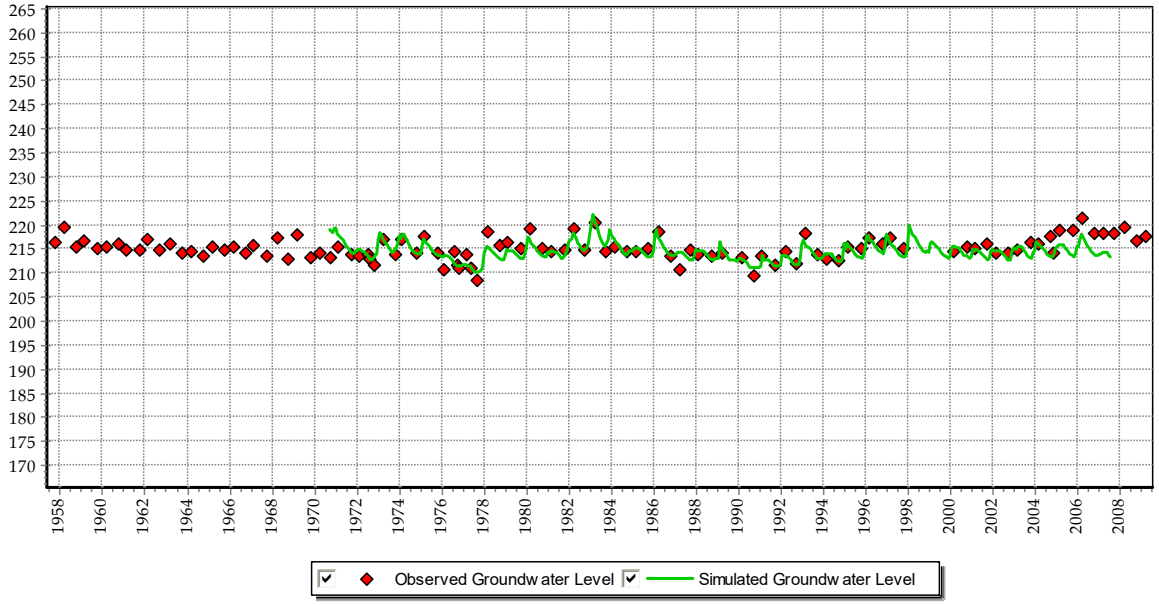


Figure 3-12: Groundwater Level for Calibration Well #41 (S1)

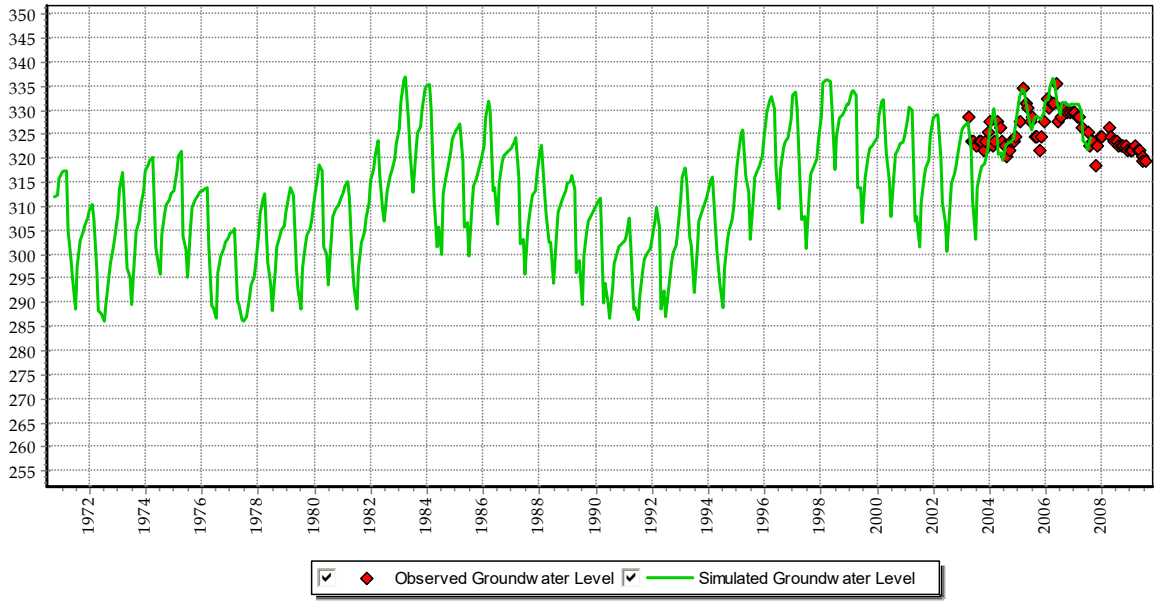


Figure 3-13: Groundwater Level for Calibration Well #35 (Old Casino Well 3)

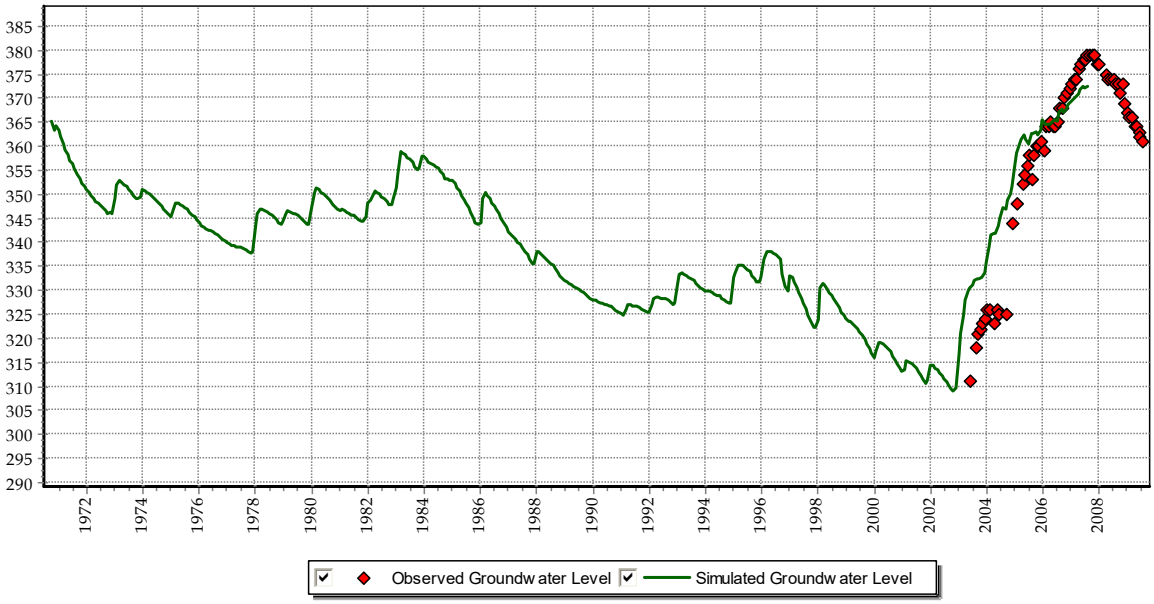


Figure 3-14: Groundwater Level for Calibration Well #30 (MW-11)

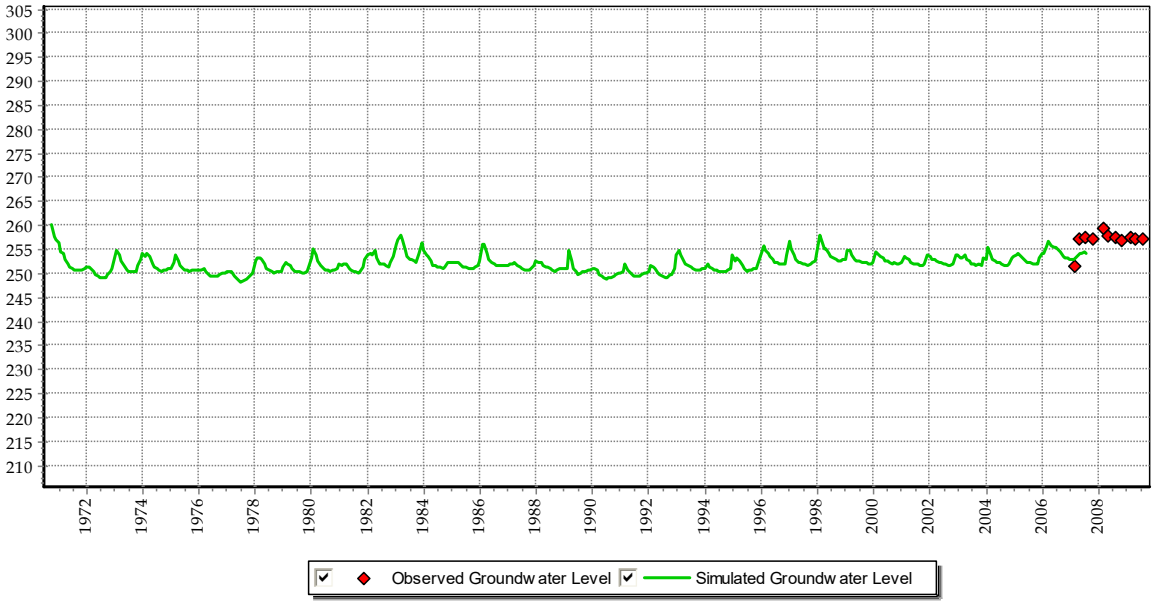


Figure 3-15: Histogram of Deviations between Simulated and Observed Groundwater Levels

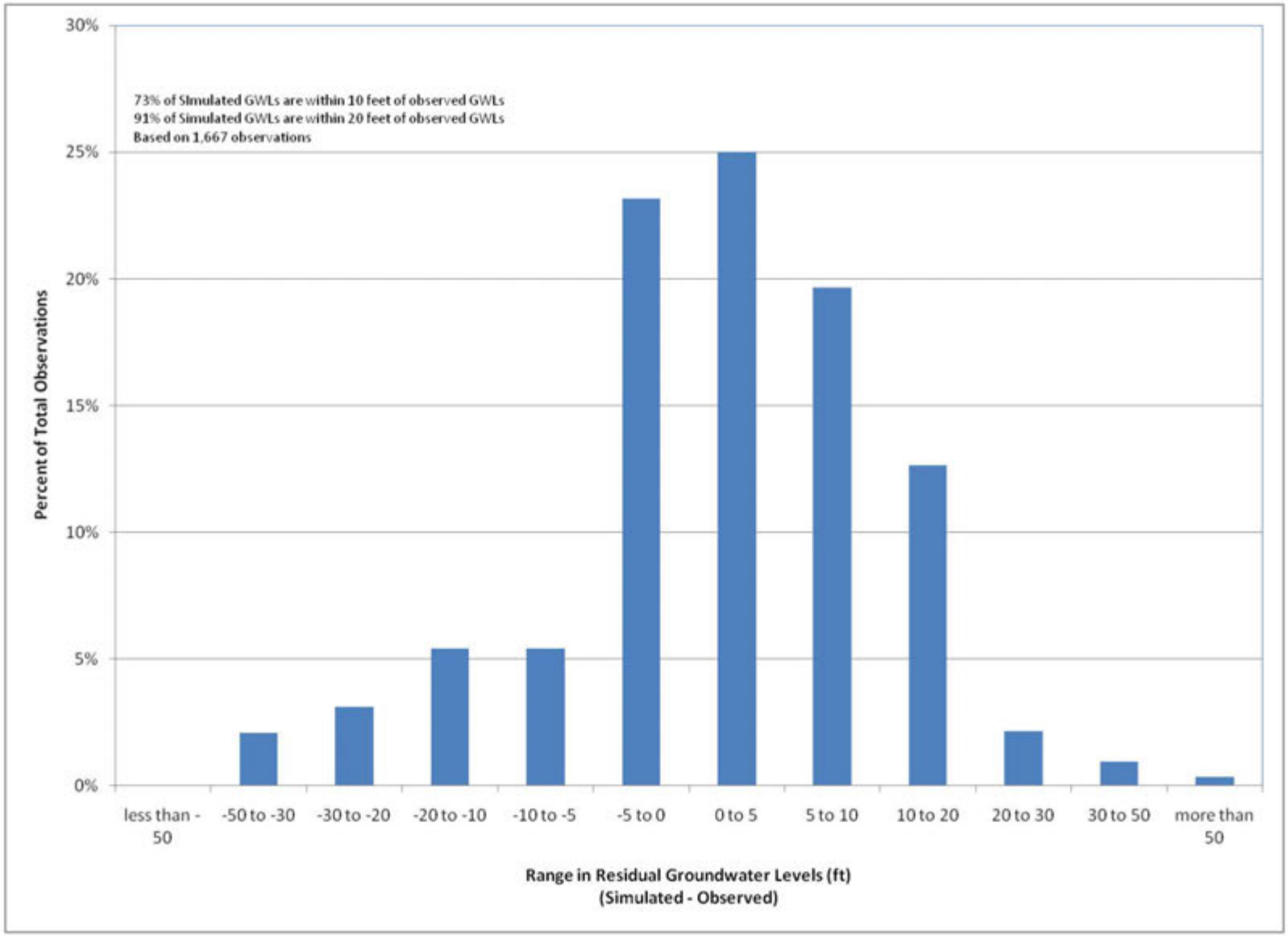


Figure 3-16: Observed and Simulated Cache Creek Stream Flow at Brooks Gage

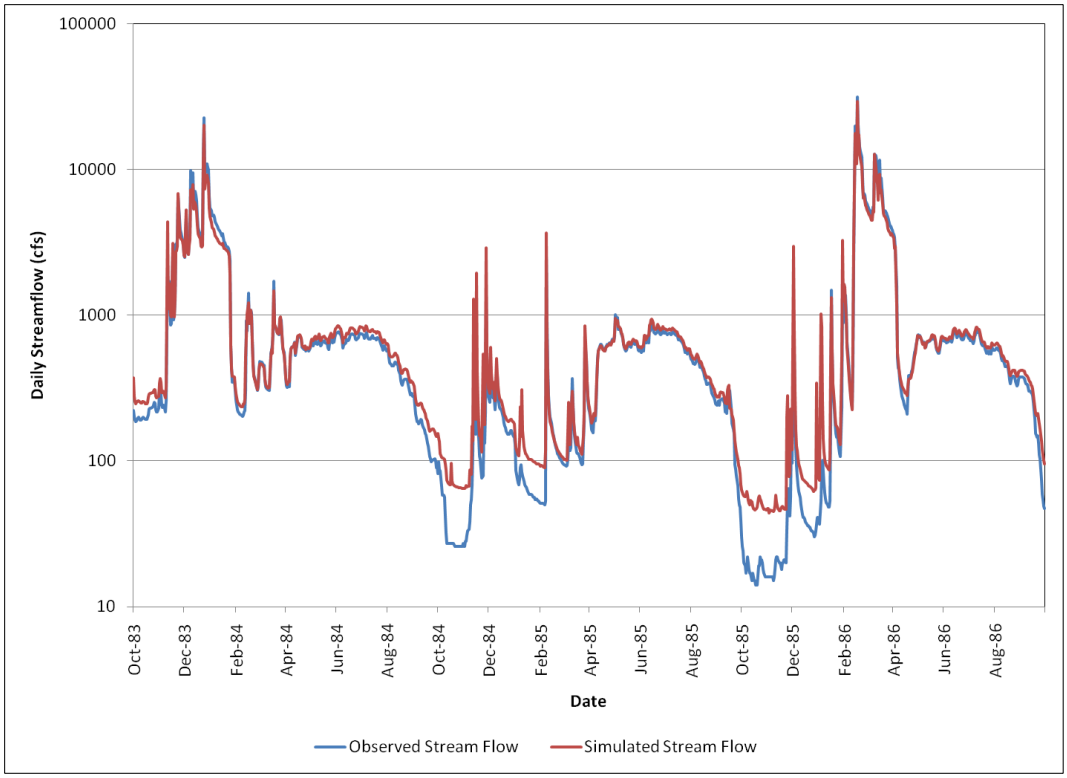


Figure 3-17: Observed vs. Simulated Cache Creek Stream Flow at Brooks Gage

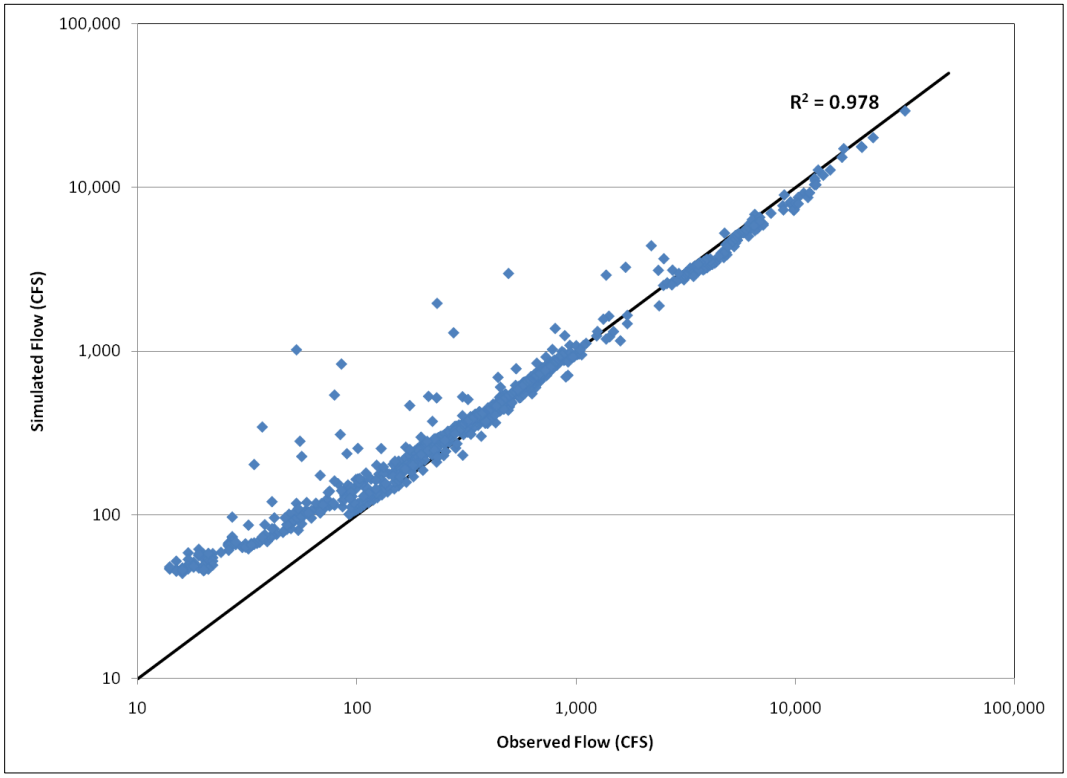


Figure 3-18: Observed and Simulated Cache Creek Stream Flow at Capay Gage

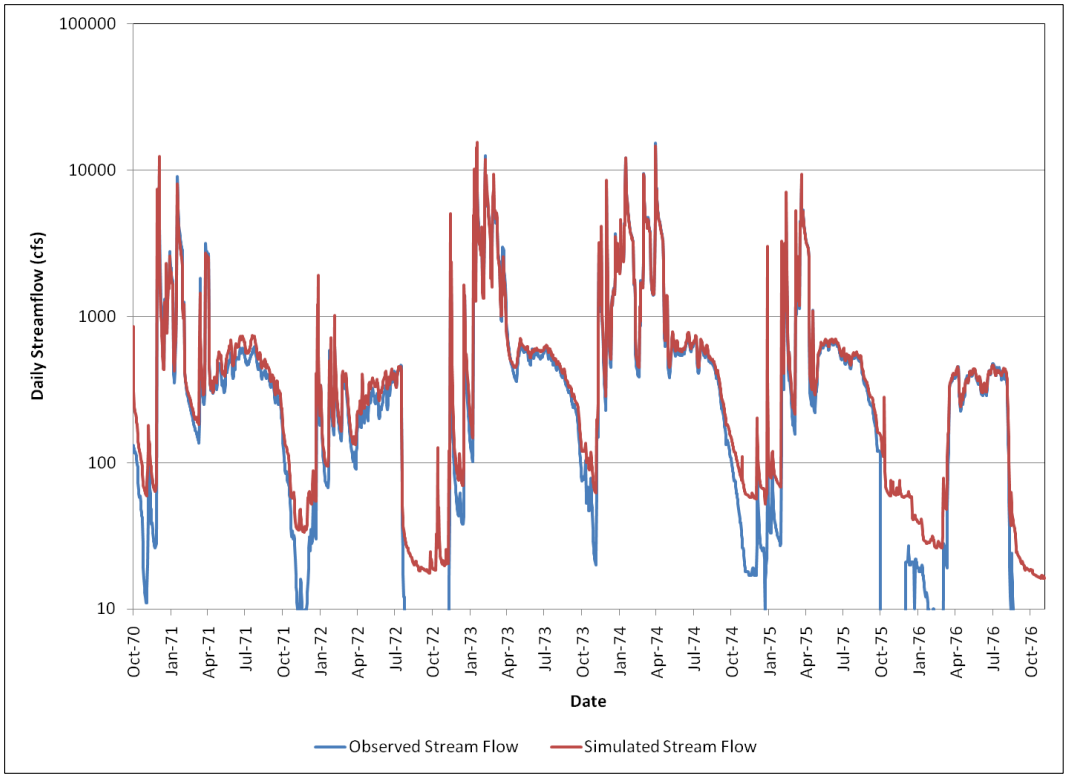
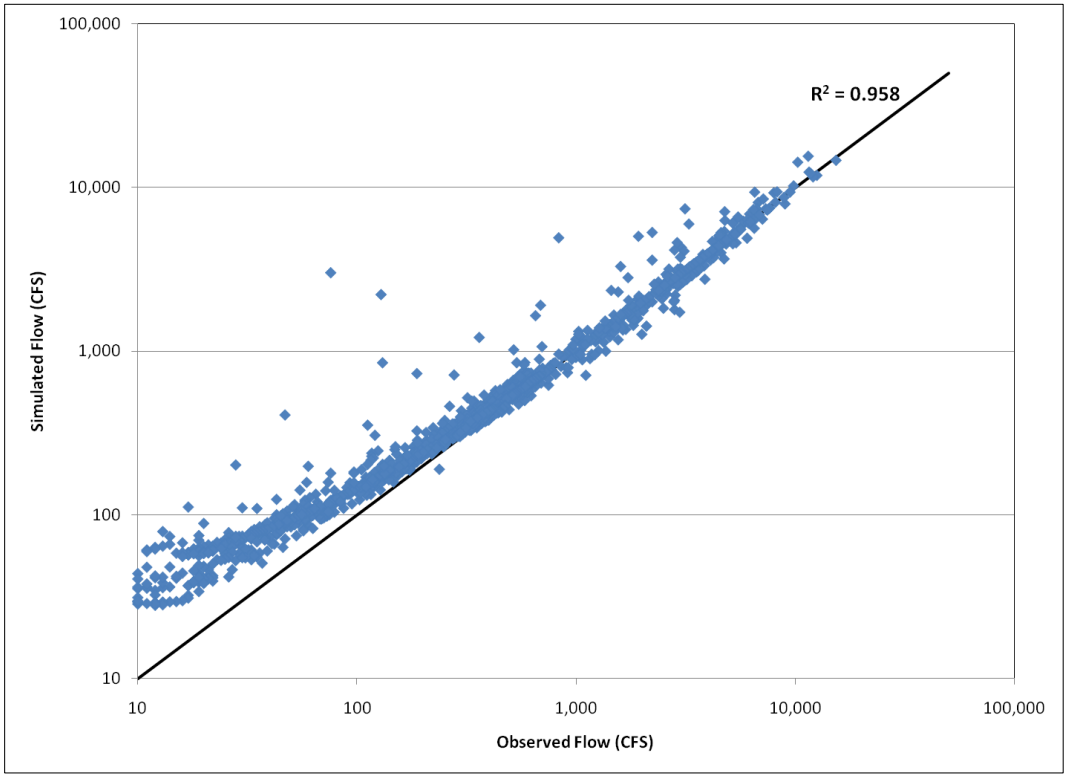


Figure 3-19: Observed vs. Simulated Cache Creek Stream Flow at Capay Gage



Section 4 CapayIGSM Update

The current modeling analysis conducted for the TEIR included modifications to the original CapayIGSM developed in 2010 (the Historical Model described in Section 2 and Section 3) and development of Baseline and Project Scenarios. This section explains the model data and methodologies used for updating the original model through September 2015. Development of the Baseline and Project Scenarios is described in Section 5.

The original CapayIGSM was updated with new data to reflect updated land and water use and to extend the model period for water years 2008-2015 (October 2007 - September 2015). Performance of the updated model was then evaluated by comparing simulated and observed groundwater levels for the extended time period.

4.1 Data Collection

The model update required hydrologic, land use, water use, and demand data for the period from October 2007 to September 2015. Table 4-1 presents the collected data and sources with a brief description. While the Project area was the main focus of the model update, CapayIGSM required extending the datasets for the entire model area.

4.2 Subregions Definitions

The model was divided into eight subregions to calculate water and supply conditions in the model area (Table 2-1, Figure 2-2). The footprint of the Project area and the CCCR have not changed significantly since the 2010 model. Therefore, the subregion definitions were not modified for this update.

4.3 Land Use and Cropping

Land use and cropping patterns were compiled from a DWR 2008 land use survey for Yolo County and incorporated into the model for the period from 2008 through 2015. The 2008 DWR land use survey for Yolo County is the most recent land use data available to represent existing conditions for the model area.

Figure 4-1 shows the 2008 DWR land use map. Overall, native vegetation and agricultural areas dominate the general land use in the Capay Valley, similar to the previous 1989 and 1997 DWR survey data incorporated into the 2010 model. Urban areas are limited to the communities of Rumsey and Guinda, the CCCR, golf course, and rural residential parcels. It was noted that the golf course was classified as urban in the 2008 land use map, as shown in Figure 4-1.

Irrigated crop acreages for the model area were also obtained from the 2008 DWR land use survey. The survey data containing over 80 different crop types were reclassified into the major land use and cropping classes specified in the CapayIGSM. Since the CapayIGSM requires annual crop data, the 2008 survey data was repeated for the model extension through 2015.

As a result of the land use update, agricultural demand was also updated to reflect the changes in the crop coverage, as further explained below.

Table 4-1: Data Collected and Used for CapayIGSM Model Update

Data Type	Source	Description
Land Use and Cropping	DWR 2008 land use survey for Yolo County	2008 land use data covers the entire model area.
Rainfall	NOAA and CIMIS	Daily records from NOAA Winters Gage and CIMIS Esparto Gage were obtained from 10/1/2007 to 9/31/2015.
Evapotranspiration	CIMIS	Daily records for reference evapotranspiration from CIMIS Davis Gage were obtained from 10/1/2007 to 9/31/2015.
Stream Flow	US Geological Survey (USGS)	Daily records of stream flow for Cache Creek tributaries and Bear Creek were obtained for 2007-present.
Groundwater Elevation	DWR WDL and Project area groundwater level data	Groundwater level data from selected WDL wells and Project Area wells were compiled and used as part of calibration evaluation and project impact analysis.
Historical and Current Supply and Demand	Urban and agricultural demand outside of the Project area were estimated Urban demand and supply for the Project Area based on actual records (see Table 4-2)	Demand and supply outside of the Project area were based on similar assumptions as in the 2010 model with the updated hydrology and land use and cropping. Project area urban water supply included groundwater pumping, Cache Creek water, recycled water, and effluent water from the CCCR's Waste Water Treatment Plant (WWTP).
Future Project Scenario Supply and Demand	Future projections of urban demand and supply projections for the Cache Creek Hotel Expansion Project	Urban demand and supply outside of the Project area remains the same as 2015 conditions.
Cumulative Project Scenario Supply and Demand	Future projections of urban demand and supply projections for the new housing development within the tribe community	Urban demand and supply in the rest of the model remains the same as the Project Scenario.

4.4 Rainfall

Figure 2-8 shows the locations of rainfall gages from NOAA and CIMIS in the model area. For the Historical Model update, daily rainfall records from the CIMIS Esparto gage were compiled. The data were scaled down by 86 percent using the same approach used in the 2010 model (Section 2.3.1). Figure 4-2 shows annual rainfall data used in the entire model simulation period from the Winters Gage (1971-2006) and Esparto Gage (2007-2015).

4.5 Evapotranspiration

ETo data for the Historical Model update were obtained from the CIMIS Davis gage from 2007-2015. Figure 4-3 shows the average monthly ETo used in the 2010 Model (1971-2007) and the updated Historical Model (1971-2015). Variations of evapotranspiration by crop type were calculated using the same data as in the 2010 model.

4.6 Stream Flow

Figure 2-9 shows the location of the USGS and DWR stream flow gages in and above the model area. As described in Section 2, in the 2010 model Cache Creek flows entering the model area were estimated based on the aggregate flows from the Cache Creek tributaries and Bear Creek upstream of the model area. This approach was developed because the DWR Rumsey gage (located at the northern end of the model area) had too many data gaps. For updating the Historical Model, the same approach was applied and data from three gages were compiled for the Cache Creek Main Fork near Lower Lake, Cache Creek North Fork near Clearlake, and Bear Creek near Rumsey. In examining the compiled data, the gages had too many data gaps during the 2008-2015 period and it was not possible to estimate the daily flows using the previous approach. However, data from the DWR Rumsey gage had daily records available for the model extension period and those data were incorporated in the updated Historical Model. Data were nearly complete with the exception of missing some daily records (36 days with missing data) that were estimated from daily averages of the long-term records.

4.7 Boundary Conditions

Boundary conditions at the southern end of the model domain were repeated from the 2010 model for October 2007 to September 2015. This assumption was considered reasonable based on the analysis of a well hydrograph near the boundary that showed relatively stable levels for the 2008-2015 period.

In addition, as a result of the update to the hydrologic data (i.e., rainfall), inflows from the small watersheds into the model area at the model boundary were also calculated by the model through September 2015. This represents surface water flow contribution from the 117 small watersheds delineated in the 2010 model, as shown in Figure 2-14.

4.8 Water Supply and Demand

As a result of the land use and crop update, water supply and demand were updated in the model through September 2015. Supply and demand in the model area were calculated in the same manner as in the 2010 model, as further explained in Section 2. This section describes the general water supply and demand for the entire model. The Project specific water supply and demand data for the CCCR, golf course, and tribe housing community are discussed separately in the Project Area Data Update section below.

4.8.1 Urban Water Supply and Demand

Urban demand represents the urban water use in the CapayIGSM. For the model update, urban water use was estimated based on urban land use area multiplied by a water use factor of 2.0 AF per acre, based on the same approach used in the 2010 model, as described earlier in Section 2. It was assumed that the urban water supply within the model area is entirely groundwater, consistent with the approach used in the 2010 model.

4.8.2 Agricultural Water Supply and Demand

As a result of the land use and hydrologic data update, agricultural water demand was updated to reflect changes in the cropping patterns. Agricultural water demand was calculated by the model based on the consumptive use methodology adopted in the 2010 model. DWR land use surveys document the source of irrigation water for land parcels. Figure 4-4 shows parcels that are surface water, groundwater, and mixed-

source water users based on the 2008 DWR land use survey. In the 2010 model, it was assumed that areas identified as being supplied by surface water meet 100 percent of their demand with surface water; areas identified as being supplied by groundwater meet 100 percent of their demand with groundwater; and mixed parcels receive 50 percent from each source. The same approach was applied in this update.

It should be noted that the updated land use data showed fewer parcels identified as being supplied by surface water for Subregion 8. For consistency with the 2010 model, those parcels were assumed to be supplied by surface water in the updated model. In addition, the 2008 land use survey reported no surface water use for Subregion 4. In the absence of data, the same assumption in the 2010 model was used in the updated model. The assumptions related to Subregions 4 and 8 were applied during the evaluation of the model update in an effort to improve the match between the simulated and observed groundwater levels.

4.9 Project Area Data Update

The Project-area specific data were compiled and incorporated into the updated Historical Model. These data include land use, well production, water supply, and demand obtained for the following areas, as summarized in Table 4-2.

- CCCR (Subregion 6)
- Golf course (Subregion 7)
- Tribe agricultural land (Subregion 5)
- Tribe's housing community (Subregion 3)

As mentioned above, there are no significant land use changes in the Project area and CCCR with the exception of the Séka Hills Olive Mill (Olive Mill) located in the northern portion of the Tribe's agricultural land (Subregion 5). According to flow data records, water supply to Olive Mill started in May 2012.

4.9.1 Water Supply

The main water supply sources in the Project Area include the CCCR wells, tribe housing community wells, recycled water and reclaimed effluent water from the CCCR's WWTP (Table 4-2). In addition, the Project area receives water from Cache Creek, which is used for the CCCR and golf course irrigation when water is available during the irrigation season (April-October).

4.9.2 CCCR

Daily and monthly well pumping and potable water use data were obtained from October 2007 to September 2015 and incorporated into the updated model. These data included pumping records for relevant wells, the distribution of well water to the CCCR, well water used for CCCR landscape irrigation, and Olive Mill for olive processing. The data also reported finished water (well water less brine) that is used in the golf course in the operation at the Clubhouse, Comfort Station, and turf maintenance building.

There are three existing wells available to serve CCCR. CCCR primarily relies on CCCR-1 and CCCR-2 wells (also referred to as Well 1 and Well 2, respectively). Well CCCR-3 is also available and may be used to supply CCCR; however, based on the records used for the model update from October 2007 to September 2015, wells CCCR-1 and CCCR-2 were the main source of groundwater for the CCCR.

Table 4-2: Project Area Data Used for CapayIGSM Model Update

Data Type		Data Description
Land Use		• No significant changes in the Project area with respect urban footprint with the exception of the Séka Hills Olive Mill incorporated within the Tribal agricultural land in 2012.
Production Wells	• CCCR Wells: Wells 1 and 2 located in the Tribe agricultural land • Tribal Housing Community wells: One domestic well and 75A irrigation well located within the Tribe Housing Community	• Same wells in the Project area as in 2010, i.e., no new wells were incorporated into the model. • Daily and monthly pumping records were provided for CCCR Wells 1 and 2 for 2007-2015. • Monthly pumping records for the Tribal Housing Community were available for 2009-2015. Data for 2008 were assumed based on average monthly use.
Water Supply Sources	• CCCR Wells 1 and 2 pumping for potable use and landscape irrigation • Tribal Housing Community wells pumping for domestic and landscape irrigation • Cache Creek diversions for CCCR, Golf course irrigation, and agriculture • Recycled water used for public toilets • Effluent water from used for Golf course irrigation	• Potable water supply data included well water for CCCR, CCCR irrigation, and Olive Mill. Golf Course irrigation is served by finished water (well water less brine) that comes from the CCCR Wells 1 and 2. • Potable water supply included well water for the Tribe Housing Community domestic and irrigation use • Irrigation water supply data included well water for CCCR landscape, Golf course turf irrigation, and Tribal Housing community landscape irrigation
Recycled Water Use	Used for CCCR public toilets	Daily and monthly records were provided as part of the waste water flow records
Treated Wastewater Disposal	Disposal of effluent water on the CCCR leach fields (emergency use only)	Daily and monthly records were provided as part of the waste water flow records

4.9.3 Tribe Housing

Currently, the Tribe's housing community pumps one domestic well (also referred to as YDH-2) and one irrigation well (referred to as 75A Irrigation Well or YDH-3) to provide water within the community. The 2010 model included YDH-1 well, but this well is no longer being pumped.

In the 2010 model, the tribal housing urban demand was estimated using 2 AF per acre, which was the same assumption used for the rest of the model area. For the model update, monthly flow records from the domestic and irrigation use were obtained from August 2009 to September 2015 and incorporated into the model. No monthly flow records were available for October 2007 through July 2009. To fill the data gaps, monthly domestic and irrigation pumping were estimated from the available flow records as a reasonable representation of water used within the community.

4.9.4 Recycled Water Use and Treated Wastewater Disposal

Daily and monthly data for the wastewater treatment plant effluent distribution were obtained from October 2007 to September 2015. The data included deliveries of reclaimed water to public toilets in CCCR, effluent water used for the golf course irrigation and disposal of effluent to on-site CCCR leach fields (for emergency use only). Monthly records for these data were incorporated into the model.

4.10 Updated Historical Model Results

The updated Historical Model results are summarized in this sub-section based on the following model outputs:

- Land and water use budget;
- Groundwater budget;
- Groundwater hydrographs for selected representative calibration wells; and
- Groundwater contour map of groundwater levels for the entire model area.

The budget results are shown for the entire model simulation period. The evaluation of the model calibration was presented through comparison of historical data and simulated groundwater levels from the updated Historical Model.

4.10.1 Water Budget Summary for the Entire CapayIGSM Area

Annual land and water use and groundwater budget summary tables are presented in Table 4-3 and Table 4-4, respectively. These budget outputs provide key hydrologic components of the model area. The land and water use budget summary includes agricultural and urban land use, agricultural and urban water demand, surface water supply, groundwater supply, and pumping/export volumes between the model subregions. The groundwater budget summary presents inflows and outflows in the model area and resulting change in groundwater storage.

4.10.2 Regional Water Levels

Simulated regional groundwater levels are shown in Figure 4-5 at the end of the simulation period (i.e., for September 2015). Figure 4-5 also shows observed groundwater levels at calibration wells with available data for fall 2015 conditions. At the regional scale, simulated groundwater levels match the observed data closely.

4.11 Evaluation of Model Calibration

The evaluation of the model calibration was performed by comparing simulated groundwater elevations to measured data for long-term trends as well as seasonal fluctuations at eight selected representative calibration wells used in the model update (see Figure 4-6 for well locations). These include five wells selected from the WDL and three tribal wells. The WDL wells were selected due to their long period of observed data. Tribal wells have recent data only, but they were used to evaluate the model performance within the Project area. As discussed in Section 3, Tribal wells were used in the calibration process to show the calibration results in the three Project area subregions.

These eight wells are similar to the representative calibration wells used in the 2010 model, with two exceptions. Old Casino Well 3 that was used in the 2010 model was excluded from the current evaluation because of data discrepancies. WDL well 11N03W15G001M was used in the 2010 model, but the well only had observed data through 2000. This well was replaced with another WDL well located in the same vicinity with a longer period of record.

Figure 4-7 through Figure 4-11 present the simulated versus observed groundwater level hydrographs for the five representative WDL wells. The model simulated results represent average groundwater levels for

the five model layers. Overall, the simulated water levels follow the observed data closely, suggesting the updated Historical Model performs well on a regional scale.

Figure 4-12 through Figure 4-14 show the simulated and observed groundwater levels at wells MW-11, B3, and S1, respectively. At these three locations, simulated and observed groundwater levels match well and follow similar long-term and seasonal trends.

Overall, the results show a close match between the simulated and observed data both at the regional scale (Figure 4-5) and local scale at the selected representative calibration wells (Figure 4-7 through Figure 4-14). Therefore, the model is considered suitable to use for the development of the Baseline and the Project Scenarios discussed in Section 5.

Table 4-3: Historical Water Use Budget for the Entire CapayIGSM Area

Year	Agriculture Acres	Urban Acres	Agriculture Demand (AF)	Urban Demand (AF)	Groundwater Pumping (AF)	Surface Water Diversion (AF)	Import (AF)	Shortage (AF)
1971	9,277	60	26,911	120	21,157	3,693	2,181	0
1972	9,277	60	29,425	120	23,145	4,026	2,370	2
1973	9,277	60	28,267	120	22,217	3,878	2,291	0
1974	9,277	60	25,922	120	20,350	3,577	2,115	0
1975	9,277	60	25,789	120	20,255	3,553	2,101	1
1976	9,277	60	27,626	120	21,726	3,803	2,217	0
1977	9,277	60	26,506	120	20,866	3,635	2,126	0
1978	9,277	60	25,052	120	19,684	3,447	2,041	0
1979	9,277	60	27,024	120	21,219	3,723	2,202	0
1980	9,277	60	24,850	120	19,537	3,421	2,014	0
1981	9,277	60	27,786	120	21,823	3,819	2,264	1
1982	9,277	60	17,206	120	13,562	2,369	1,395	0
1983	9,277	60	26,986	120	21,178	3,725	2,204	0
1984	9,277	60	36,558	120	28,743	5,006	2,928	1
1985	9,277	64	28,545	252	22,585	3,910	2,302	0
1986	9,277	65	27,873	252	22,042	3,826	2,256	0
1987	9,277	65	31,363	252	24,742	4,313	2,561	0
1988	9,277	65	28,775	252	22,783	3,944	2,299	1
1989	9,277	65	25,756	252	20,439	3,522	2,046	0
1990	9,277	65	28,806	252	22,783	3,954	2,317	3
1991	9,277	65	29,249	252	23,095	4,018	2,383	2
1992	9,277	65	28,612	252	22,580	3,938	2,333	10
1993	8,819	137	24,410	252	19,292	3,276	2,094	-1
1994	8,666	161	25,368	408	20,239	3,404	2,137	0
1995	8,666	161	21,683	408	17,294	2,905	1,892	0
1996	8,666	161	22,815	408	18,145	3,073	2,007	1
1997	8,666	161	29,513	420	23,541	3,954	2,437	0
1998	8,666	161	17,394	420	13,922	2,344	1,547	0
1999	8,666	161	25,956	420	20,675	3,469	2,233	0
2000	8,666	161	23,410	420	18,653	3,145	2,031	0
2001	8,666	161	26,823	420	21,385	3,582	2,276	0
2002	8,666	161	25,968	420	20,721	3,477	2,191	0
2003	8,666	161	22,645	420	18,027	3,050	1,986	1
2004	8,271	232	28,621	733	22,706	4,017	2,635	0
2005	8,139	256	21,155	733	16,926	2,950	2,015	1
2006	8,130	256	21,737	733	16,873	3,416	2,183	1
2007	8,127	256	24,156	733	18,808	3,792	2,294	2
2008	7,285	484	24,961	1,653	20,442	4,137	2,033	1
2009	7,004	561	21,468	1,867	17,798	3,653	1,889	-5
2010	7,004	561	18,163	1,615	15,137	3,087	1,558	-5
2011	7,004	561	17,839	1,556	14,942	2,906	1,589	-40
2012	7,004	561	21,227	1,666	17,631	3,453	1,843	-37
2013	7,004	561	24,487	1,673	20,272	3,979	1,984	-74
2014	7,004	561	22,428	1,625	18,567	3,613	1,925	-53
2015	7,004	561	23,853	1,650	19,622	3,874	2,035	-27
Average	**8,634**	**189**	**25,355**	**541**	**20,181**	**3,592**	**2,128**	**-5**

Note: Shortage represents water demand not met by surface water diversions, imports, or groundwater pumping. Positive values represent shortage and positive values represent surplus.

Table 4-4: Historical Groundwater Use Budget for the Entire CapayIGSM Area

Year	Deep Percolation (AF)	Loss to Cache Creek (AF)	Artificial Recharge (Casino Leach Fields) (AF)	Boundary Inflow (AF)	Groundwater Pumping (AF)	Change in Storage (AF)
1971	16,402	-31,076	0	25,398	21,157	-10,725
1972	9,462	-18,206	0	16,721	23,145	-15,026
1973	30,434	-23,862	0	46,671	22,217	30,694
1974	18,433	-23,561	0	33,727	20,350	8,375
1975	16,751	-23,777	0	29,099	20,255	1,908
1976	5,940	-14,849	0	3,468	21,726	-26,885
1977	6,163	-11,058	0	7,842	20,866	-17,934
1978	29,024	-19,578	0	47,489	19,684	36,877
1979	16,302	-20,756	0	27,896	21,219	2,321
1980	26,506	-25,881	0	35,115	19,537	16,133
1981	11,084	-19,188	0	18,315	21,823	-11,389
1982	26,565	-28,890	0	47,083	13,562	30,942
1983	38,349	-38,043	0	47,977	21,178	26,909
1984	20,655	-34,086	0	23,815	28,743	-17,986
1985	13,611	-26,583	0	25,462	22,585	-9,893
1986	29,329	-31,590	0	38,999	22,042	14,400
1987	8,926	-21,061	0	13,493	24,742	-23,071
1988	17,853	-23,940	0	29,330	22,783	330
1989	10,436	-17,811	0	19,340	20,439	-8,543
1990	8,503	-16,787	0	14,193	22,783	-16,638
1991	14,838	-14,413	0	24,399	23,095	1,594
1992	17,221	-19,771	0	30,702	22,580	5,469
1993	28,917	-26,144	0	42,138	19,292	25,464
1994	10,635	-22,285	0	21,947	20,239	-9,623
1995	34,944	-38,801	0	47,239	17,294	25,768
1996	25,281	-31,167	0	37,047	18,145	13,114
1997	23,337	-32,803	0	26,832	23,541	-6,086
1998	34,081	-38,830	0	43,404	13,922	24,534
1999	11,057	-29,164	0	19,269	20,675	-19,120
2000	18,191	-28,655	0	26,327	18,653	-2,943
2001	16,494	-27,502	0	24,666	21,385	-7,709
2002	18,904	-27,596	0	27,274	20,721	-2,089
2003	18,727	-27,834	23	31,212	18,027	4,046
2004	21,349	-28,138	22	30,762	22,706	1,244
2005	23,069	-33,676	50	37,448	16,926	9,968
2006	20,291	-30,501	40	33,141	16,873	6,090
2007	7,471	-22,493	71	10,929	18,808	-22,539
2008	14,787	-22,667	38	21,368	20,442	-7,016
2009	10,434	-21,211	0	16,909	17,798	-11,565
2010	12,905	-19,322	13	25,375	15,137	3,773
2011	14,351	-21,018	1	30,590	14,942	8,895
2012	7,392	-16,716	14	10,302	17,631	-16,467
2013	12,163	-17,969	25	18,325	20,272	-7,732
2014	6,675	-14,547	2	8,618	18,567	-17,808
2015	10,263	-11,296	0	20,071	19,622	-554
Average	**17,656**	**-24,336**	**7**	**27,061**	**20,181**	**211**

Figure 4-1: 2008 General Land Use

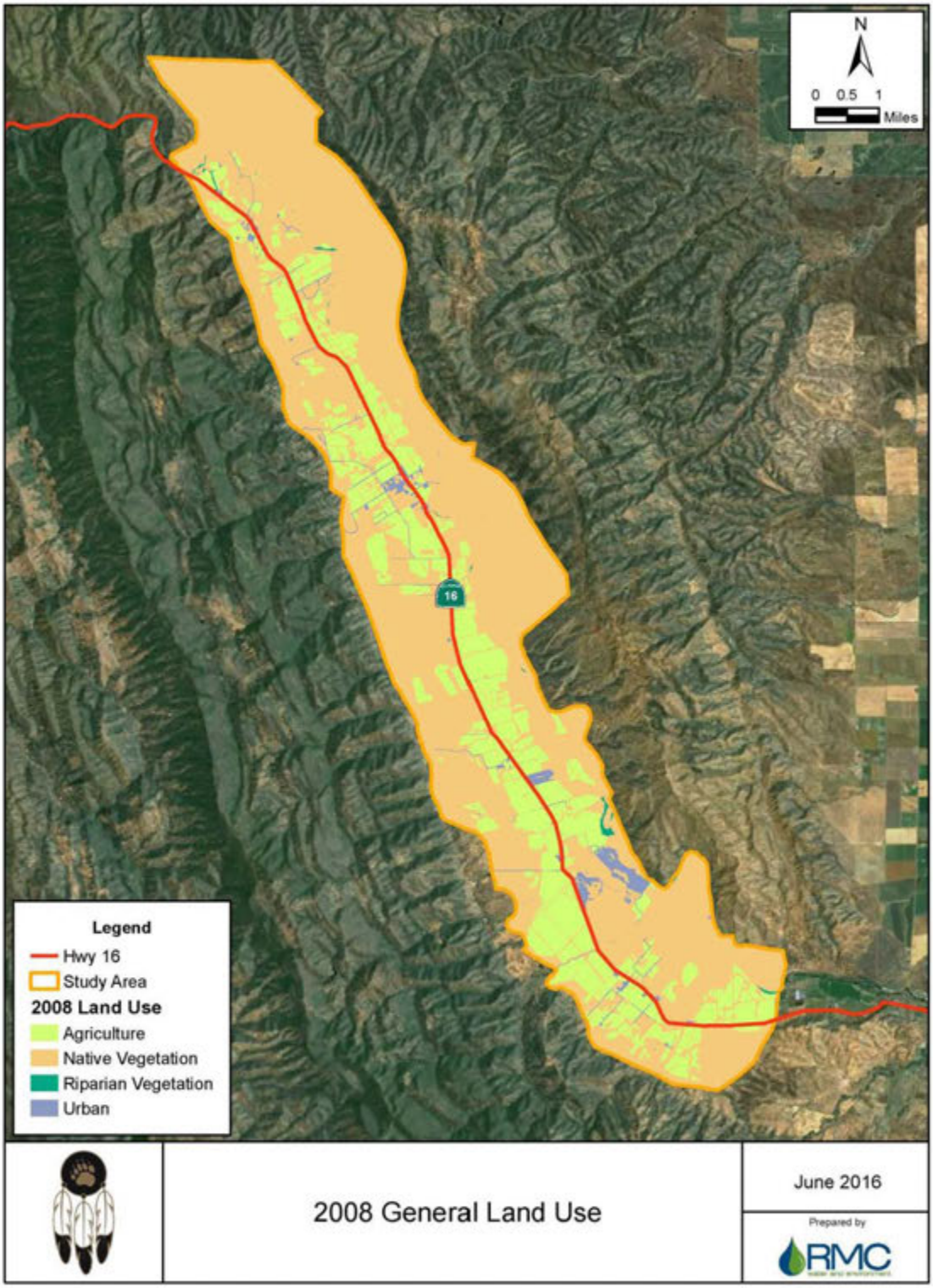


Figure 4-2: Annual Rainfall at Winters Gage

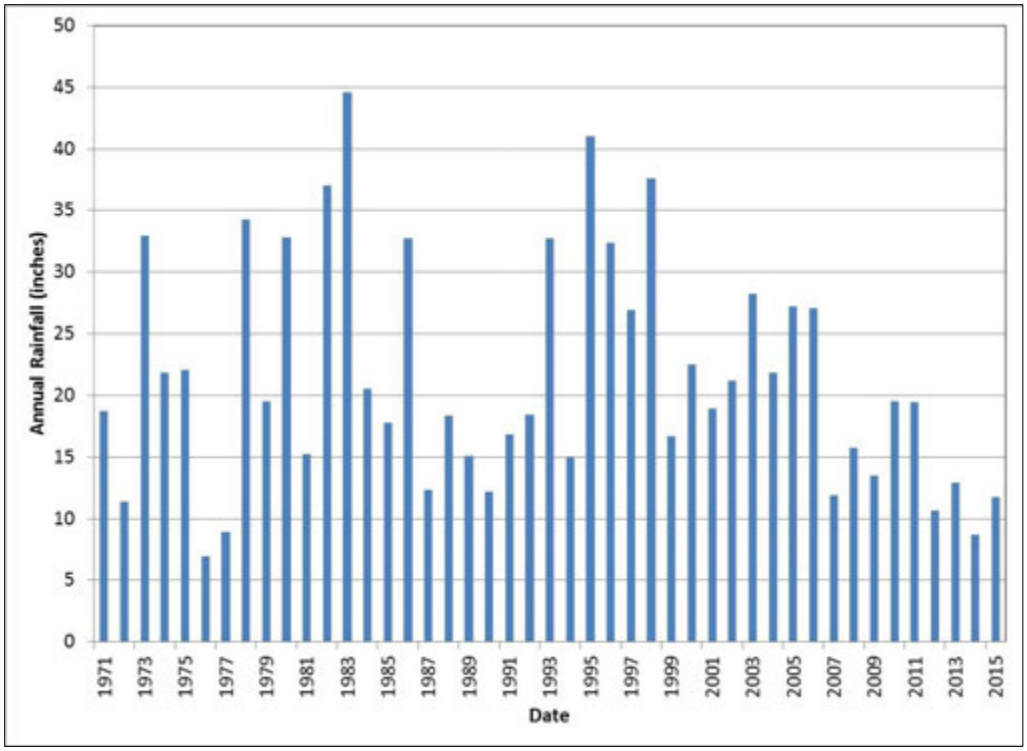


Figure 4-3: Annual ET at Davis Gage

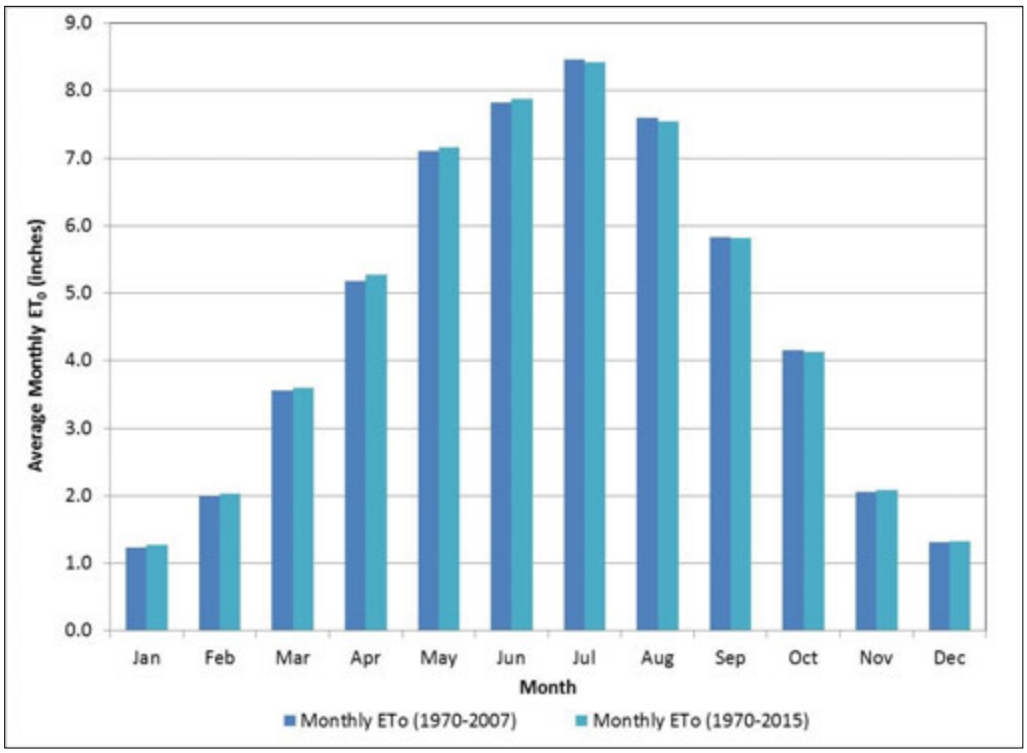


Figure 4-4: Location of Surface Water Use

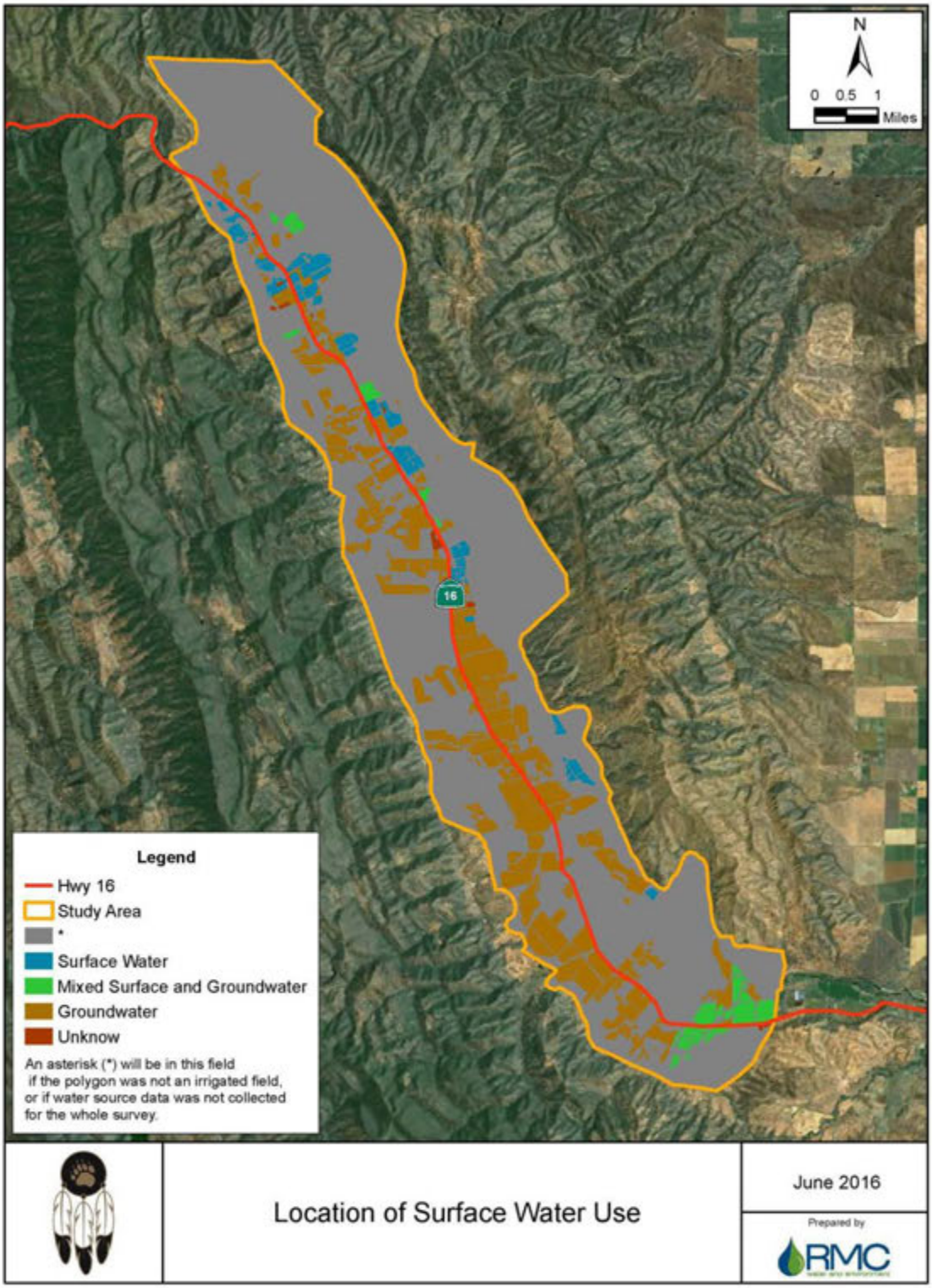


Figure 4-5: Observed and Simulated Groundwater Levels – Fall 2015 Conditions (Layer 1)

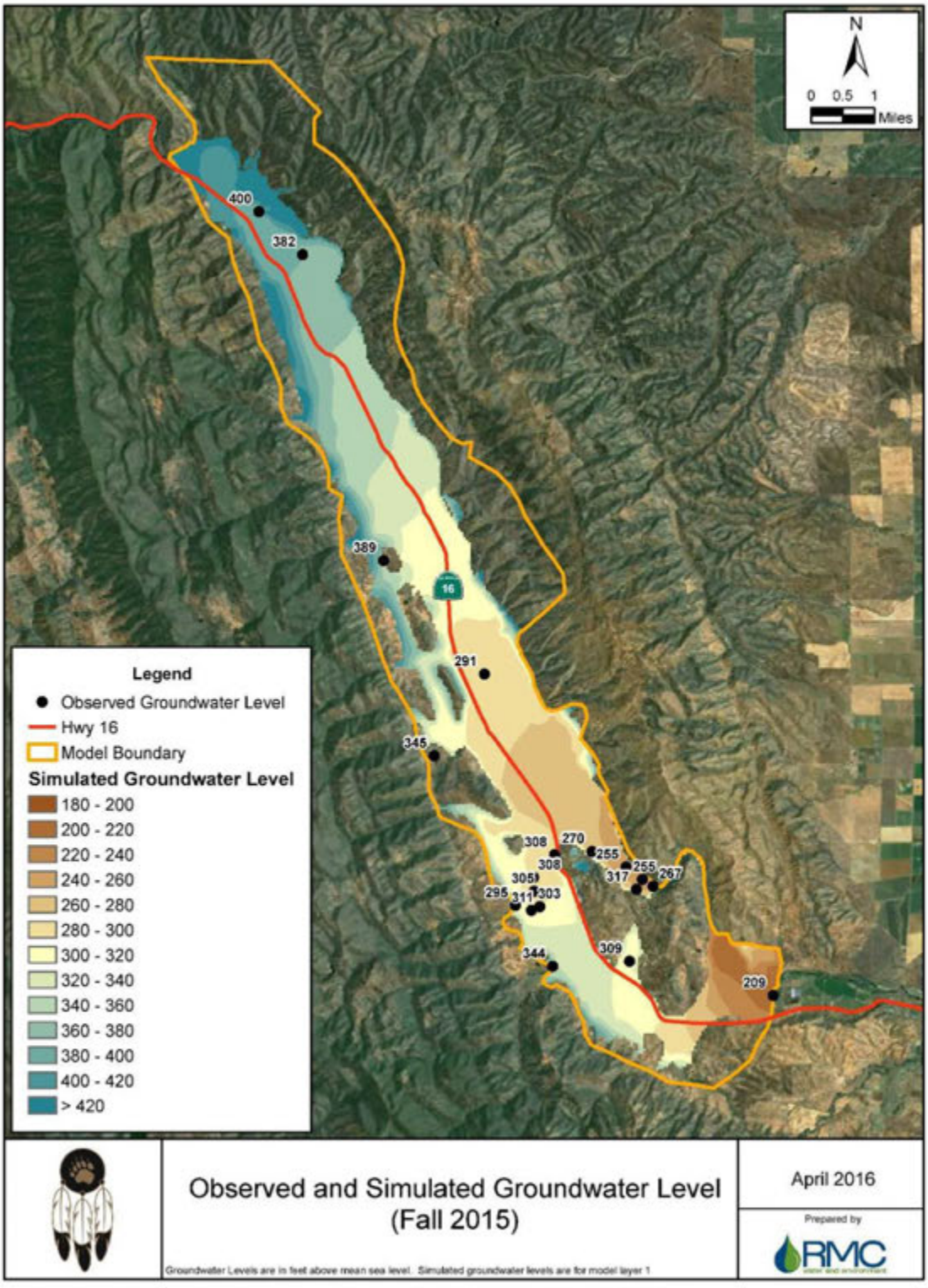


Figure 4-6: Locations of Representative Calibration Wells

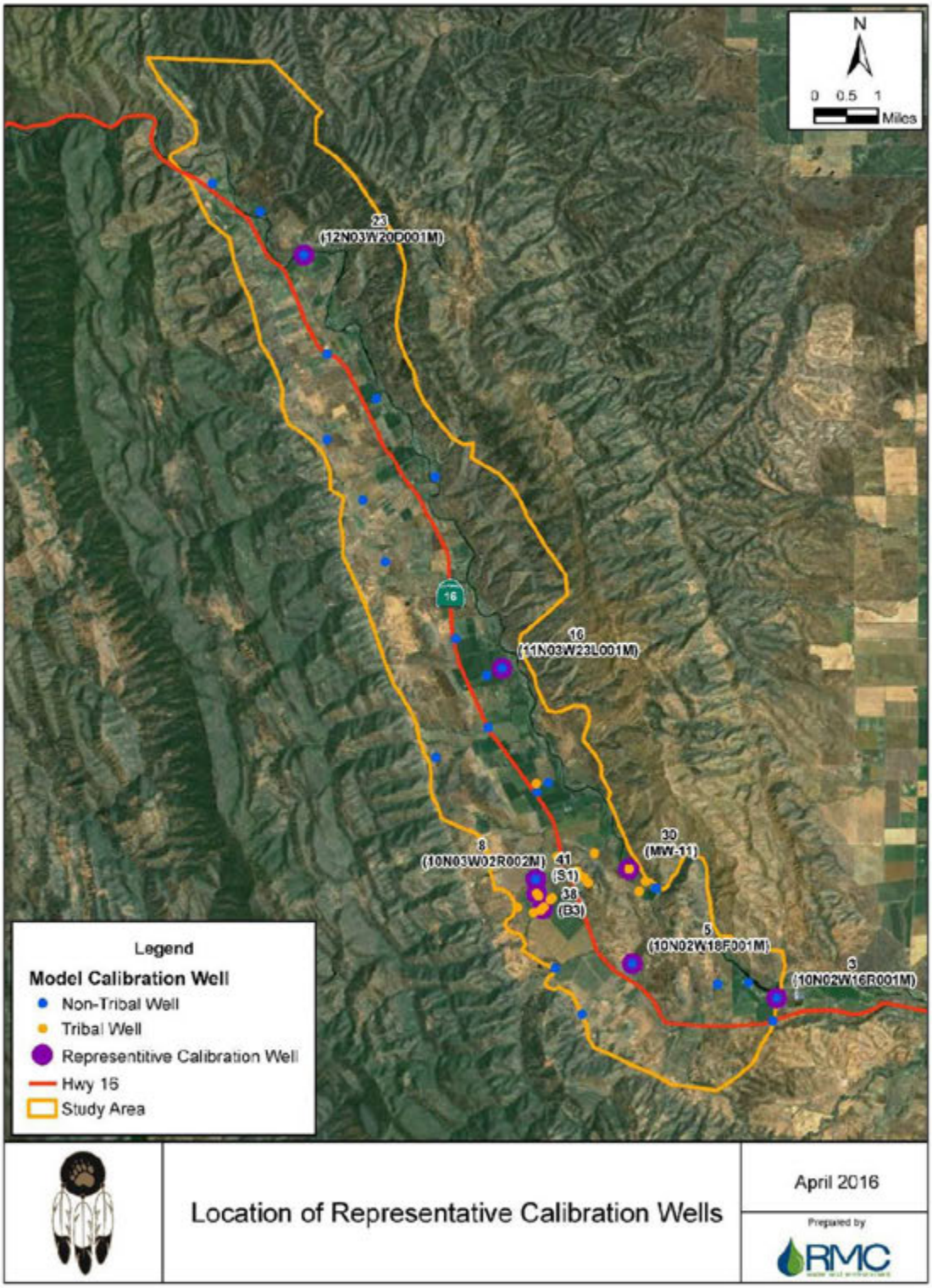


Figure 4-7: Groundwater Level for Calibration Well 10N02W16R001M (Well 3)

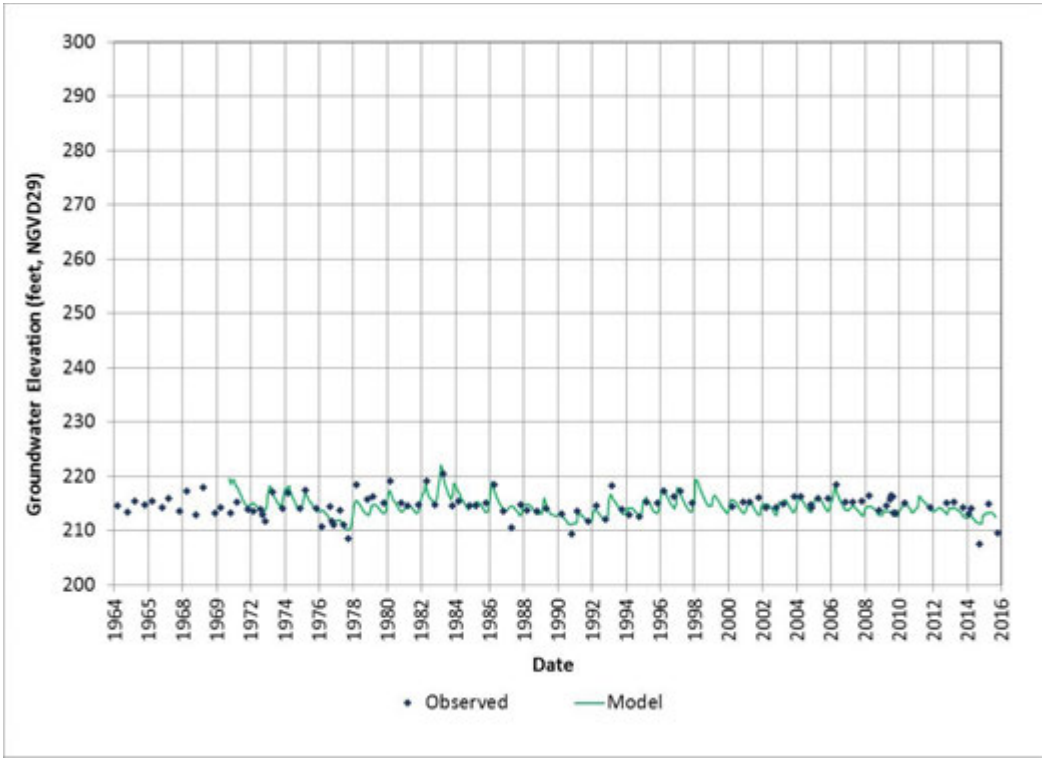


Figure 4-8: Groundwater Level for Calibration Well 10N02W18F001M (Well 5)

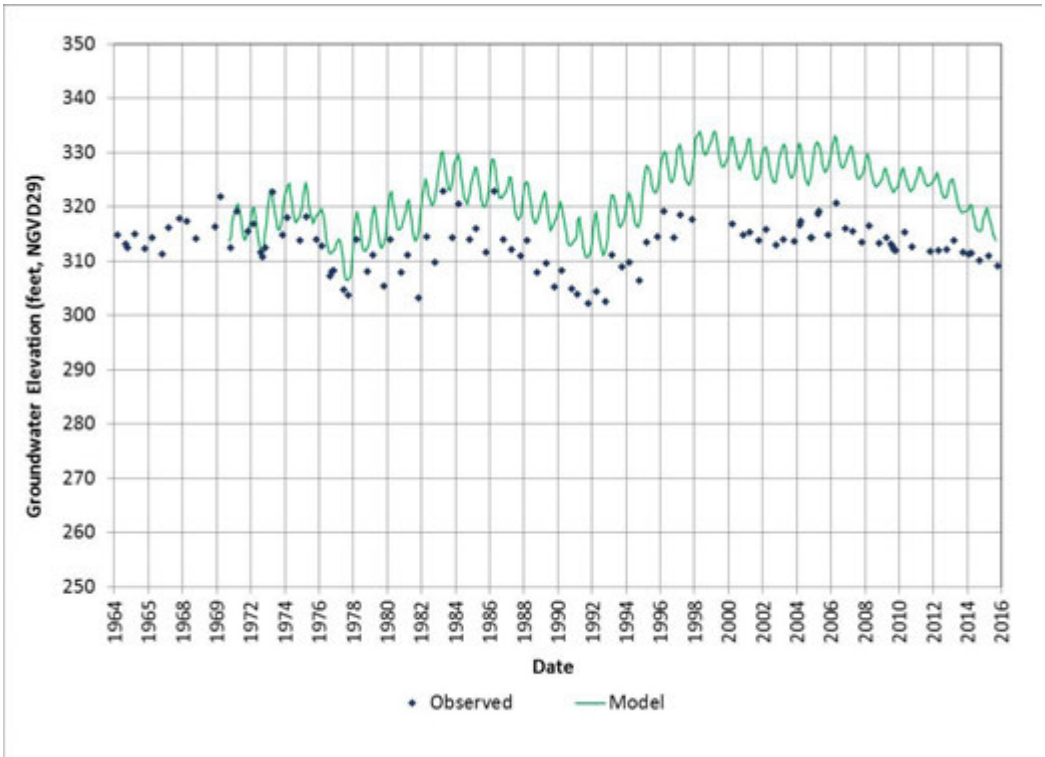


Figure 4-9: Groundwater Level for Calibration Well 10N03W02R002M (Well 8)

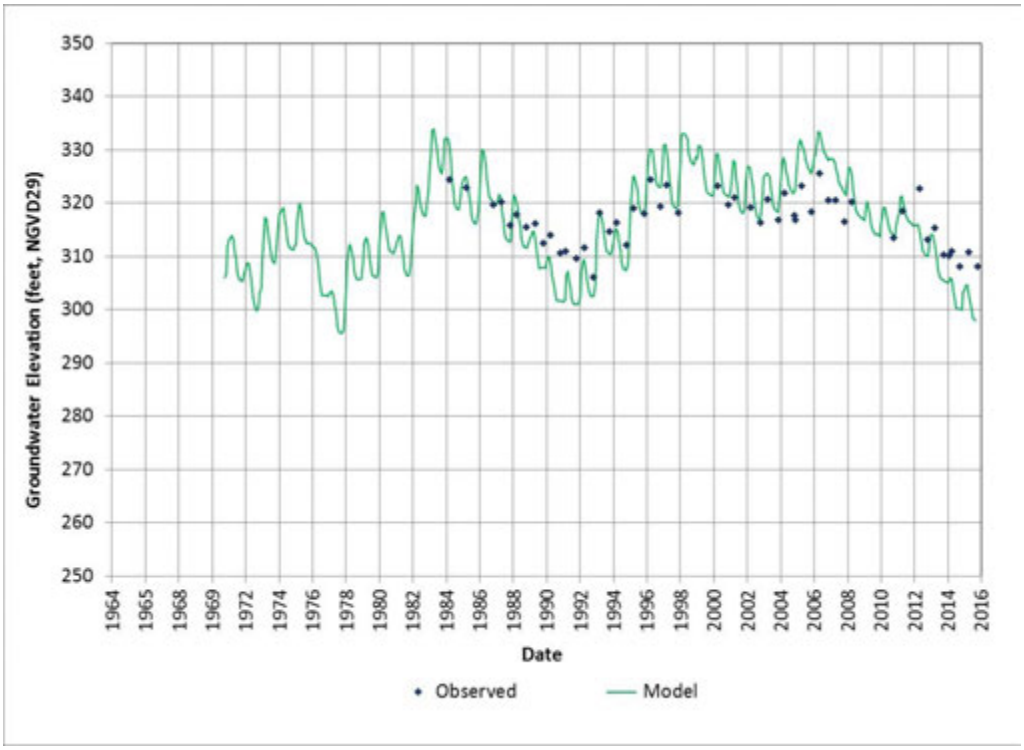


Figure 4-10: Groundwater Level for Calibration Well 11N03W03L001M (Well 16)

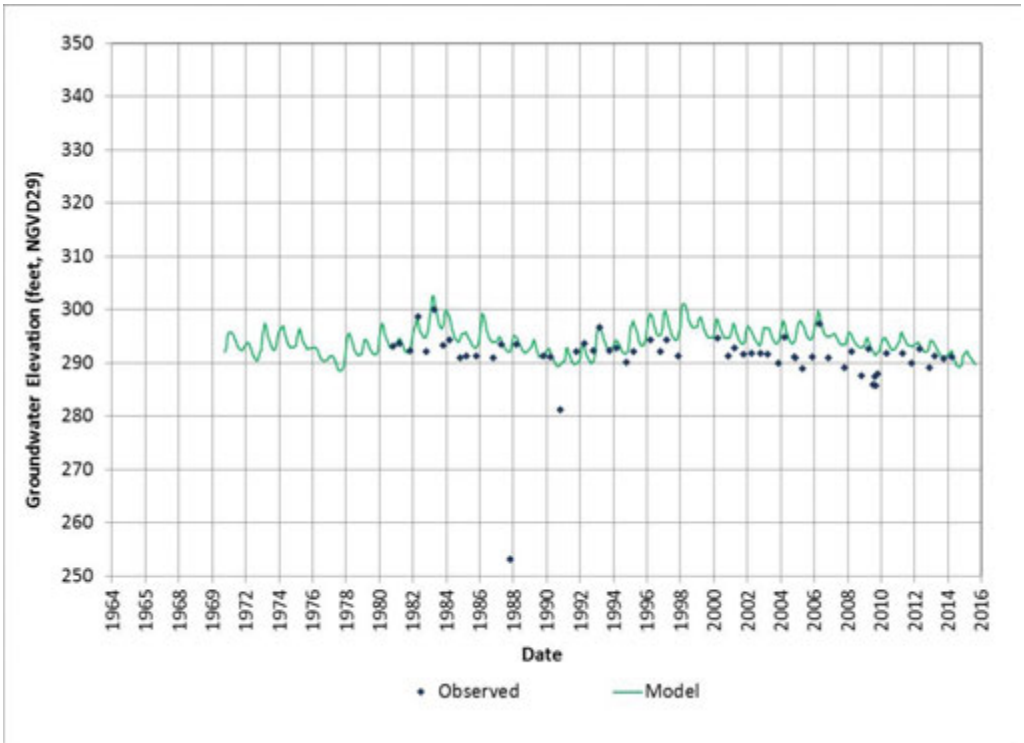


Figure 4-11: Groundwater Level for Calibration Well 11N03W20D001M (Well 23)

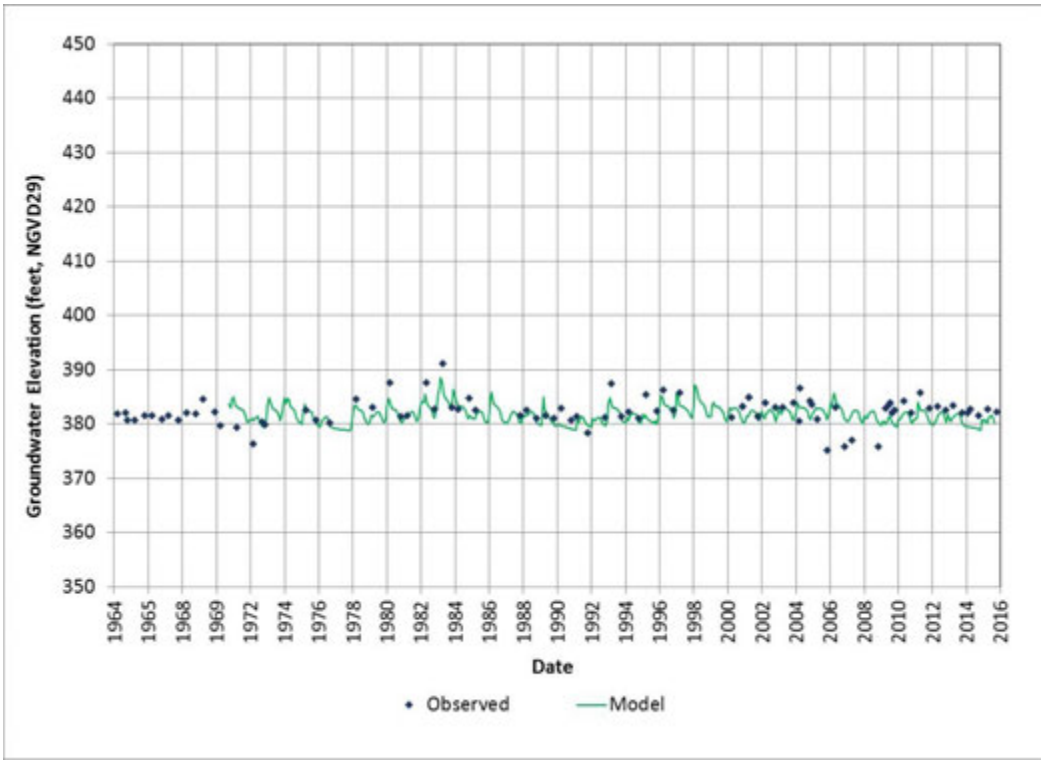


Figure 4-12: Groundwater Level for Calibration Well MW-11 (Well 30)

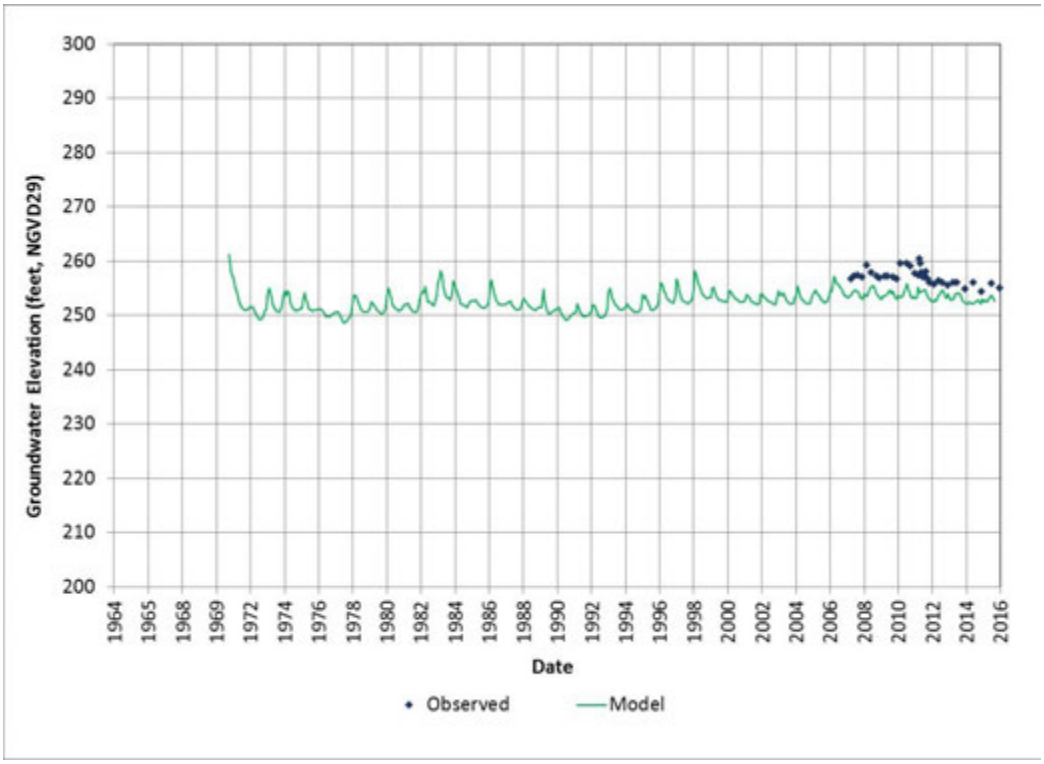


Figure 4-13: Groundwater Level for Calibration Well B3 (Well 38)

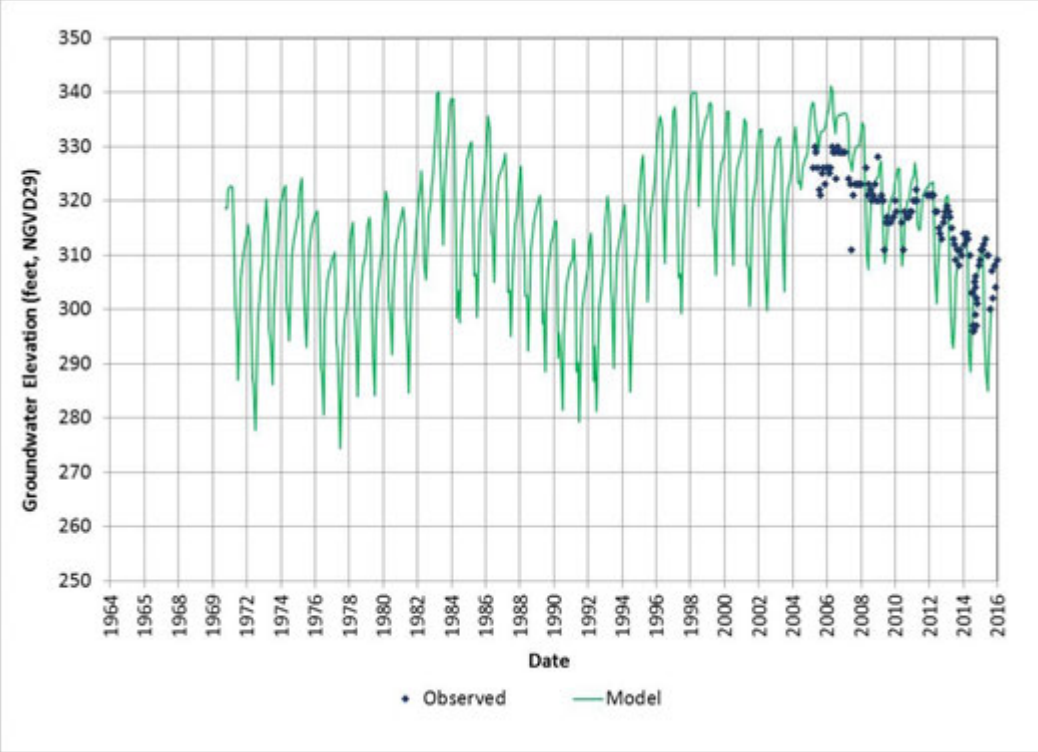
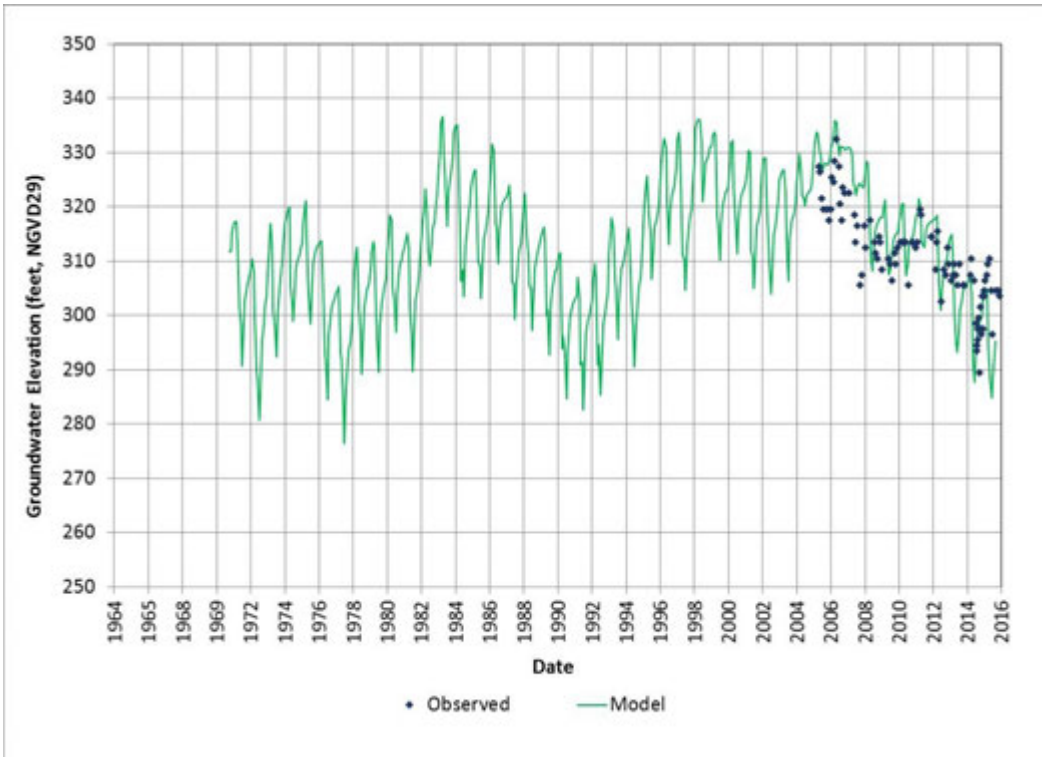


Figure 4-14: Groundwater Level for Calibration Well S1 (Well 41)



Section 5 Baseline and Project Scenarios

This section describes the assumptions and data analysis for the development of the Baseline Scenario and two Project scenarios. Three model scenarios were developed:

- Baseline Scenario – No Project
- Proposed Project – Cache Creek Hotel Expansion Project
- Reduced Intensity Alternative – Project alternative with reduced demand

In the model scenarios analyzed, a 45-year simulation period was used with the hydrology from October 1970 to September 2015 (water years 1971-2015) as a basis for the impact analysis. However, the 45-year simulation period extends into the future to illustrate future conditions with the Project based on the repeat of the background hydrology from 1971-2015. To allow the model scenarios to be directly comparable for impact analysis, the three scenarios use the same 45-year hydrologic data. In the model, simulation year 1 corresponds to the water year 1970 hydrology and simulation year 45 corresponds to the water year 2015 hydrology.

The Baseline Scenario was developed using the extended hydrology from 1971-2015 with land use and urban demand fixed at the 2015 level. The Project Scenario represents land and urban demand changes planned as part of the Cache Creek Hotel Expansion Project within the Project area and is similar to the Baseline in the rest of the model area. The Reduced Intensity Alternative Scenario assumes a smaller expansion of CCCR's existing hotel. Both the Proposed Project and the Reduced Intensity Alternative Scenarios account for the cumulative effects of the proposed tribal housing project approved by the Department of the Interior in 2014.

5.1 Baseline Scenario

The Baseline Scenario represents non-Project conditions and uses the same 45-year hydrologic period corresponding to water years 1971-2015 as in the updated Historical Model. The 1971-2015 period includes a wide range of hydrologic variability to provide representative normal, wet, and dry conditions. In addition, this period includes a short drought of 1976-77, longer term drought of 1987-91, and the recent drought of 2012-2015. Overall, this period provides a good basis for evaluation of the impacts of the proposed Project during drought conditions.

Table 5-1 summarizes the Baseline Scenario assumptions. Within the Project area, urban water demand and supply represent the actual 2015 conditions. All model conditions outside of the Project area modeled 2015 conditions, using the approach from the updated Historical Model.

The results of the Baseline Scenario were evaluated in comparison to the Project Scenario and presented below in Section 6 - Project Impacts. The results are presented in terms of groundwater contour maps, groundwater hydrographs at selected well locations, and Cache Creek flows near the golf course diversion location.

5.2 Project Scenarios

The Proposed Project and Reduced Intensity Alternative Scenarios use the same 45-year hydrologic period as in the Baseline Scenario and the updated Historical Model, but each represents different water demand and supply projections for the Project. The results of the Project Scenarios were evaluated relative to the Baseline Scenario. The results are presented in Section 6 using a groundwater contour map, groundwater hydrographs at selected well locations, and charts of simulated Cache Creek flows near the golf course diversion location.

5.2.1 Proposed Project Scenario

The Proposed project involves expanding the existing hotel at CCCR by 459 rooms, as well as the expansion of some dining options. Water supply would be met by groundwater pumping and recycled water use.

5.2.2 Reduced Intensity Alternative Scenario

The Reduced Intensity Alternative Scenario assumes a smaller hotel expansion (399 rooms). Water supply would be met by groundwater supply and recycled water use, as in the Proposed Project, but the water supply and demand is smaller.

Table 5-1: Baseline Scenario Assumptions

Data Type	Assumptions
Initial Groundwater Levels	September 2015 groundwater levels as simulated by the updated Historical Model.
Land Use and Acreage	Same as the 2008 DWR land use data that represent existing conditions (1)
Rainfall	Daily records from 1971-2015
Stream Flow	Daily records from 1971-2015
Agricultural Water Demand	Agricultural water demands were estimated based on existing land use conditions. However, changes in irrigation water demands due to hydrologic variability for the 1971 to 2015 period were simulated.
Agricultural Water Supply	Parcels that are receiving surface water deliveries to meet agriculture demands in 2015 are assumed to continue receiving surface water. Parcels that pumping groundwater to meet their agricultural demands in 2015 are assumed to continue pumping.
Urban Water Demand and Supply	Urban water demands outside of the Project are equal to the 2015 demand values used in the updated Historical Model. Demand continues to be met with groundwater pumping.
Project Area Urban Water Demand and Supply	Same as the 2015 conditions in the updated Historical Model

Note: (1) 2008 DWR land use survey data are the most recent data available for the model area.

5.3 Data Sources

The Proposed Project and Reduced Intensity Alternative Scenarios are based on water flow and demand projections shown in Table 5-2. In addition, the following assumptions were used in the model:

- CCCR groundwater supply comes from three wells CCCR-1, CCCR-2, and CCCR-3 located on tribal land west of Highway 16.
- CCCR outdoor water demand for landscape irrigation is assumed to be similar to the average annual demand from 2012-2015 water use data.
- Golf course demand is assumed to be similar to the average annual demand from 2012-2015 water use data.
- No effluent water is sent to CCCR's leach fields. Any excess effluent water is used for golf course irrigation.
- Surface water diversion from Cache Creek is assumed to meet remaining golf course demands that are not met by effluent water.
- Monthly projections were mainly estimated based on the monthly trends in the recent water usage data from 2012 to 2015.

Table 5-3 presents the annual projected water supplies and demand by the CCCR, golf course, tribal housing community, and the potable use for Olive Mill within the tribe agricultural land.

The proposed Project also includes two small areas with additional irrigation demand. The areas include 0.72 acres of new landscape and 0.28 acres of green roof on top of the proposed ballroom facility. The additional water demand for these areas is small and estimated to be about 0.88 MG per year per acre, or approximately 3.7 AFY in total, based on an average rate of irrigation for the existing landscape irrigation. Cache Creek water would be supplied to meet this demand but well water may be supplemented during summer months if Cache Creek water is not available. Given this variability in water supply conditions and the small additional demand, water demand for these two areas is described qualitatively and not incorporated into the model scenarios explicitly. Since the demand is small, it is not anticipated to produce a discernable difference to the model results from the Project scenarios.

5.4 Tribe Housing Project

Figure 5-1 presents the site map for the planned tribal housing development, including the 15 parcels the United States has accepted into trust, and the boundaries of the development envelope within that trust acquisition, for parcels 1, 2, 9, and 10.

In addition to the data described above, information was taken from the Water and Wastewater Feasibility Study conducted by Laugenour and Meikle in February 2011, in support of the Environmental Assessment (EA) for the Tribal housing project. The EA analyzes (i) the development of up to 25 residences on two of the 15 parcels acquired (parcels 9 and 10) and (ii) three cultural/educational facilities, tribal school, domestic storage tanks, and a waste water treatment plant (Figure 5-1). The Tribe's housing project is the only reasonably foreseeable development that could have a cumulative relationship with the Project.

The main modeling assumptions applied in the Tribe's housing project are summarized as follows:

- Total projected potable water demand for the proposed new housing development is 20,200 gallons per day (gpd), (approximately 23 acre-feet per year [AFY]), including 100 gpd in parcel 1; 100 gpd in parcel 2; and 20,000 gpd in parcels 9 and 10.
- Total projected irrigation demand estimated for the developed landscape is 31,220 gpd (approximately 35 AFY), including 2,100 gpd in parcel 1, 1,120 gpd in parcel 2, and 28,000 in parcels 9 and 10.
- The existing domestic well DW-1 located in parcel 1 will supply water both for potable use and landscape irrigation for the proposed new development in parcels 1 and 2.
- A new domestic well will supply water both for potable use and landscape irrigation for the new development in parcels 9 and 10.
- Total waste water flow projected from the existing tribe community and the proposed housing is estimated to be 105,240 gpd (approximately 118 AFY). This is assumed to supply water for agricultural irrigation within the trust parcels.
- Monthly demand projections for potable use and landscape irrigation were mainly estimated based on the monthly trends in the tribe housing community recent water usage data from 2012 to 2015.

Land use data were modified to convert the existing land use in the 2008 DWR land use to urban to incorporate the new development. The development envelope shown on Figure 5-1 falls mainly within the model Subregions 2 and 4. Therefore, the changes to the land use data occurred in these two subregions and mainly included native to urban conversion.

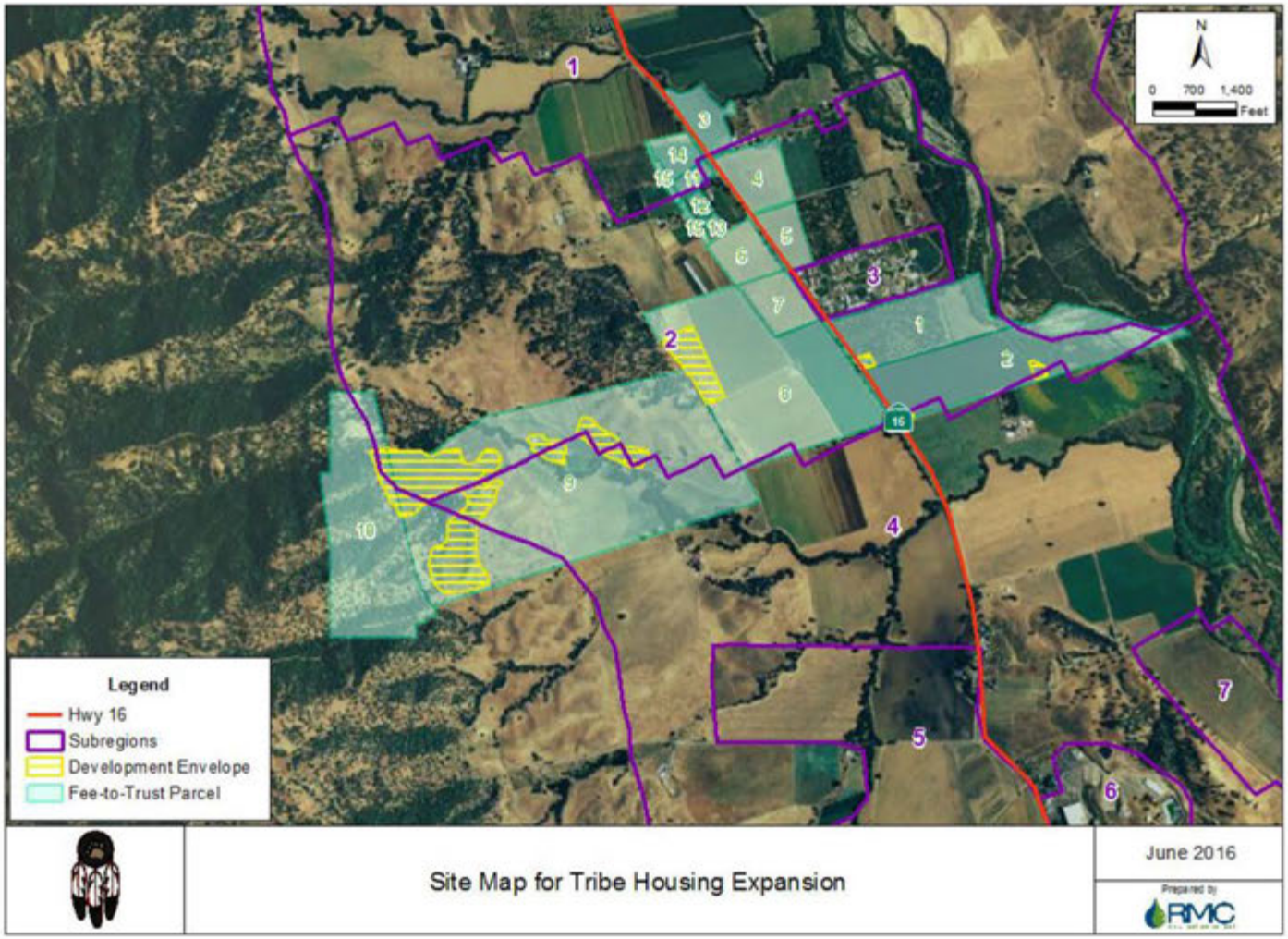
Table 5-2: Water Supply and Demand Projections for Proposed Project and Reduced Intensity Alternative

Proposed Project (459 Rooms)			
Supply/Demand (gpd)	**Existing**	**Additional**	**Total**
Average Wastewater Flow	238,000	128,000	366,000
Average Day Water Demand	245,000	145,000	390,000
Average Recycled Water Use	55,000	15,000	70,000
Reduced Intensity Alternative (399 Rooms)			
Supply/Demand (gpd)	**Existing**	**Additional**	**Total**
Average Wastewater Flow	238,000	117,000	355,000
Average Day Water Demand	245,000	135,000	380,000
Average Recycled Water Use	55,000	15,000	70,000

Table 5-3: Water Supply Sources for Proposed Project and Reduced Intensity Alternative Scenarios

Water Supply Source	Baseline Plus Proposed Project	Baseline Plus Reduced Intensity Alternative
CCCR Wells 1, 2, and 3	• Well pumping of 437 AFY for CCCR • CCCR potable water use – 426 AFY, including irrigation well pumping of 48 AFY • Finished water used in the golf course in the operation at the Clubhouse, Comfort Station, and turf maintenance building – 3.5 AFY • Well water for Olive Mill potable use – 7.3 AFY	• Well pumping of 426 AFY for CCCR • CCCR potable water use – 415 AFY, including irrigation well pumping of 48 AFY • Same as Proposed Project Scenario • Same as Proposed Project Scenario
Tribal Housing Community Wells	• Domestic well pumping for the community – 12 AFY • Irrigation well pumping for the community – 124 AFY	• Same as Proposed Project Scenario • Same as Proposed Project Scenario
Cache Creek	• Cache Creek diversions for the golf course irrigation – 231 AFY • Cache Creek diversions for CCCR landscape irrigation – 43 AFY	• Cache Creek diversions for the golf course irrigation – 243 AFY • Same as Proposed Project Scenario
Effluent Water from the CCCR's WWTP	• Total effluent water of 410 AFY (366,000 gpd) • Recycled water use for CCCR public toilets – 78 AFY (70,000 gpd) • Effluent water used for the golf course irrigation – 332 AFY (296,000 gpd) • No regular disposal of effluent water on the CCCR leach fields	• Total effluent water of 398 AFY (355,000 gpd) • Same as Proposed Project Scenario • Effluent water used for the golf course irrigation – 319 AFY (285,000 gpd) • Same as Proposed Project Scenario

Figure 5-1: Site Plan for Tribe Housing Project



Section 6 Project Impacts

The general approach used to evaluate potential impacts resulting from the Project is based on the analysis of groundwater modeling results. The Baseline Scenario represents the existing conditions that provide a basis of comparison for evaluating the relative changes resulting from the Project. Therefore, the model results for the Proposed Project and Reduced Intensity Alternative Scenarios were evaluated compared to the Baseline Scenario that represents the conditions without the Project and other reasonably foreseeable future projects. To allow the model scenarios to be directly comparable and to isolate the Project effects, the Baseline Scenario and the Project scenarios were set up using the same initial conditions (September 2015) and background hydrology (45 years from October 1970 to September 2015). In the model, simulation year 1 corresponds to the water year 1970 hydrology and simulation year 45 corresponds to the water year 2015 hydrology. For the Project impact analysis, the model results are presented below as follows:

- Groundwater level contour maps showing the change in groundwater elevation at the end of the simulation period (at year 45) in model layer 1 (associated with shallow agricultural groundwater pumping wells) and model layer 4 (associated with the current CCCR groundwater pumping wells);
- Groundwater level hydrographs at seven selected wells to compare the conditions for the development scenarios and the Baseline Scenario over the simulation period (45 years, utilizing the hydrology from October 1970 to September 2015); and
- Stream flows charts showing the change in annual Cache Creek flows upstream and downstream from the golf course diversion location.

6.1 Groundwater Contour Maps

Drawdown contour maps were prepared for model layer 1 and model layer 4 to evaluate the Project impacts on groundwater levels. The contour map for model layer 4 was prepared to show representative conditions of the Project pumping effects since the CCCR wells would be pumping from that layer. Model layer 1 is associated with shallow agricultural groundwater production and rural domestic wells. Therefore, the contour map for model layer 1 represents the most relevant assessment of potential impact of the Project's groundwater production on the upper shallow aquifer used for agriculture and domestic use.

The contour maps were prepared to represent the conditions at the end of the simulation period. The end of the simulation year 45 corresponds to the water year 2015 hydrologic data; thus, the end of the simulation represents the hydrologic data for September 2015. Since the simulation ends with a drought, these results represent a conservative approach with respect to the potential project impacts.

6.1.1 Proposed Project

Figure 6-1 and Figure 6-2 present the change in groundwater elevation contour map for the Proposed Project Scenario relative to the Baseline Scenario at the end of the simulation for model layers 1 and 4, respectively. Overall, the drawdown in model layer 4 is more widespread compared to model layer 1. In both layers, the greatest decline would occur around the CCCR Wells 1, 2, and 3, with progressively less decline away from the wells.

Drawdown in model layers 1 and 4 near the Tribe's proposed housing development is mainly attributed to the additional pumping by a future well that would be used for the projected potable demand and landscape irrigation in parcels 9 and 10, shown in Figure 5-1, but may have a small cumulative relationship with the Project. The future well incorporated into the scenarios is assumed to pump from model layer 4, similar to the existing supply domestic well located within the tribe housing community, and is assumed to be located in parcel 9.

6.1.2 Reduced Intensity Alternative

Figure 6-3 and Figure 6-4 show the change in groundwater elevation contour map for the Reduced Intensity Alternative Scenario relative to the Baseline Scenario at the end of the simulation for model layers 1 and 4, respectively. Overall, the results of this scenario both for layers 1 and 4 are similar to the Proposed Project conditions in areas near the Tribe's housing expansion. While the spatial extent of drawdown is similar compared to the proposed Project, the Reduced Intensity Alternative results in less decline in groundwater levels in areas near the CCCR wells due to lower CCCR well pumping for the smaller hotel expansion presented under this scenario.

6.1.3 Layer 1 vs Layer 4 Impacts

Figures 6-1 through 6-4 show that the maximum drawdown is greater in layer 4 than in layer 1. This result is expected since the CCCR wells pump from layer 4, and additional pumping for either the Proposed Project or the Reduced Intensity Alternative will have the greatest impact on that layer near the pumping location. The spatial extent of the drawdown contours are also greater in layer 4 than layer 1.

Since layer 1 is associated with nearby agricultural and rural domestic wells, it may be more representative to look at layer 1 for assessing potential impacts on surrounding wells.

6.2 Groundwater Hydrographs

Out of the 47 wells used in the model calibration, a subset of seven wells was selected as representative wells to examine groundwater level hydrographs and to determine impacts from the Proposed Project Scenario and the Reduced Intensity Alternative Scenario. The selected wells include five tribal wells (B3, B4, S3, MW-11, and 75A) and two private wells from the WDL (10N03W02R002M and 10N02W18F001M). These wells are geographically distributed throughout the model as shown in Figure 6-5. Overall, the selection of these wells for impact analysis is consistent with the approach used in the 2010 analysis. These wells were selected for representation of the groundwater levels and potential impacts to the tribe's drinking water supply aquifer (e.g., wells B3, B4 and S3), the golf course (e.g., well MW-11), the tribe housing community (e.g., well 75A), and the private wells (10N03W02R002M and 10N02W18F001M). The 2010 analysis used Old Casino Well 3, but this well was excluded from the current evaluation due to data discrepancies. Among the wells selected, wells B3, MW-11, well 75A, 10N03W02R002M and 10N02W18F001M were also used in the 2010 analysis.

B3 and B4 are representative of the groundwater levels near the CCCR wells (Subregion 5). B4 was selected for the current evaluation, in addition to B3, to illustrate the maximum impact near the CCCR wells; however, no measured groundwater elevation data are available for B4.

Well S3, also located near the CCCR wells, is representative of the groundwater levels in the tribal agriculture land west of highway 16 and shows impacts to agricultural water supply aquifer.

Well MW-11 is representative of the groundwater levels at the golf course (Subregion 7) while well 75A (or YHD-1) represents groundwater levels of agricultural and drinking water supply aquifer layers in the tribal housing community.

10N03W02R002M and 10N02W18F001M are private wells located outside of the Project area. They show impacts to agricultural and drinking water supply aquifer near the tribal agricultural land (10N03W02R002M) and agricultural and drinking water supply at nearby rural area (10N02W18F001M).

6.2.1 Project Scenario

Table 6-1 summarizes the impacts of the Project Scenario at each of the seven wells. Figures 6-6 through 6-21 show groundwater levels for the Baseline Scenario and the Project Scenario and groundwater level differences between the two scenarios at each well location. Consistent with the groundwater contour maps and the summary findings in Table 6-1, the greatest impact would occur at locations near the CCCR wells

(i.e., wells B3 and S1). The maximum impact corresponds to 9.7 feet of drawdown at well B4, which is located on tribal land near the CCCR wells. The maximum impacts observed in the selected wells outside of tribal land is just over 2 feet of drawdown at well 10N03W02R002M. Overall, the greatest drawdown over the simulation period corresponds to the end of the simulation period that represents the hydrologic data for September 2015. This result is attributed to the 2012-2015 drought.

Among the seven well locations, well 75A, located in the tribe community housing, shows only slightly higher groundwater levels than those seen in the Baseline. A small increase in groundwater levels (shown in Table 6-1 as negative 0.2-0.3 feet) at the end of the simulation period at this location can be attributed to the net decrease in groundwater pumping around the tribe housing community as a result of the proposed tribe housing project. With the tribe housing project, while new demand and new pumping were incorporated into the model to account for the potable use and landscape irrigation within the proposed new development area, the overall pumping for agricultural irrigation in this area was reduced due to the recycled water supply from the proposed waste water treatment plant. As a result of this net decrease in groundwater pumping, this scenario tends to show a slight upward trend compared to the Baseline Scenario. Overall, as shown in the land use data, agricultural areas and native vegetation dominate the general land use in the Capay Valley. Therefore, urban groundwater use is substantially lower than agricultural groundwater use.

6.2.2 Reduced Intensity Alternative Scenario

Table 6-1 summarizes the impacts of the Reduced Intensity Alternative Scenario at each of the seven wells. Figures 6-6 through 6-21 compare groundwater levels and groundwater level differences at each location for the Reduced Intensity Alternative Scenario relative to the Baseline Scenario. Overall, this scenario shows slightly less impact to groundwater levels, particularly near the areas where CCCR wells pump. The maximum impacts at the selected wells away from the CCCR wells (e.g., wells MW-11, 75A, and 10N02W18F001M) are similar to those from the Proposed Project.

Table 6-1: Summary of Project Impact at Selected Wells

Well Name	Owner	Model Layer [1]	Reason for Selection	Range of Historical Groundwater Levels (feet, msl)	Maximum Simulated Impact of Project (feet of Drawdown) [2, 3]	
					Proposed Project	Reduced Intensity Alternative
Well B3	Tribal	4	Shows impact to drinking water supply aquifer layer	296-330	8.9	8.3
Well B4	Tribal	4	Shows impact to drinking water supply aquifer layer	NA[4]	9.7	9.0
10N03W02R002M	Private	1	Shows impact to tribal land agricultural water supply aquifer layer	306-327	2.1	2.0
10N03W02R002M	Private	4	Shows impact to tribal land drinking water supply aquifer layer	306-327	2.2	2.0
S3	Tribal	1	Shows impact to agricultural water supply aquifer layer near the Project pumping	290-333	4.4	4.1
S3	Tribal	4	Shows impact to drinking water supply aquifer layer near the Project pumping	290-333	6.3	5.9
Well MW-11	Tribal	1	Shows impact at the golf course	254-261	0.7	0.7
Well 75A (YHD-1)	Tribal	1	Shows impact at the tribe housing community to agricultural water supply aquifer layer	252-287	-0.3	-0.3
Well 75A (YHD-1)	Tribal	4	Shows impact at tribe housing community to drinking water supply aquifer layer	252-287	-0.2	-0.2
10N02W18F001M	Private	1	Shows impact at nearby rural area to agricultural water layer	302-323	0.5	0.5
10N02W18F001M	Private	4	Shows impact at nearby rural area to drinking water supply aquifer layer	302-323	0.5	0.5

Notes: (1) Layer 1 is associated with agricultural and rural domestic wells; layer 4 is associated with tribal drinking water wells.
(2) Positive values represent drawdown in groundwater levels relative to the Baseline Scenario; negative values represent increase in groundwater levels relative to the Baseline Scenario.
(3) Results show the combined impacts from the Project and the Tribe's housing expansion project.
(4) No measured groundwater level data available from well B4.
msl = mean sea level

6.3 Stream Flow Hydrograph

Changes in stream flows were evaluated at two locations along Cache Creek; one upstream of the golf course surface water diversion (Stream Node 228) and one downstream (Stream Node 230). Figure 6-22 displays these two observations sites along Cache Creek in comparison to the golf course diversion location.

Figure 6-23 shows the modeled flow in Cache Creek upstream of the golf course diversion for the Baseline Conditions. The average flow in Cache Creek is 550,000 AFY with a minimum flow of 17,000 AF in model year 7 (1977 hydrology) and a maximum flow of 2,500,000 AF in model year 13 (1983 hydrology).

Figure 6-24 shows the annual impact of the development scenarios on the modeled flow in Cache Creek upstream of the golf course diversion. On an average, the Proposed Project Scenario reduces flow in Cache Creek by an average of 4 AFY and the Reduced Intensity Alternative increases flow in Cache Creek by an average of 2 AFY. Since the development scenarios include the Tribe's housing project, which is a reasonably foreseeable development that could have a cumulative relationship with the Project, changes to the stream flows upstream of the diversion are attributed to the Tribe's housing development project, and not a direct impact solely from the Project.

Figure 6-25 shows the annual impact of the development scenarios on the modeled flow in Cache Creek downstream of the golf course diversion. On average, the two project alternatives would increase flow in Cache Creek by an average of 116 AFY for the Proposed Project and 109 AFY for the Reduced Intensity Alternative.

In terms of the reduction in stream flows, the Project impacts to stream flow are larger upstream of the golf course diversion than downstream, as shown in Figure 6-26. However, with respect to increases in stream flows, the Project impacts to stream flow are larger downstream of the golf course diversion as shown in Figure 6-27. The increase in stream flows downstream of the golf course diversion is attributed to less surface water diversion for the golf course irrigation due to more recycled water being generated from the hotel expansion.

CapayIGSM is refined enough to detect stream flow changes at relatively small scales. However, the stream flow impacts noted above are not significant when compared to the total volume of flow in Cache Creek. Figure 6-26 and Figure 6-27 show the annual impacts of the projects as a percentage of annual cache creek flow. These figures demonstrate that the percentage impacts to stream flow due to the projects are small, representing only a very small fraction of a percent of the simulated Cache Creek flow.

Figure 6-1: Contours of Drawdown for Proposed Project Relative to Baseline: End of Simulation Year 45 (Model Layer 1)

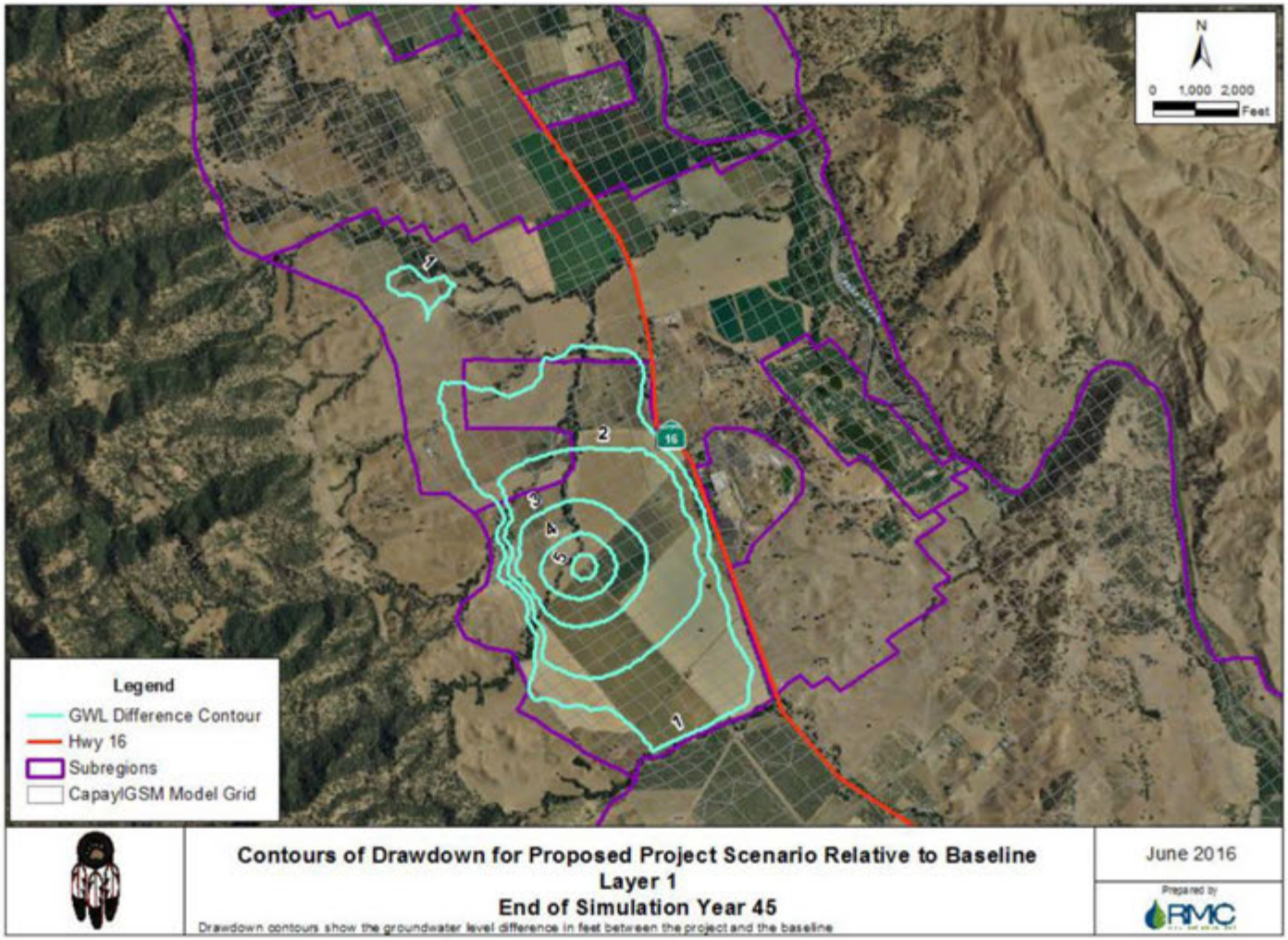


Figure 6-2: Contours of Drawdown for Proposed Project Relative to Baseline: End of Simulation Year 45 (Model Layer 4)

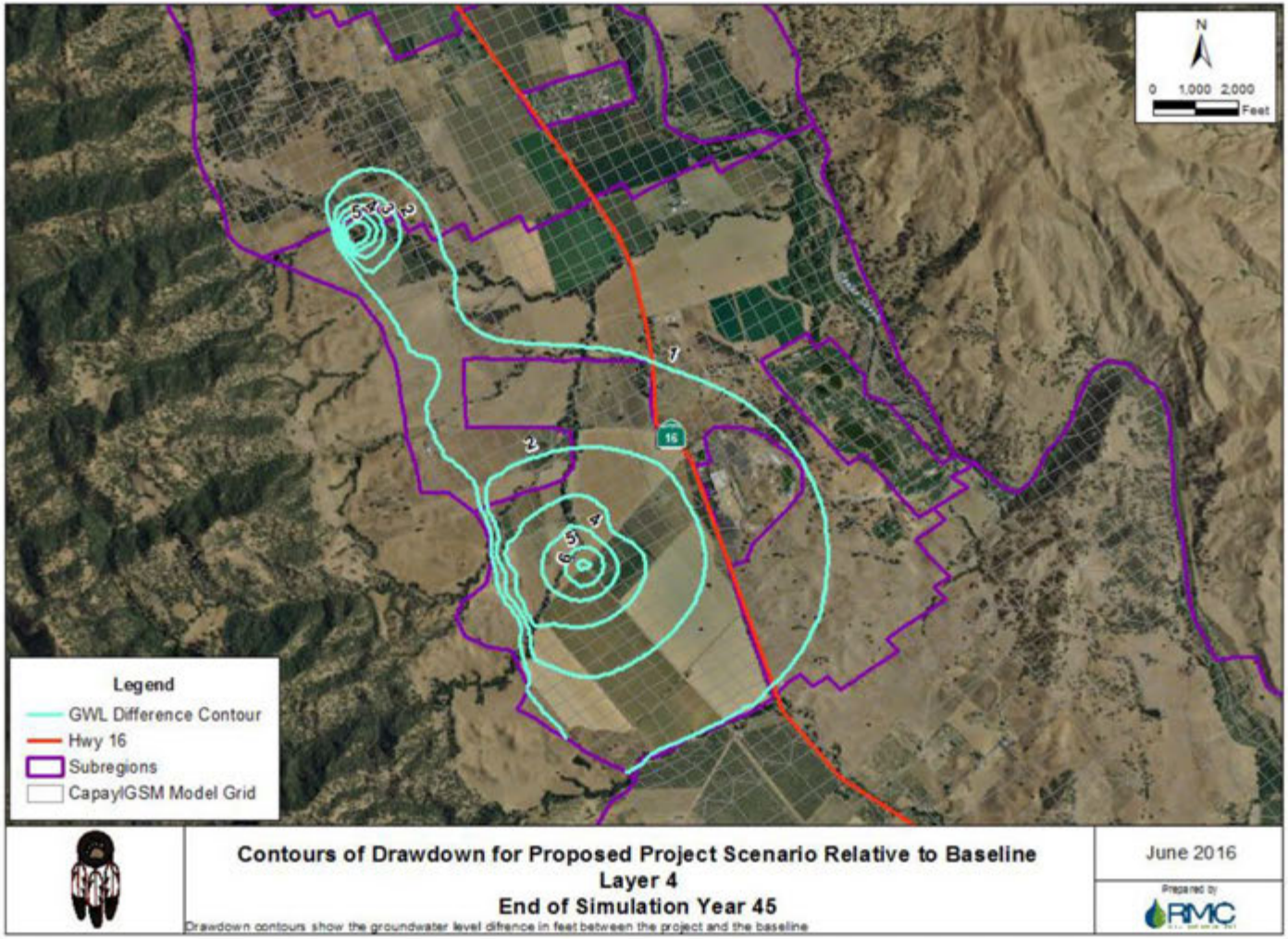


Figure 6-3: Contours of Drawdown for Reduced Intensity Alternative Relative to Baseline: End of Simulation Year 45 (Model Layer 1)

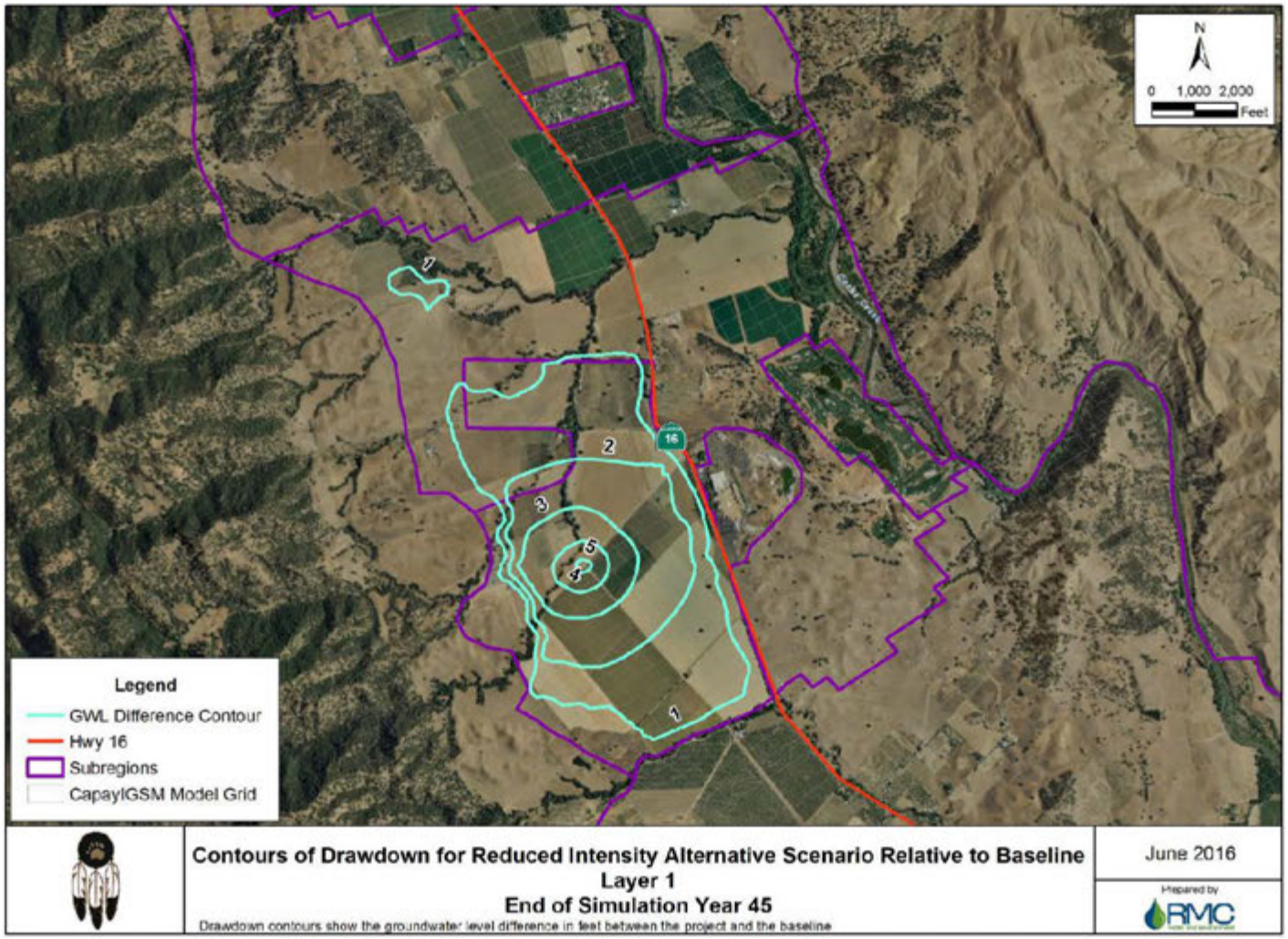


Figure 6-4: Contours of Drawdown for Reduced Intensity Alternative Relative to Baseline End of Simulation Year 45 (Model Layer 4)

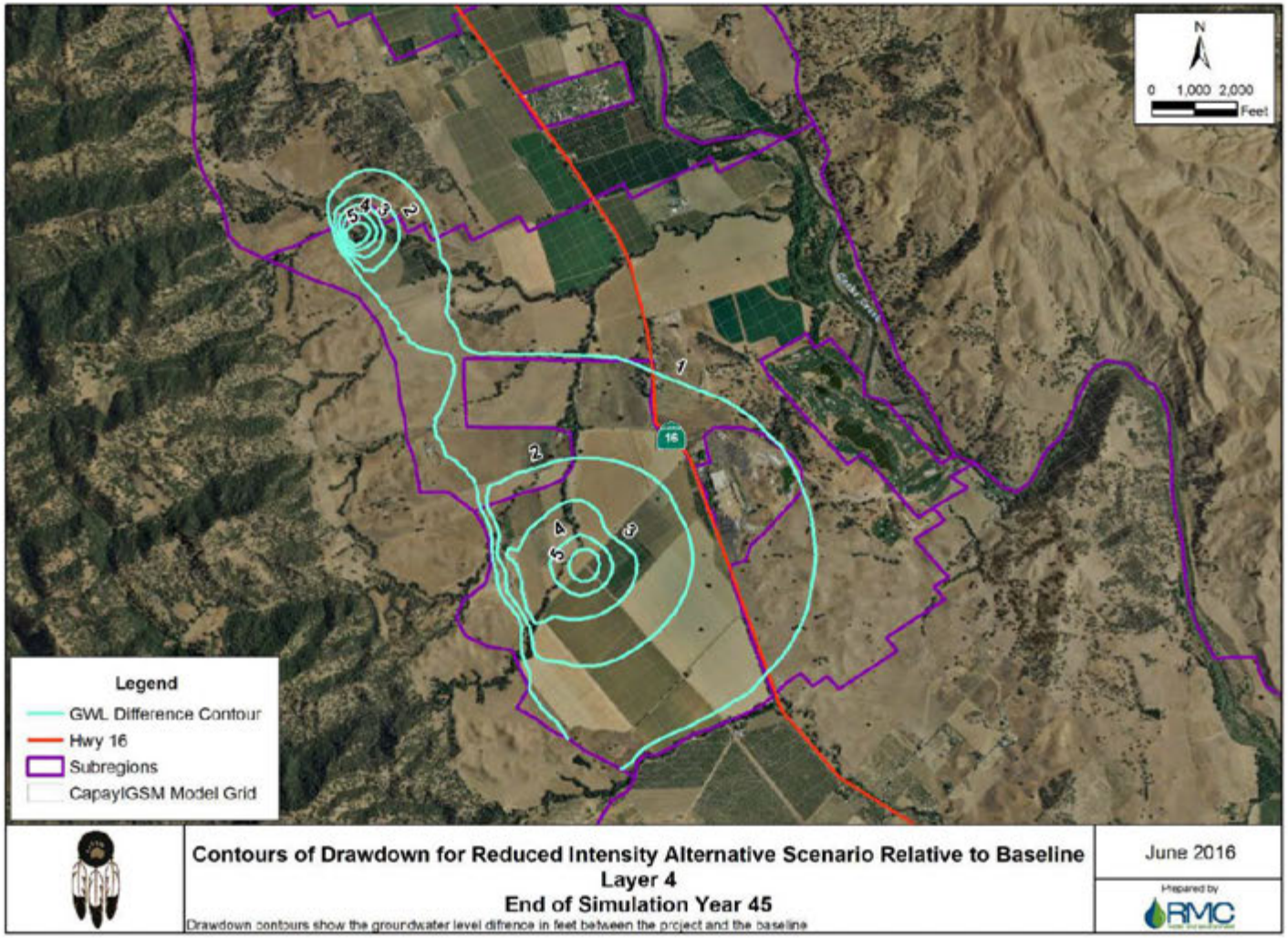


Figure 6-5: Locations of Project Impact Wells

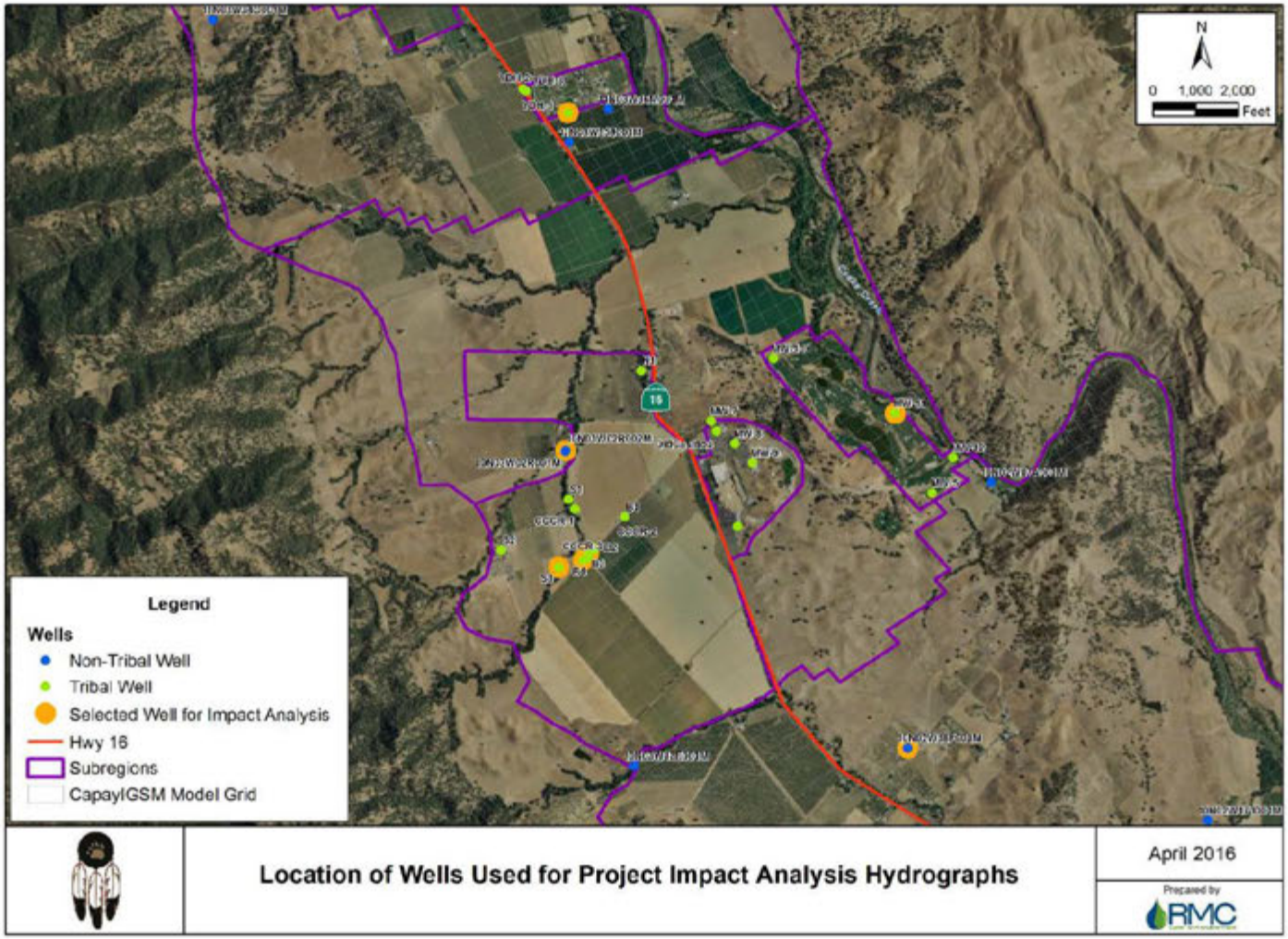


Figure 6-6: Groundwater Levels of Baseline and Project Scenarios at Well B3 (Layer 4)

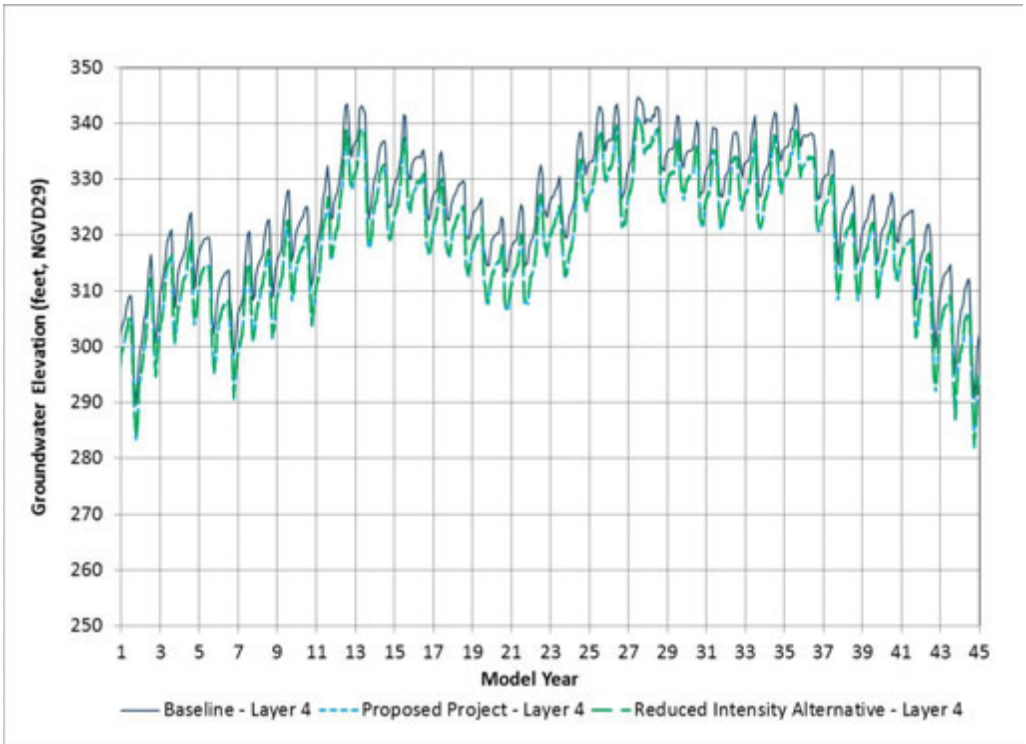


Figure 6-7: Groundwater Levels of Baseline and Project Scenarios at Well B4 (Layer 4)

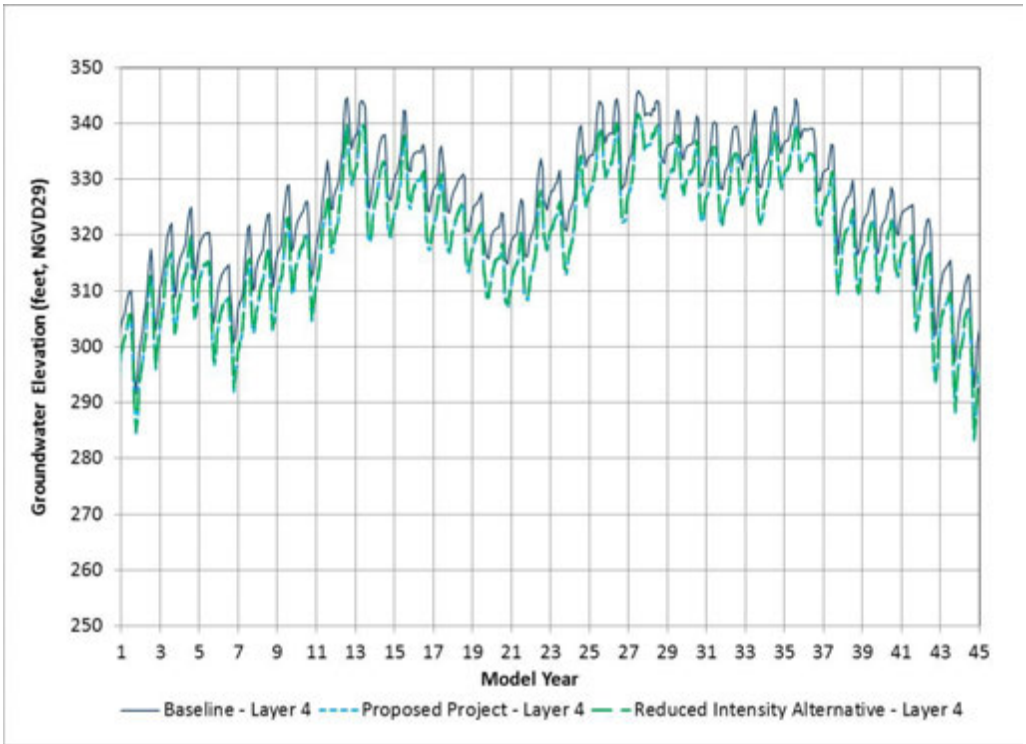


Figure 6-8: Project Impacts at Wells B3 and B4 (Layer 4)

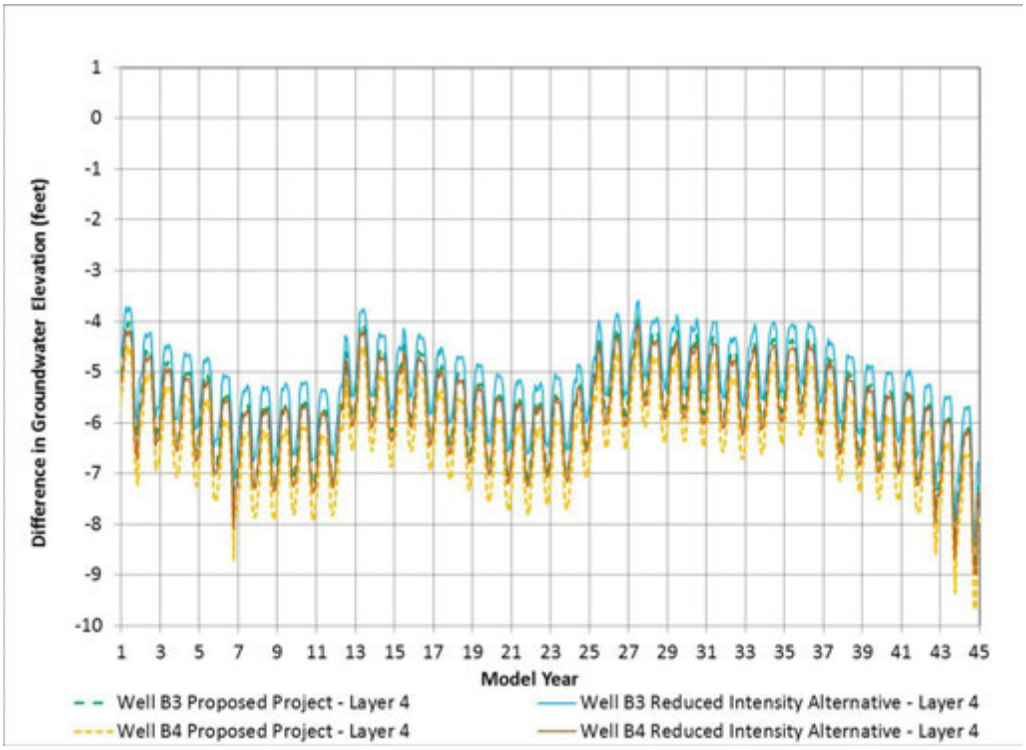


Figure 6-9: Groundwater Levels of Baseline and Project Scenarios at 10N03W02R002M (Layer 1)

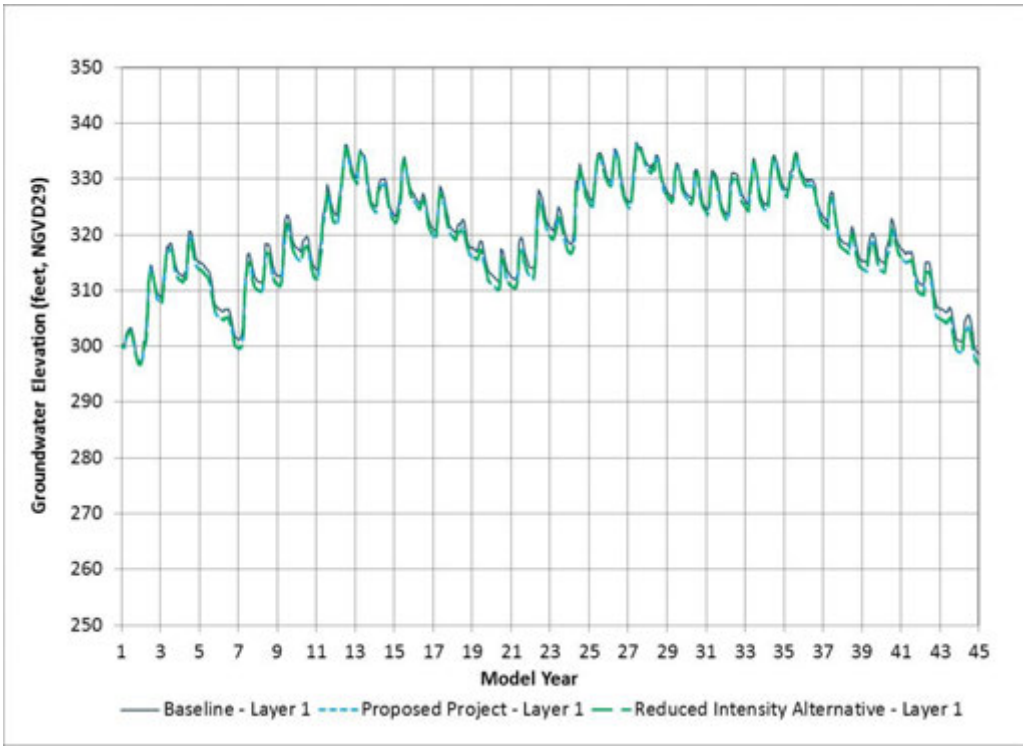


Figure 6-10: Groundwater Levels of Baseline and Project Scenarios at 10N03W02R002M (Layer 4)

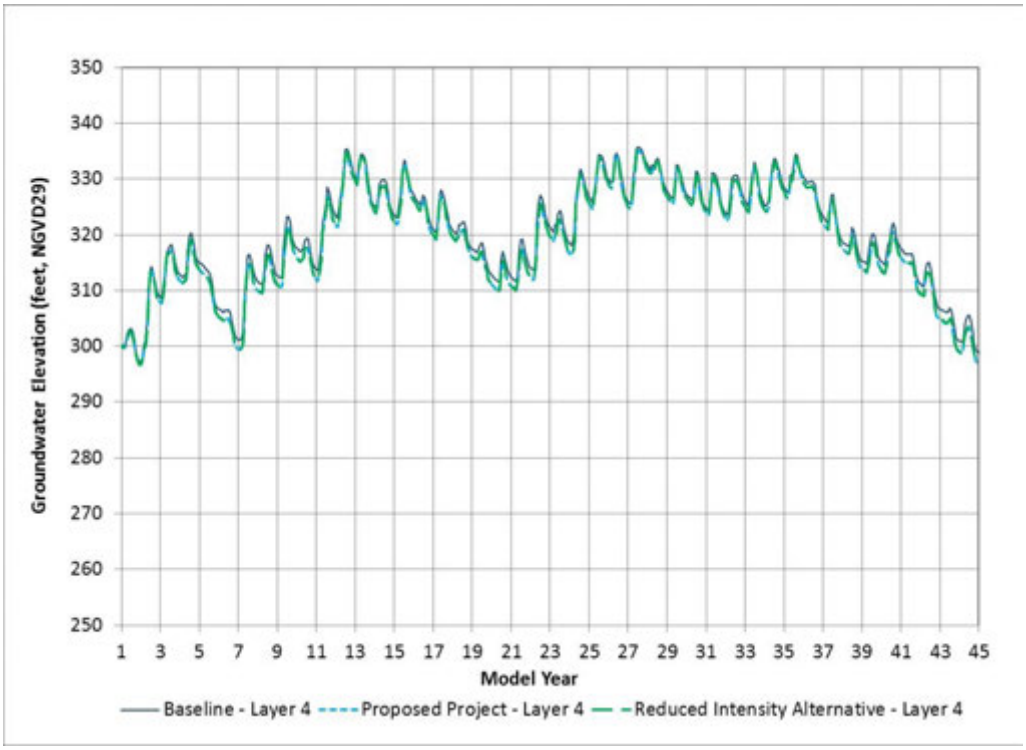


Figure 6-11: Project Impacts at 10N03W02R002M

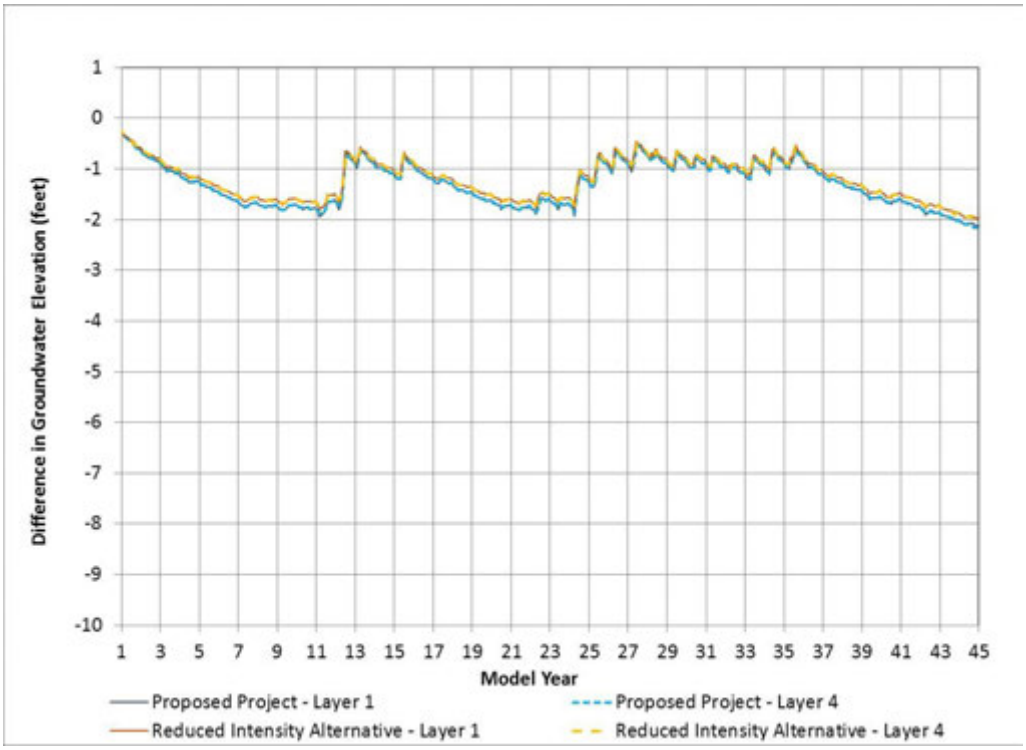


Figure 6-12: Groundwater Levels of Baseline and Projects at Well S3 (Layer 4)

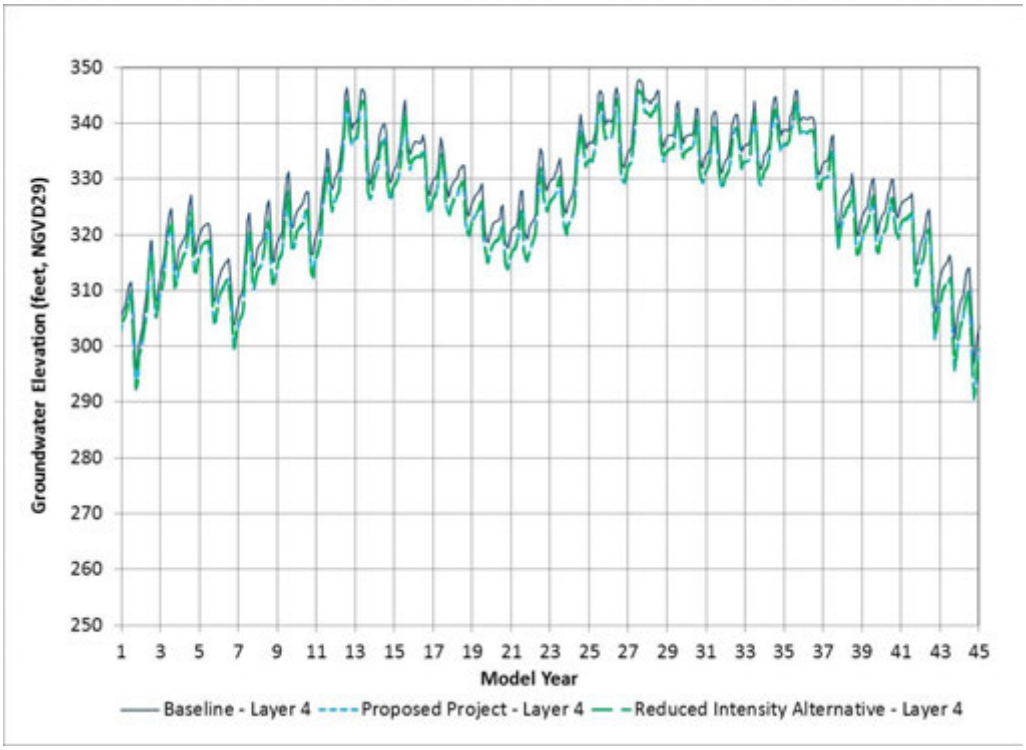


Figure 6-13: Project Impacts at Well S3 (Layer 4)

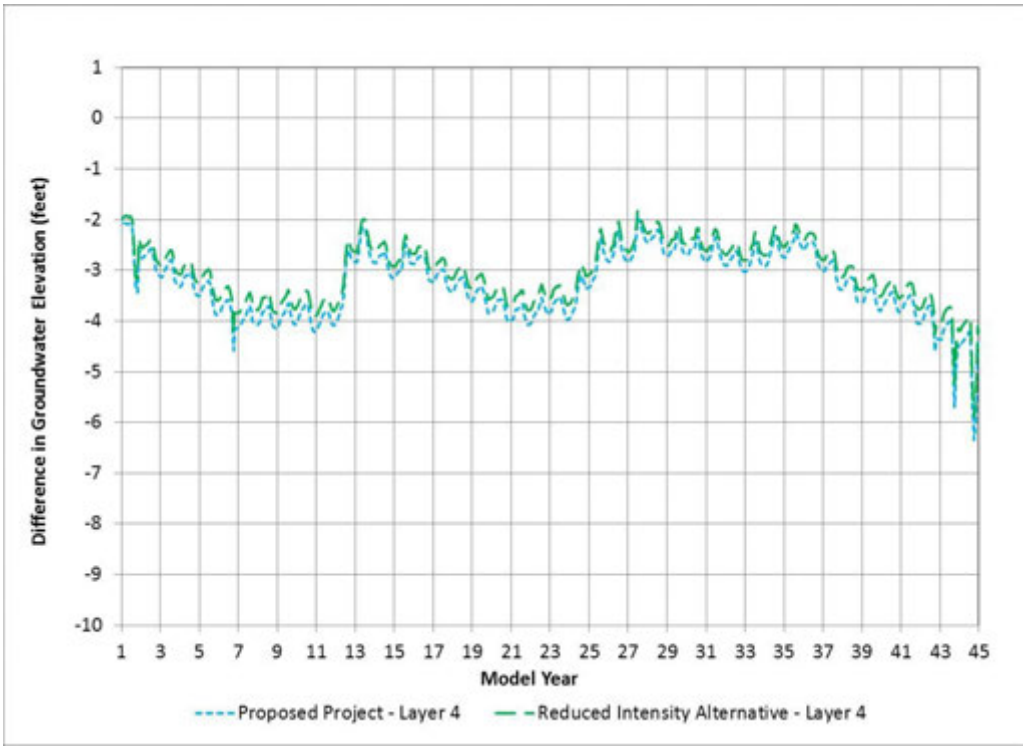


Figure 6-14: Groundwater Levels of Baseline and Project Scenarios at Well MW-11 (Layer 1)

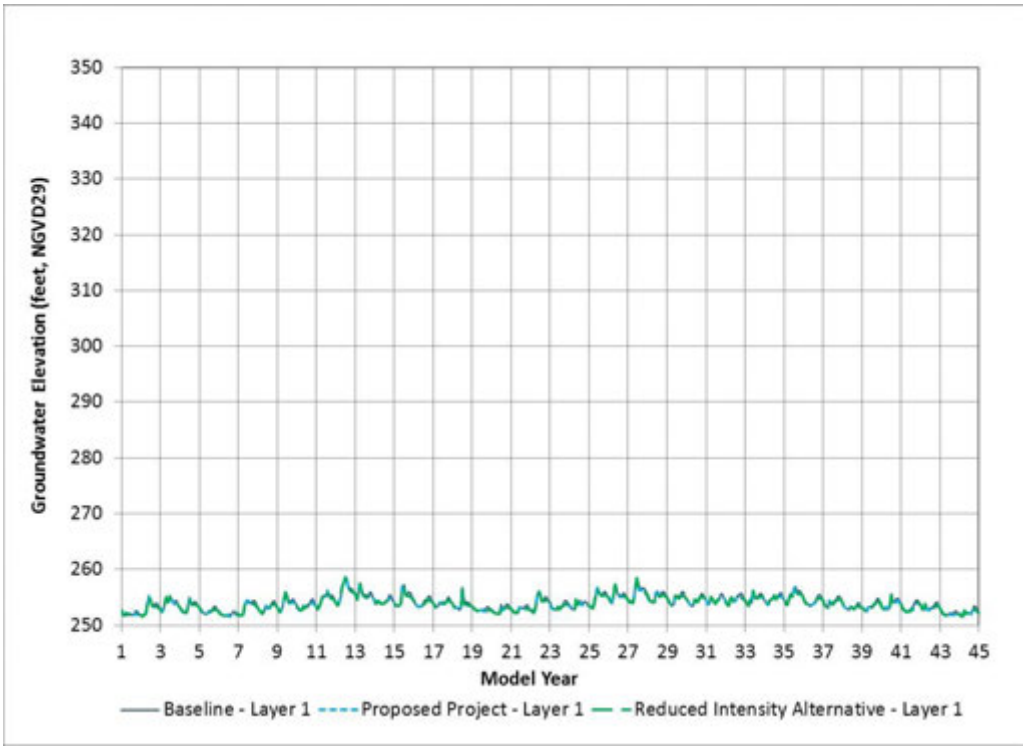


Figure 6-15: Project Impacts at Well MW-11 (Layer 1)

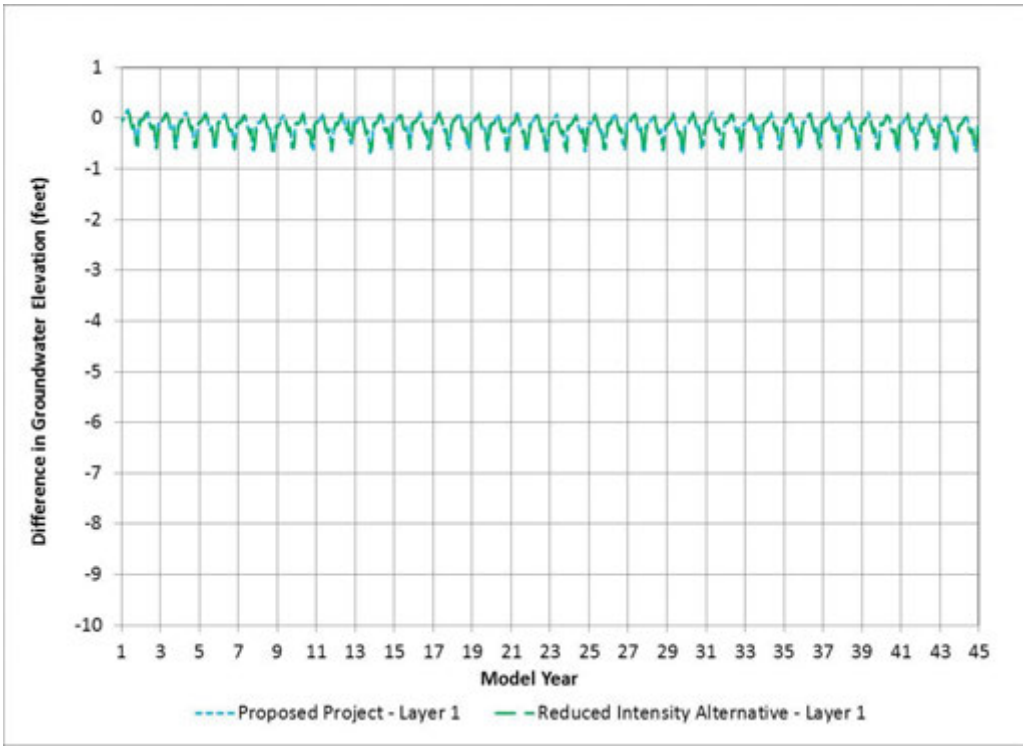


Figure 6-16: Groundwater Levels of Baseline and Project Scenarios at Well 75A (Layer 1)

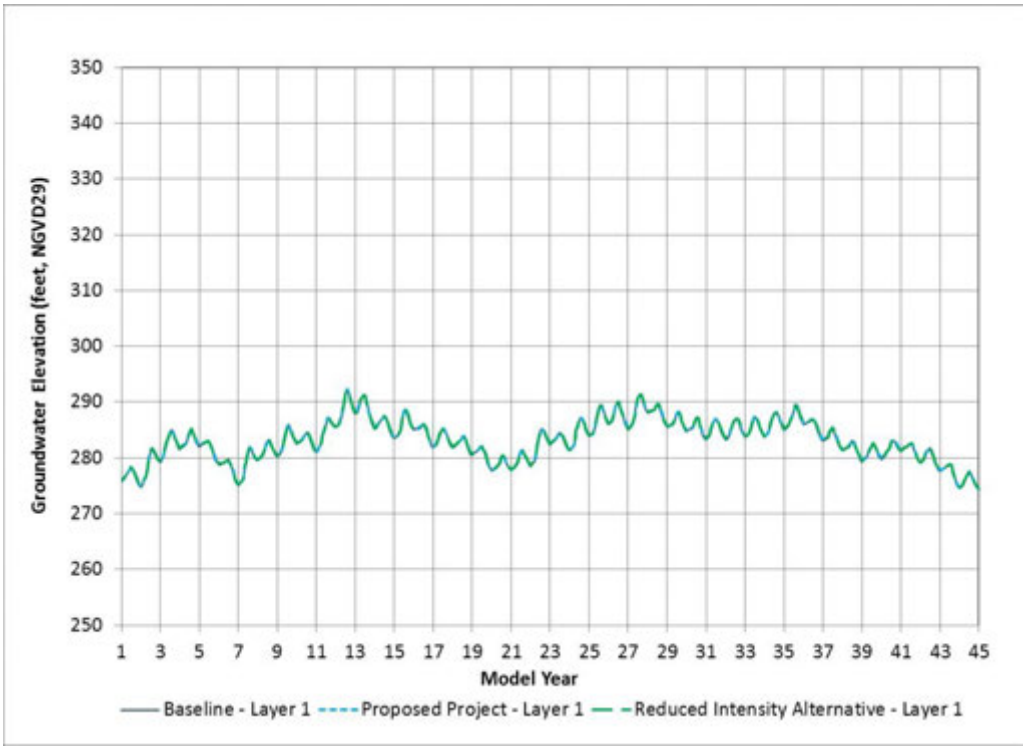


Figure 6-17: Groundwater Levels of Baseline and Project Scenarios at Well 75A (Layer 4)

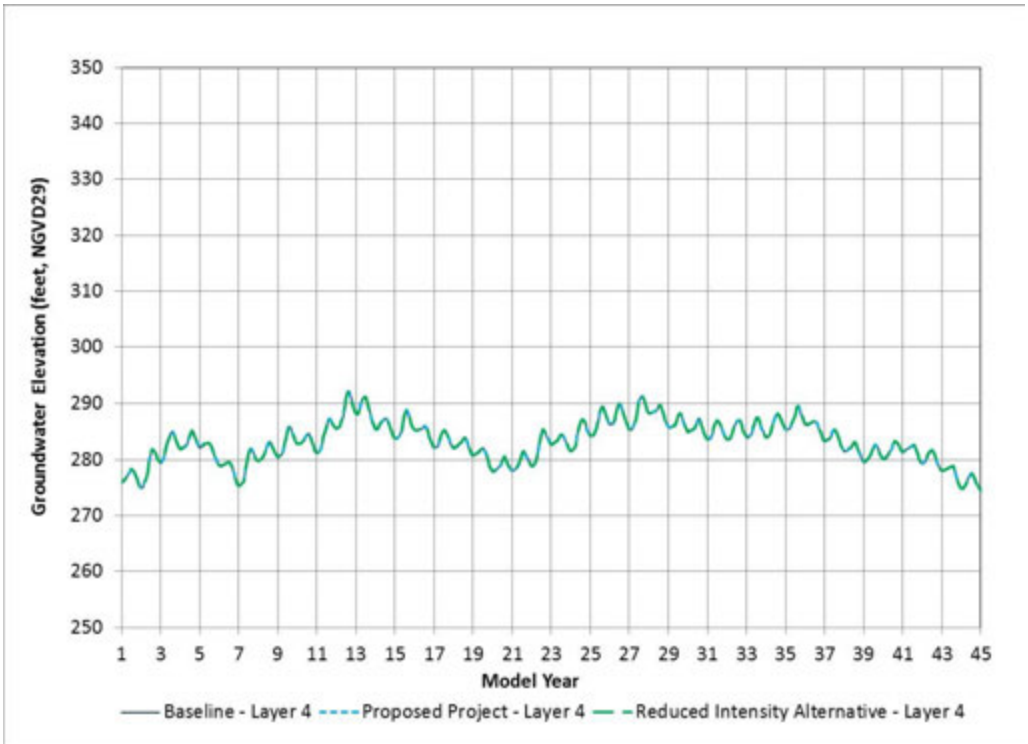


Figure 6-18: Project Impacts at Well 75A

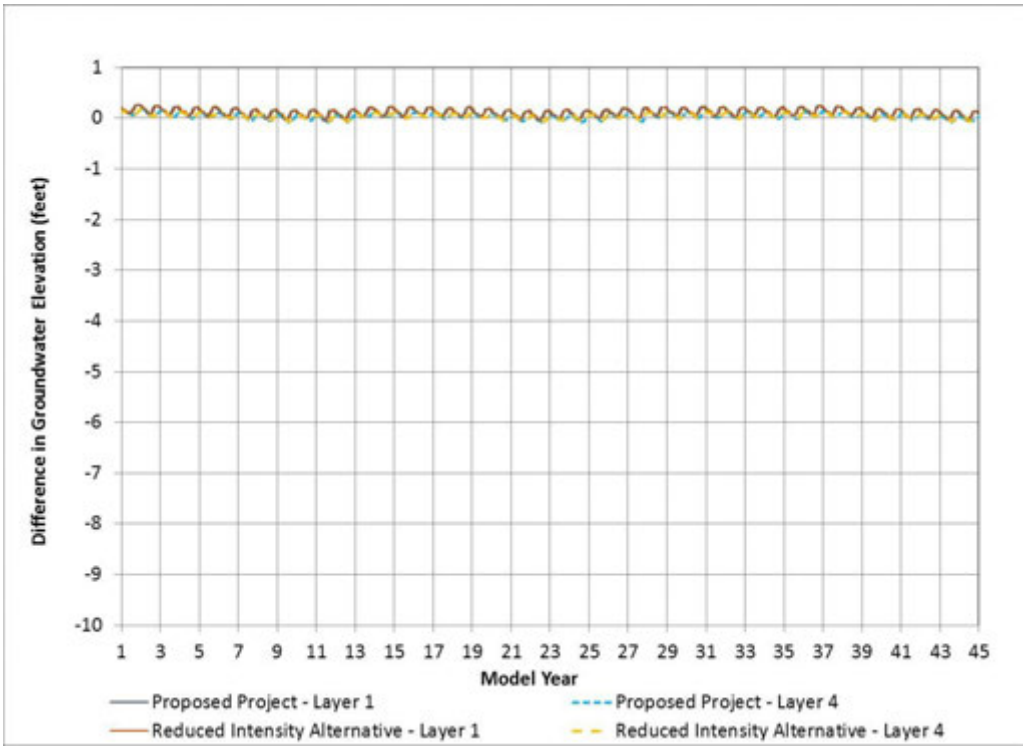


Figure 6-19: Groundwater Levels of Baseline and Project Scenarios at 10N02W18F001M (Layer 1)

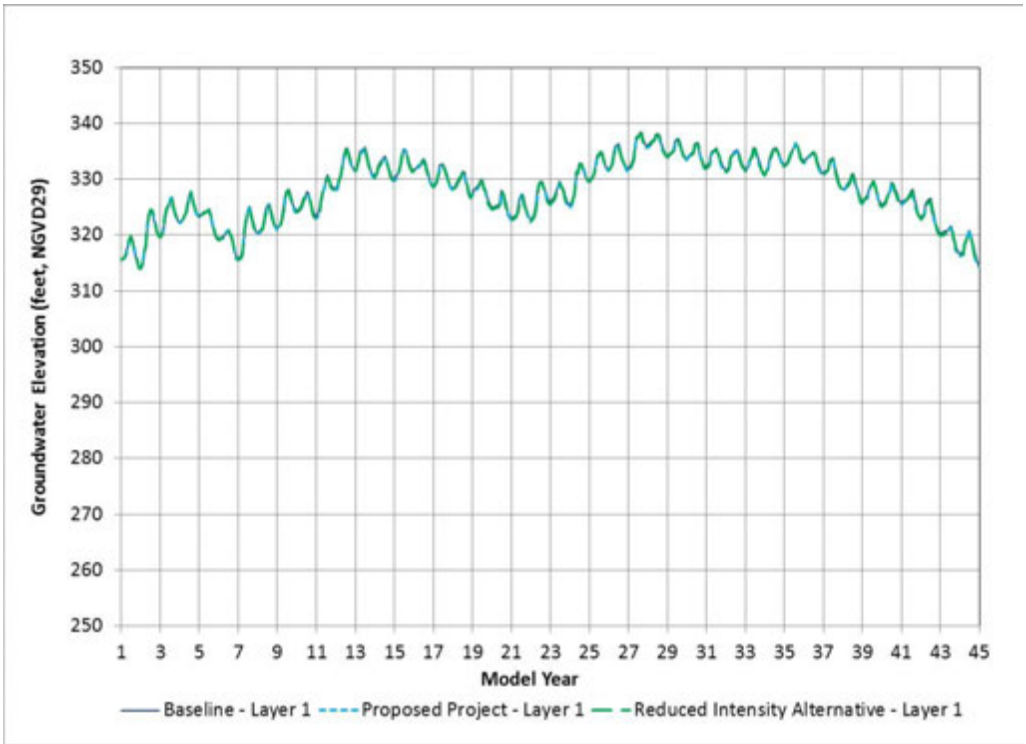


Figure 6-20: Groundwater Levels of Baseline and Project Scenarios at 10N02W18F001M (Layer 4)

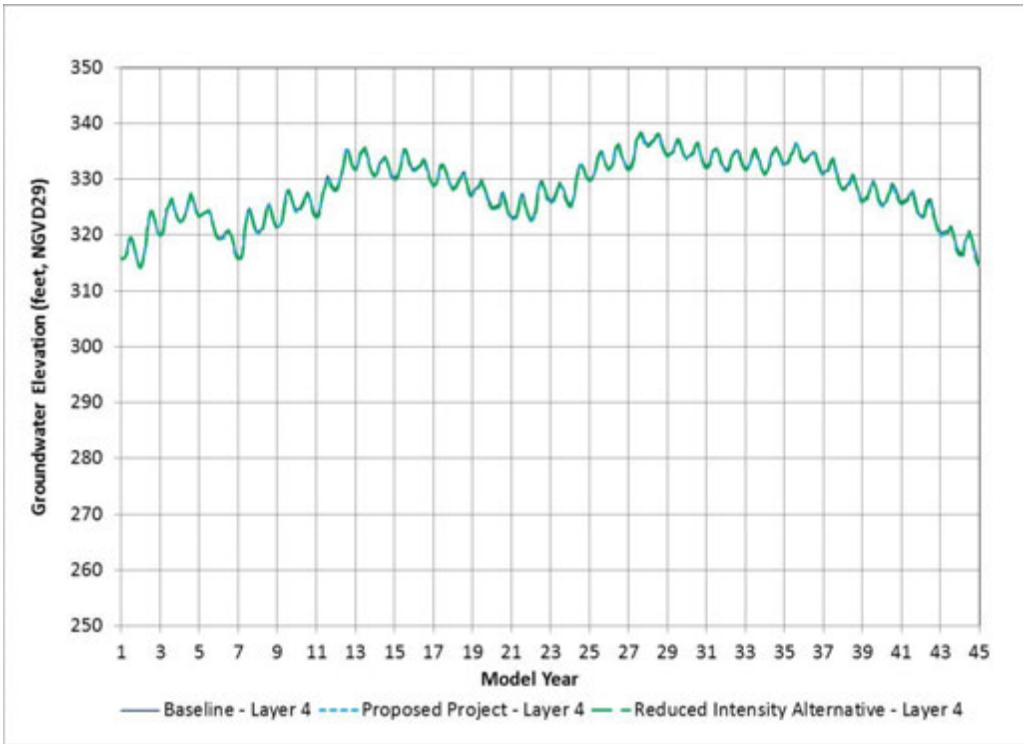


Figure 6-21: Project Impacts at 10N02W18F001M

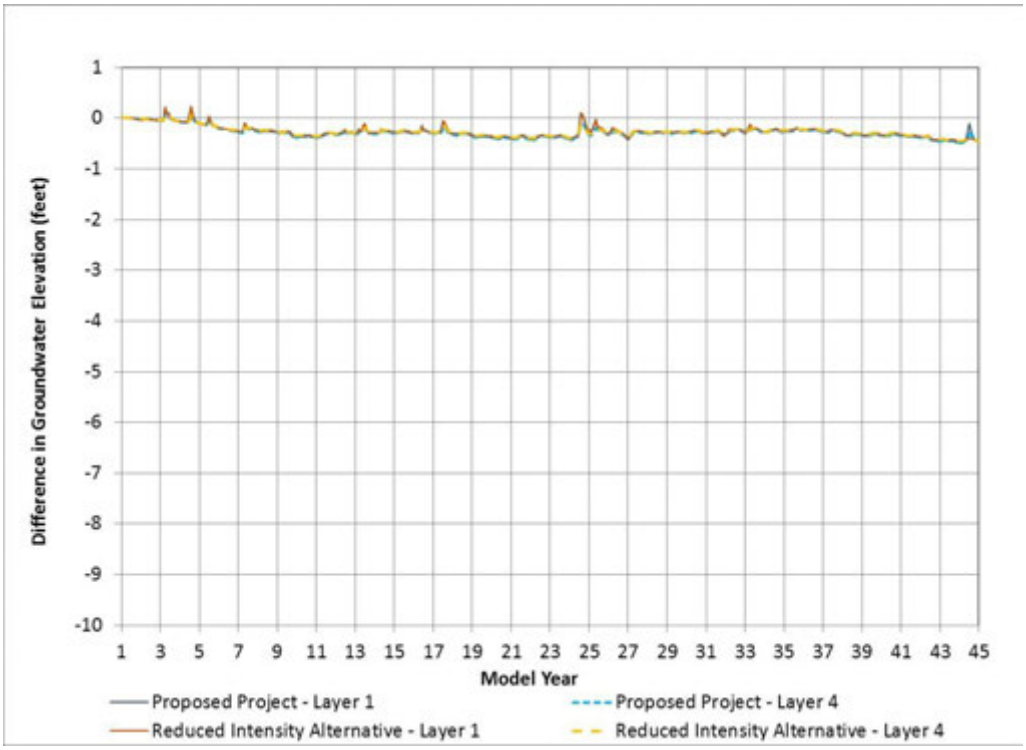


Figure 6-22: Location of Cache Creek Observation Locations and Golf Course Diversion Location

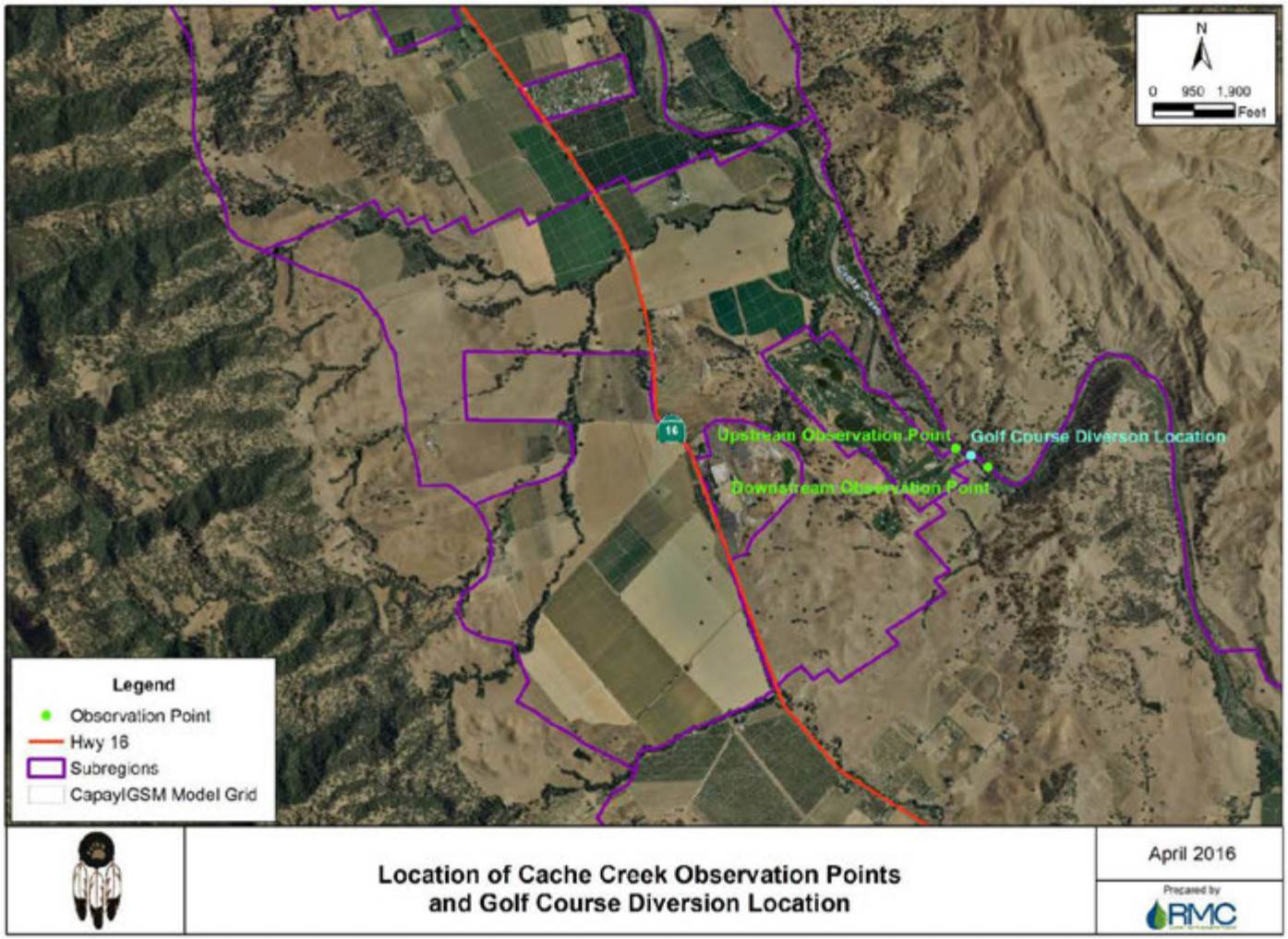


Figure 6-23: Modeled Cache Creek Flow Upstream of Golf Course Diversion

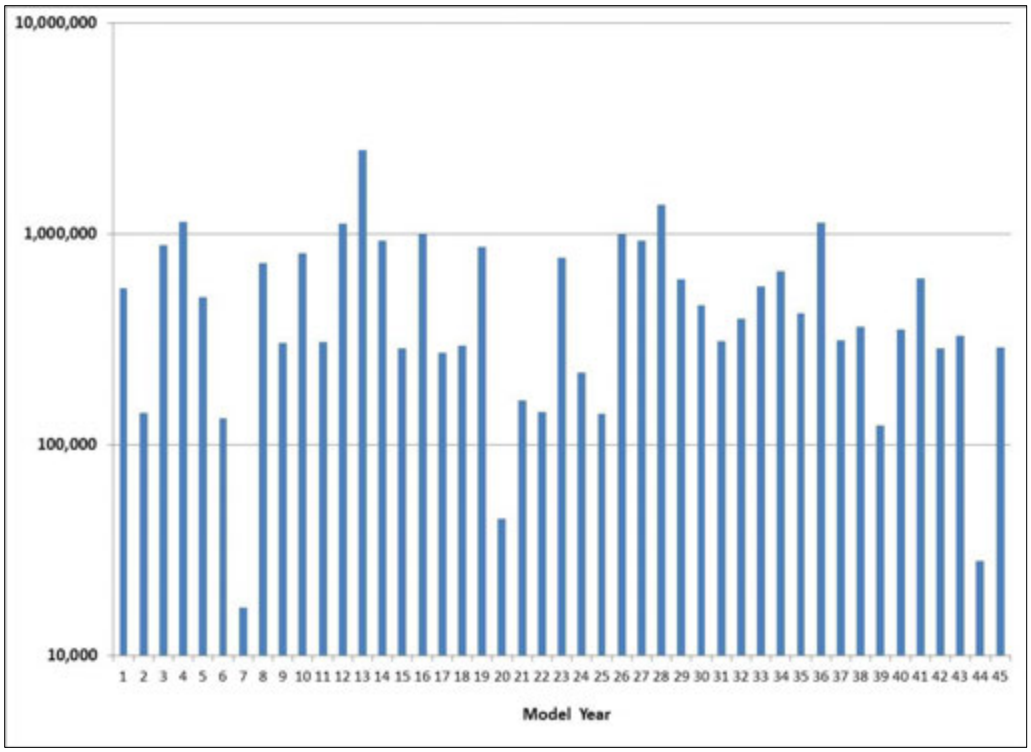


Figure 6-24: Project Impact on Cache Creek Flow Upstream of Golf Course Diversion

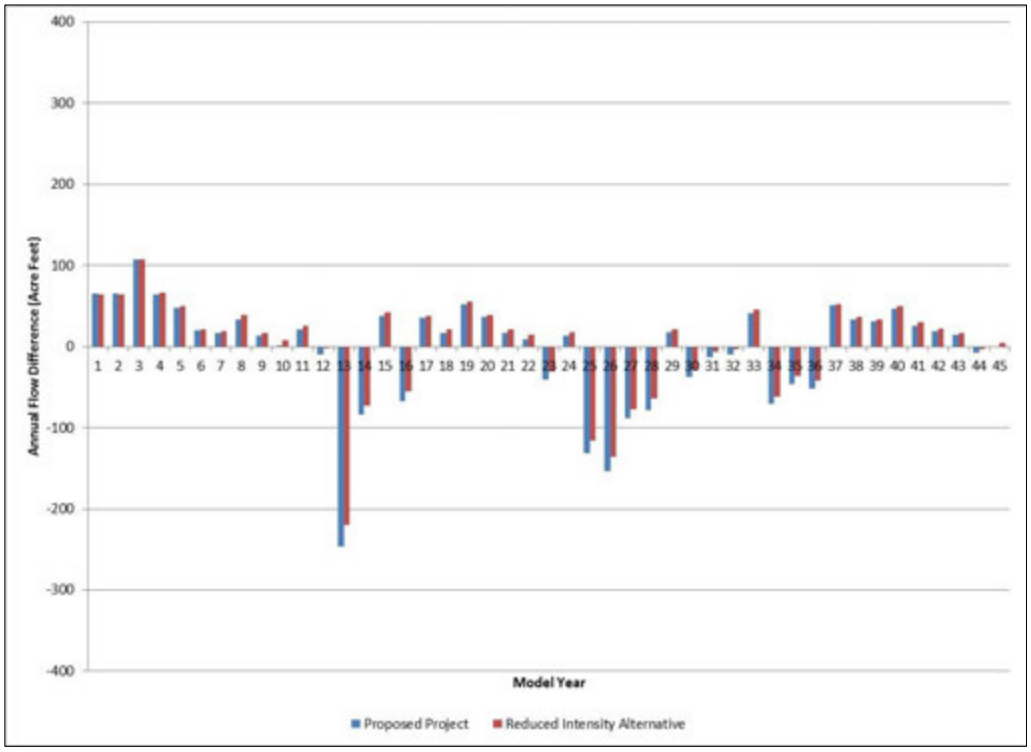


Figure 6-25: Project Impact on Cache Creek Flow Downstream of Golf Course Diversion

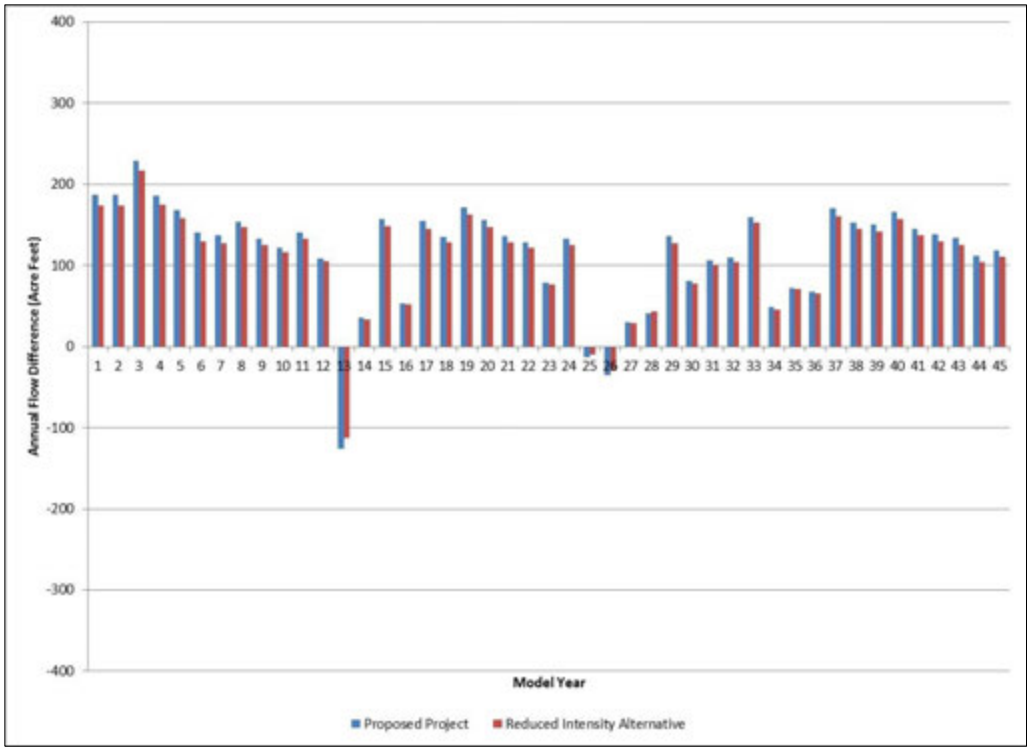


Figure 6-26: Percent Impact of Project on Cache Creek Flow Upstream of Golf Course Diversion

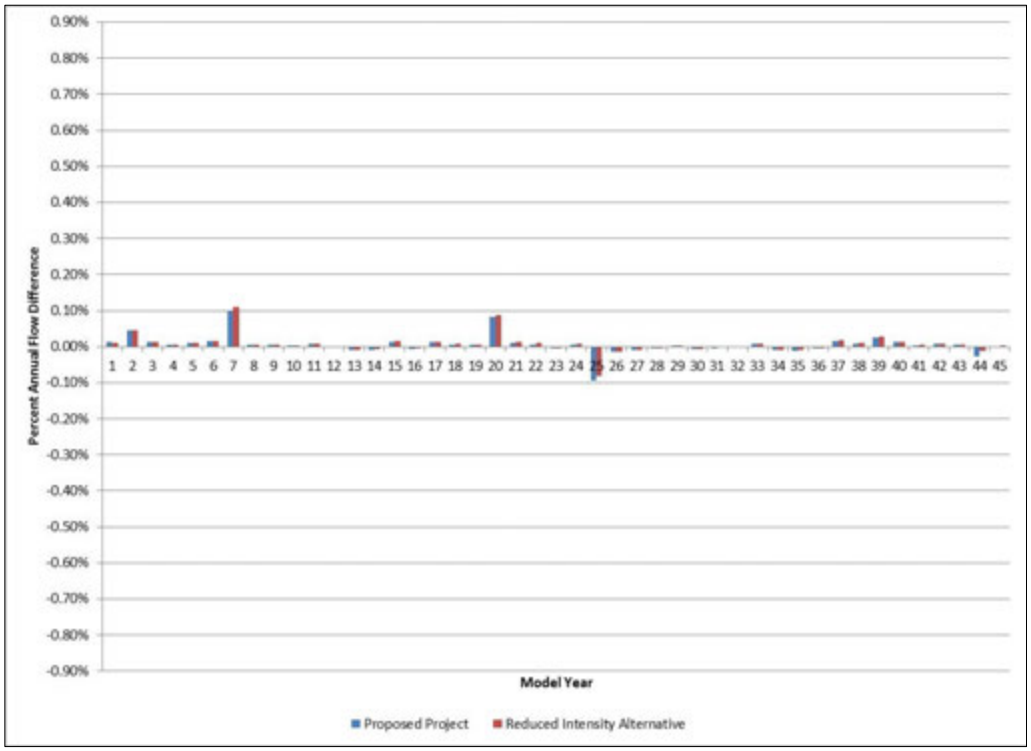
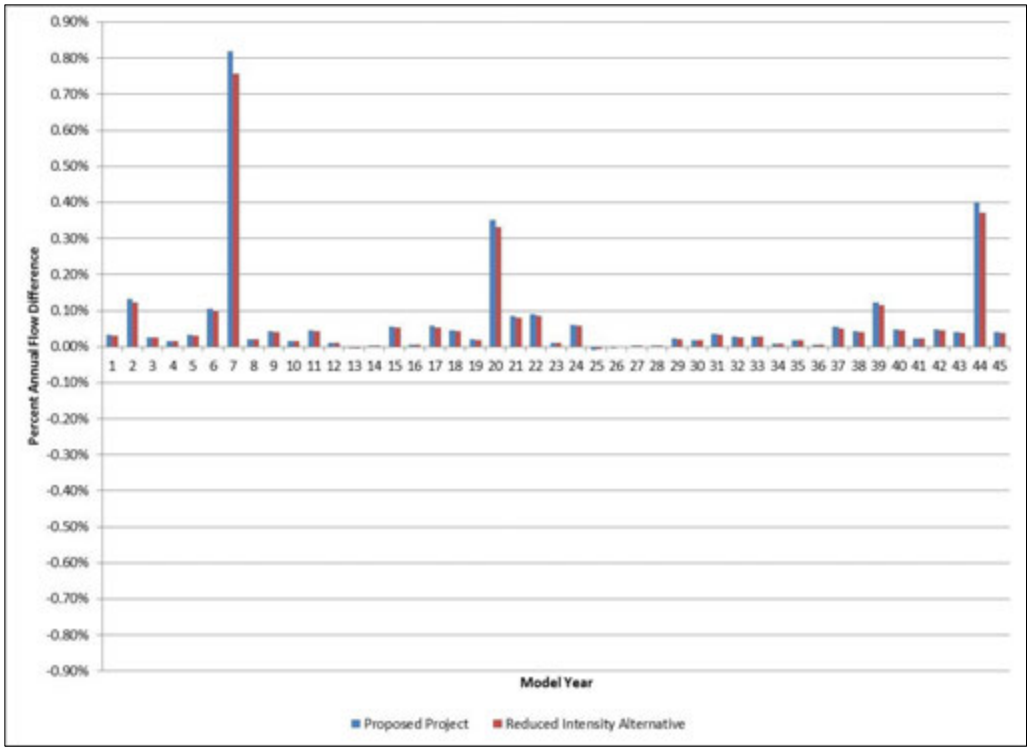


Figure 6-27: Percent Impact of Project on Cache Creek Flow Downstream of Golf Course Diversion



Section 7 Impact Assessment

This section of the Report discusses the impacts resulting from the project alternatives. Based on the results in Section 6, the Proposed Project (459 rooms) is the scenario with the greater impacts. The impacts of the Reduced Intensity Alternative are anticipated to be slightly lower. Table 7-1 summarizes historical and modeled groundwater level data from the Proposed Project and Reduced Intensity Alternative for the seven study wells analyzed in Section 6.

7.1 Maximum Impacts

According to the model results, the greatest impacts of the Project appear at tribal well B4 (Table 7-1); however, there are no measured data available for comparison for this well, as discussed in Section 6. Table 7-1 indicates that tribal well B3 (which shows the second highest Project impact) has historically had groundwater elevations as low as 296 feet above mean sea level (msl) in 2005 and groundwater levels at the well have fluctuated by about 20 feet. The lowest predicted groundwater level for the Baseline Scenario is 289.6 feet (msl) during simulation year 2 (1972 hydrology). The lowest predicted groundwater level for the Proposed Project is 282 feet (msl) during simulation year 45 (2015 hydrology). Comparison of the minimum simulated groundwater levels indicates an additional 7.6 feet of drawdown from the Proposed Project relative to the Baseline Scenario. However, when considering the entire simulation period, the maximum drawdown of 8.9 feet at well B3 and 9.7 feet at well B4 is estimated at the end of the simulation period from the Proposed Project relative to the Baseline Scenario, as shown in Table 6-1 and Figure 6-8. The maximum drawdown of 9.7 feet at well B4 is considered small given the historical fluctuations in groundwater levels of approximately 20 feet in the Project area. In addition, the projected decline in groundwater levels is considered small relative to the depth of the tribal water supply wells (i.e., CCCR wells) that are completed from 285 feet below ground surface (bgs) to 470 feet bgs. It is also important to note that these impacts are likely to be much greater than the impacts that could be experienced at non-tribal wells (which are located farther from the Project).

7.2 Potential Impacts on Non-Tribal Wells

Table 7-1 shows that non-tribal wells are predicted to have estimated minimum groundwater levels either above historical minimum groundwater levels (e.g., wells 75A and 10N02W18F001M) or within 3 feet of the historical minimum levels (e.g., well MW-11), with the exception of 10N03W02R002M (which is used to show the highest potential non-tribal well impact). Well 10N03W02R002M has historically had groundwater elevations as low as 306 feet (msl) in 1992 and groundwater levels at the well have fluctuated by about 20 feet. The lowest predicted future groundwater level under the Baseline Scenario for well 10N03W02R002M is 297.3 feet (msl) during simulation year 7 (1972 hydrology). The lowest predicted groundwater level at Well 10N03W02R002M under the Proposed Project scenario is 296.6 feet (msl). Comparison of the minimum simulated groundwater levels indicates additional 0.7 feet of drawdown due to the Proposed Project. However, when considering the entire simulation period, the maximum drawdown of 2.2 feet is shown from the Proposed Project compared to the Baseline Scenario, as shown in Table 6-1 and Figure 6-11. This maximum drawdown of 2.2 feet is considered small compared to the historical fluctuations of 20 feet at this well.

The Project off-site impacts discussed above are considered small based on comparison to the historical range of groundwater levels. This analysis did not include a detailed analysis of every conceivable potential well location on all non-tribal land within the Project area. Determination of specific effects to all potential non-tribal well locations in the Project area would require significant additional information that is not available and cannot feasibly be obtained. However, CapayIGSM covers a full range of well locations, and the modeled results for well 10N03W02R002M represent the maximum potential impact on non-tribal wells considered in this analysis.

7.3 Summary

Based on the previous discussion, the Proposed Project impacts on groundwater levels and Cache Creek flows are anticipated to be small for the following reasons:

- Increased groundwater withdrawal for the Proposed Project would cause a maximum additional drawdown of about 9.7 feet at tribal well B4. This is considered small when compared to the historical fluctuations in groundwater levels of approximately 20 feet in the Project area. In addition, the projected decline in groundwater levels is considered small relative to the depth of the tribal water supply wells (i.e., CCCR wells) that are completed from 285 feet bgs to 470 feet bgs.
- The Proposed Project results in a maximum drawdown of 2.2 feet at a non-tribal well 10N03W02R002M considered in this analysis. This maximum drawdown is considered small compared to the historical fluctuations in groundwater levels of approximately 20 feet at well 10N03W02R002M.
- The impact of the Proposed Project Scenario on Cache Creek stream flows near the golf course diversion location is very small, representing only a fraction of a percent of the simulated Cache Creek flow at that location. Both the Project Scenario and the Reduced Intensity Alternative Scenario would result in an increase in stream flows downstream of the golf course diversion due to an increase in recycled water for the golf course irrigation in-lieu of surface water diversion.

Table 7-1: Simulated Impacts from Proposed Project and Reduced Intensity Alternative

Well Name		Historical Data			Baseline Conditions			Proposed Project			Reduced Intensity Alternative		
	Owner	Data availability	Range of GWL (feet, msl)	Date of Minimum GWL	Min GWL (feet, msl)	Simulation Year for Minimum GWL	Hydrology Date Corresponding to Simulation Year for Min GWL	Min GWL (feet, msl)	Simulation Year for Minimum GWL	Hydrology Date Corresponding to Simulation Year for Min GWL	Min GWL (feet, msl)	Simulation Year for Minimum GWL	Hydrology Date Corresponding to Simulation Year for Min GWL
Well B3	Tribal	2005 – 2016	296 – 330	08/2014	289.6	2	06/1972	282.0	45	06/2015	282.6	45	06/2015
Well B4	Tribal	-	-	-	291.5	2	06/1972	283.1	45	06/2015	283.8	45	06/2015
10N03W02R002M	Private	1984 – 2015	306 – 327	10/1992	297.3	2	09/1972	296.6	45	09/2015	296.7	2	09/1972
S3	Tribal	2005 – 2016	290 – 333	03/2005	288.7	2	06/1972	285.6	45	06/2015	291.0	45	06/2015
Well MW-11	Tribal	2007 – 2015	254 – 261	03/2007	251.6	45	11/2014	251.5	45	11/2014	251.5	45	11/2014
Well 75A (YHD-1)	Tribal	2005 – 2016	252 – 287	03/2005	274.3	1	10/1970	274.3	1	10/1970	274.3	1	10/1970
10N02W18F001M	Private	1953 – 2015	302 – 323	03/1953	313.9	1	10/1970	313.9	1	10/1970	313.9	1	10/1970

Notes: GWL = groundwater level
Min = minimum
msl – mean sea level

References

American Water Works Association. *Water Resources Planning Manual*. 2001.

Analytical Environmental Services (AES). *Yocha Dehe Wintun Nation Background Package, Groundwater Analysis and Monitoring Network*. April 2008.

Analytical Environmental Services (AES). Unpublished data. March 2010.

California Department of Water Resources. *Clear Lake-Cache Creek Basin Investigation*, Bulletin 90. March 1961.

California Department of Water Resources. *California's Groundwater,* Bulletin 118 - Update 2003. October 2003.

California Department of Water Resources. California Land & Water Use. http://www.water.ca.gov/landwateruse

California Department of Water Resources. California Data Exchange Center (CDEC). http://cdec.water.ca.gov

California Department of Water Resources, California Water Data Library (WDL). http://www.water.ca.gov/waterdatalibrary

California Irrigation Management Information System (CIMIS). http://wwwcimis.water.ca.gov

California Spatial Information Library (CaSIL). http://www.atlas.ca.gov

Environmental Systems Research Institute (ESRI). Data & Maps DVD. 2007.

Harmony, J.G. *Streamflow, Sediment Discharge, and Streambank Erosion in Cache Creek, Yolo County, California*. U.S. Geological Survey Water-Resources Investigation Report 88-4188. 1989.

Harwood, D.S., and Helley, E.J. *Late Cenozoic tectonics of the Sacramento Valley, California*. U.S. Geological Survey Professional Paper 1359. 1987.

Helley, E.J. and Harwood D.S., *Geologic Map of the Late Cenozoic Deposits of the Sacramento Valley and Northern Sierran Foothills, California*. U.S. Geological Survey Publication MF-1790. 1985

LM Laugenour and Meikle. Water and Wastewater Feasibility Study for Yocha Dehe Wintun Nation "Fee to Trust" Conversion. Appendix C. February 2011

National Oceanic and Atmosphere Administration (NOAA). Climate Data DVD. 2006.

National Resource Conservation Service (NRCS). Soil Data Mart. http://soildatamart.nrcs.usda.gov/

U.S. Geological Survey (USGS). National Map Seamless Server. http://seamless.usgs.gov/

U.S. Geological Survey (USGS). National Water Information System. http://waterdata.usgs.gov/

Wagner, D.L., and Saucedo, G.J. *California Geology: Geologic Structure, Capay Hills*. February 1984.

WRIME, Inc. *Yolo County Integrated Groundwater and Surface water Model*. May 2006.

WRIME, Inc. *IGSM User's Manual*. May 2003.

WRIME, Inc. Technical Memorandum CCCR Event Center Project TEIR Hydrological Model of Capay Valley. Prepared for Analytical Environmental Services. April 2010.

Appendix A - Calibration Well Hydrographs

Appendix A Calibration Well Hydrographs

Appendix A contains hydrographs for each calibration well comparing observed and simulated groundwater levels at each well for all model layers.

Calibration Well Metadata						Calibration Results		
Calibration Well ID #	*Owner*	*Calibration Well Name*	*Available Data*	*Number of Observations*	*Range of Observed GWL (ft, msl)*	*Overall Simulated Groundwater Level*	*Simulated Groundwater Level Trend*	*Simulated Seasonal Groundwater Level Fluctuation*
1	Non-tribal	10N02W07 A001M	1953 - 2009	106	251 -277	Matches Observed	Matches Observed	Matches Observed
2	Non-tribal	10N02W16 L001M	1953 - 1957	9	214 -218	Matches Observed	Insufficient Data	Insufficient Data
3	Non-tribal	10N02W16 R001M	1957 - 2009	105	209 -221	Matches Observed	Matches Observed	Matches Observed
4	Non-tribal	10N02W17 J001M	1953 - 2009	113	237 -254	Matches Observed	Matches Observed	10 Feet too great
5	Non-tribal	10N02W18 F001M	1953 - 2009	115	302 -324	10 feet too high	Matches Observed	Matches Observed
6	Non-tribal	10N02W21 G001M	1953 - 2009	106	219 -231	5 feet too high	Matches Observed	Matches Observed
7	Non-tribal	10N03W02 R001M	1953 - 1983	50	290 -325	Matches Observed	Matches Observed	Matches Observed
8	Non-tribal	10N03W02 R002M	1984 - 2008	42	306 -325	Matches Observed	5 feet high after 2000	Matches Observed
9	Non-tribal	10N03W13 E001M	1953 - 2009	107	340 -362	5 feet too high	10 feet high after 1995	Matches Observed
10	Non-tribal	10N03W24 B001M	1953 - 2004	93	399 -421	5 feet too high	Match in Layer 4	Matches Observed
11	Non-tribal	11N03W03 L001M	1953 - 1985	63	324 -343	5 feet to0 low	Matches Observed	Matches Observed
12	Non-tribal	11N03W04 P001M	1954 - 1976	44	285 -373	Matches Observed	Insufficient Data	20 feet too little
13	Non-tribal	11N03W09 Q001M	1953 - 2009	98	362 -411	30 feet too low	Matches Observed	10 feet too little
14	Non-tribal	11N03W15 G001M	1953 - 2000	94	283 -320	Matches Observed	Matches Observed	5 feet too little
15	Non-tribal	11N03W22 B001M	1953 - 1982	59	300 -327	Matches Observed	Insufficient Data	Matches Observed
16	Non-tribal	11N03W23 L001M	1980 - 2009	49	253 -301	Matches Observed	Matches Observed	Matches Observed
17	Non-tribal	11N03W23 N001M	1953 - 2009	105	269 -303	Matches Observed	Matches Observed	Matches Observed
18	Non-tribal	11N03W26 M003M	1953 - 1977	49	251 -295	10 feet too high	Insufficient Data	Matches Observed
19	Non-tribal	11N03W34 C001M	1953 - 2009	111	316 -361	Matches Observed	20 feet low after 1985	20 feet too great
20	Non-tribal	11N03W35 J001M	1953 - 1975	44	234 -284	5 feet too high	Insufficient Data	5 feet too little
21	Non-tribal	11N03W36 M001M	1956 - 1975	39	223 -277	5 feet too high	Insufficient Data	Matches Observed
22	Non-tribal	12N03W18 G002M	1954 - 2009	107	377 -408	Matches Observed	Matches Observed	Matches Observed
23	Non-tribal	12N03W20 D001M	1953 - 2008	95	376 -392	Matches Observed	Matches Observed	Matches Observed
24	Non-tribal	12N03W29 K001M	1953 - 2001	81	375 -398	10 feet too low	Matches Observed	10 feet too little
25	Non-tribal	12N03W32 Q001M	1953 - 1989	68	305 -391	15 feet too high	Matches Observed	Matches Observed

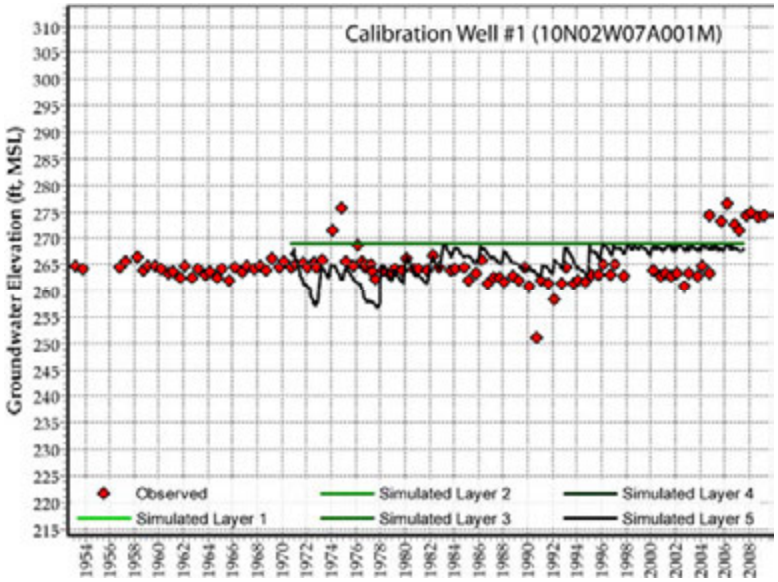
26	Non-tribal	12N03W33 F001M	1953 - 2004	106	333 -352	10 feet too high	Matches Observed	5 feet too little
27	Non-tribal	12N04W12 R001M	1953 - 1973	44	417 -431	Matches Observed	Insufficient Data	20 feet too great
28	Tribal	N1	2003 - 2009	67	312 -324	Matches Observed	Insufficient Data	Matches Observed
29	Tribal	MW-10	2007 - 2009	11	270 -276	5 feet too high	Insufficient Data	Matches Observed
30	Tribal	MW-11	2007 - 2009	11	251 -259	Matches Observed	Insufficient Data	Matches Observed
31	Tribal	MW-12	2007 - 2009	11	248 -260	Matches Observed	Insufficient Data	Matches Observed
32	Tribal	MW-5	2007 - 2009	10	251 -260	5 feet too high	Insufficient Data	Matches Observed
33	Tribal	CCCR-1	2003 - 2009	48	307 -334	5 feet too high	Insufficient Data	5 feet too little
34	Tribal	OldCasino 2	2004 - 2009	46	216 -369	30 fee too low	Insufficient Data	Matches Observed
35	Tribal	OldCasino 3	2003 - 2009	65	311 -379	Matches Observed	Matches Observed	Matches Observed
36	Tribal	B1	2003 - 2006	32	307 -325	15 feet too high	Insufficient Data	Matches Observed
37	Tribal	B2	2008 - 2008	1	317 -317	10 feet too high	Insufficient Data	Insufficient Data
38	Tribal	B3	2003 - 2009	72	311 -330	5 feet too high	Insufficient Data	Matches Observed
39	Tribal	B4	2005 - 2005	1	310 -310	20 fee too high	Insufficient Data	Insufficient Data
40	Tribal	S3	2003 - 2009	64	316 -340	Matches Observed	Insufficient Data	Matches Observed
41	Tribal	S1	2003 - 2009	72	319 -336	Matches Observed	Insufficient Data	Matches Observed
42	Tribal	S2	2005 - 2009	43	303 -334	20 feet too high	Insufficient Data	Matches Observed
43	Tribal	YDH-1	2004 - 2009	50	265 -285	10 feet too high	Insufficient Data	5 feet too little
44	Tribal	MW-9	2003 - 2008	6	380 -397	Matches Observed	Matches Observed	Insufficient Data
45	Tribal	MW-8	2003 - 2008	4	340 -412	Matches Observed	Matches Observed	Insufficient Data
46	Tribal	MW-7	2004 - 2008	4	328 -372	15 feet too low	Matches Observed	Insufficient Data

contains metadata for each and a summary of the calibration results at each calibration well. Locations for each calibration well were shown previously in **Error! Reference source not found.**.

Differences between observed and simulated groundwater levels are expected in a calibrated groundwater model. It is not possible to develop a model that is perfectly calibrated at every observation well for a variety of reasons. Overall, the CapayIGSM model simulates the overall groundwater levels, groundwater level trends, and groundwater level seasonal fluctuations reasonably well.

Table A.1 Calibration Well Metadata and Calibration Results

Calibration Well Metadata						Calibration Results		
Calibration Well ID #	*Owner*	*Calibration Well Name*	*Available Data*	*Number of Observations*	*Range of Observed GWL (ft, msl)*	*Overall Simulated Groundwater Level*	*Simulated Groundwater Level Trend*	*Simulated Seasonal Groundwater Level Fluctuation*
1	Non-tribal	10N02W07A001M	1953 - 2009	106	251 -277	Matches Observed	Matches Observed	Matches Observed
2	Non-tribal	10N02W16L001M	1953 - 1957	9	214 -218	Matches Observed	Insufficient Data	Insufficient Data
3	Non-tribal	10N02W16R001M	1957 - 2009	105	209 -221	Matches Observed	Matches Observed	Matches Observed
4	Non-tribal	10N02W17J001M	1953 - 2009	113	237 -254	Matches Observed	Matches Observed	10 Feet too great
5	Non-tribal	10N02W18F001M	1953 - 2009	115	302 -324	10 feet too high	Matches Observed	Matches Observed
6	Non-tribal	10N02W21G001M	1953 - 2009	106	219 -231	5 feet too high	Matches Observed	Matches Observed
7	Non-tribal	10N03W02R001M	1953 - 1983	50	290 -325	Matches Observed	Matches Observed	Matches Observed
8	Non-tribal	10N03W02R002M	1984 - 2008	42	306 -325	Matches Observed	5 feet high after 2000	Matches Observed
9	Non-tribal	10N03W13E001M	1953 - 2009	107	340 -362	5 feet too high	10 feet high after 1995	Matches Observed
10	Non-tribal	10N03W24B001M	1953 - 2004	93	399 -421	5 feet too high	Match in Layer 4	Matches Observed
11	Non-tribal	11N03W03L001M	1953 - 1985	63	324 -343	5 feet to0 low	Matches Observed	Matches Observed
12	Non-tribal	11N03W04P001M	1954 - 1976	44	285 -373	Matches Observed	Insufficient Data	20 feet too little
13	Non-tribal	11N03W09Q001M	1953 - 2009	98	362 -411	30 feet too low	Matches Observed	10 feet too little
14	Non-tribal	11N03W15G001M	1953 - 2000	94	283 -320	Matches Observed	Matches Observed	5 feet too little
15	Non-tribal	11N03W22B001M	1953 - 1982	59	300 -327	Matches Observed	Insufficient Data	Matches Observed
16	Non-tribal	11N03W23L001M	1980 - 2009	49	253 -301	Matches Observed	Matches Observed	Matches Observed
17	Non-tribal	11N03W23N001M	1953 - 2009	105	269 -303	Matches Observed	Matches Observed	Matches Observed
18	Non-tribal	11N03W26M003M	1953 - 1977	49	251 -295	10 feet too high	Insufficient Data	Matches Observed
19	Non-tribal	11N03W34C001M	1953 - 2009	111	316 -361	Matches Observed	20 feet low after 1985	20 feet too great
20	Non-tribal	11N03W35J001M	1953 - 1975	44	234 -284	5 feet too high	Insufficient Data	5 feet too little
21	Non-tribal	11N03W36M001M	1956 - 1975	39	223 -277	5 feet too high	Insufficient Data	Matches Observed
22	Non-tribal	12N03W18G002M	1954 - 2009	107	377 -408	Matches Observed	Matches Observed	Matches Observed
23	Non-tribal	12N03W20D001M	1953 - 2008	95	376 -392	Matches Observed	Matches Observed	Matches Observed
24	Non-tribal	12N03W29K001M	1953 - 2001	81	375 -398	10 feet too low	Matches Observed	10 feet too little
25	Non-tribal	12N03W32Q001M	1953 - 1989	68	305 -391	15 feet too high	Matches Observed	Matches Observed
26	Non-tribal	12N03W33F001M	1953 - 2004	106	333 -352	10 feet too high	Matches Observed	5 feet too little
27	Non-tribal	12N04W12R001M	1953 - 1973	44	417 -431	Matches Observed	Insufficient Data	20 feet too great
28	Tribal	N1	2003 - 2009	67	312 -324	Matches Observed	Insufficient Data	Matches Observed
29	Tribal	MW-10	2007 - 2009	11	270 -276	5 feet too high	Insufficient Data	Matches Observed
30	Tribal	MW-11	2007 - 2009	11	251 -259	Matches Observed	Insufficient Data	Matches Observed
31	Tribal	MW-12	2007 - 2009	11	248 -260	Matches Observed	Insufficient Data	Matches Observed
32	Tribal	MW-5	2007 - 2009	10	251 -260	5 feet too high	Insufficient Data	Matches Observed
33	Tribal	CCCR-1	2003 - 2009	48	307 -334	5 feet too high	Insufficient Data	5 feet too little
34	Tribal	OldCasino2	2004 - 2009	46	216 -369	30 fee too low	Insufficient Data	Matches Observed
35	Tribal	OldCasino3	2003 - 2009	65	311 -379	Matches Observed	Matches Observed	Matches Observed
36	Tribal	B1	2003 - 2006	32	307 -325	15 feet too high	Insufficient Data	Matches Observed
37	Tribal	B2	2008 - 2008	1	317 -317	10 feet too high	Insufficient Data	Insufficient Data
38	Tribal	B3	2003 - 2009	72	311 -330	5 feet too high	Insufficient Data	Matches Observed
39	Tribal	B4	2005 - 2005	1	310 -310	20 fee too high	Insufficient Data	Insufficient Data
40	Tribal	S3	2003 - 2009	64	316 -340	Matches Observed	Insufficient Data	Matches Observed
41	Tribal	S1	2003 - 2009	72	319 -336	Matches Observed	Insufficient Data	Matches Observed
42	Tribal	S2	2005 - 2009	43	303 -334	20 feet too high	Insufficient Data	Matches Observed
43	Tribal	YDH-1	2004 - 2009	50	265 -285	10 feet too high	Insufficient Data	5 feet too little
44	Tribal	MW-9	2003 - 2008	6	380 -397	Matches Observed	Matches Observed	Insufficient Data
45	Tribal	MW-8	2003 - 2008	4	340 -412	Matches Observed	Matches Observed	Insufficient Data
46	Tribal	MW-7	2004 - 2008	4	328 -372	15 feet too low	Matches Observed	Insufficient Data


Calibration Well #1 (10N02W07A001M)
Groundwater Elevation (ft, MSL)
Observed
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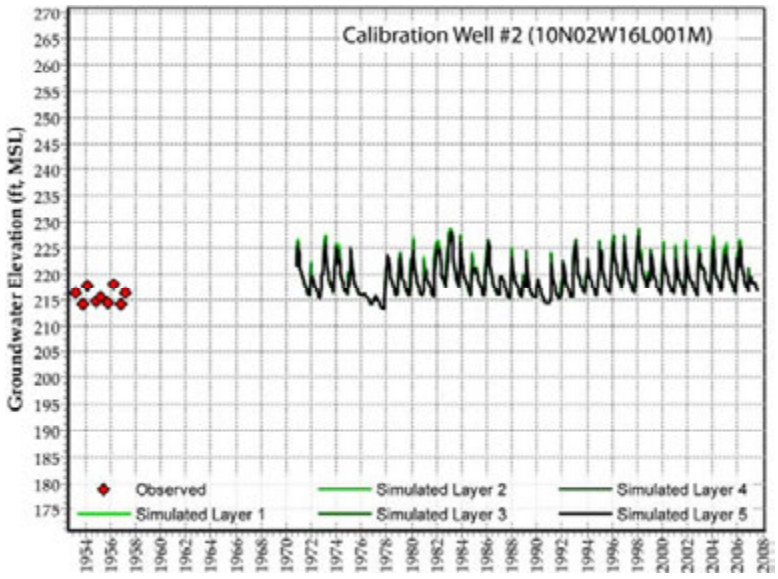
Simulated Layer 2
Simulated Layer 3
Simulated Layer 4
Simulated Layer 5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Groundwater Elevation (ft, MSL)
Observed
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Simulated Layer 2
Simulated Layer 3
Simulated Layer 4
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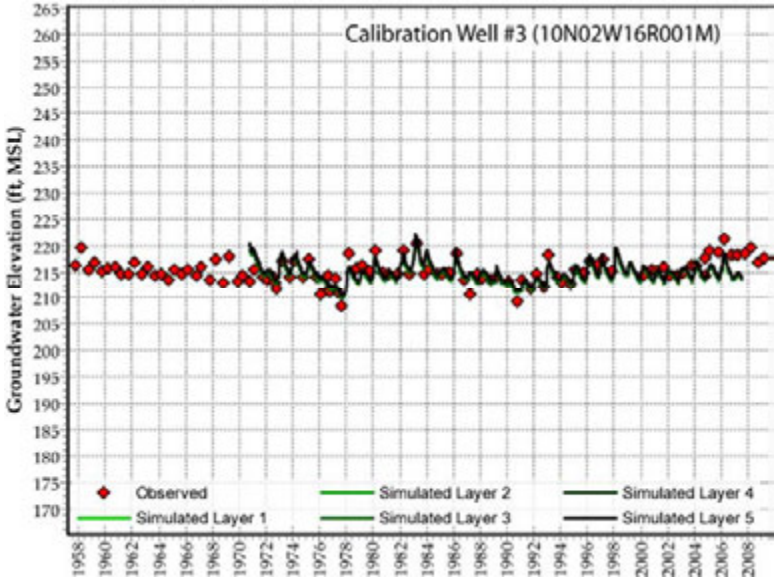
Calibration Well #3 (10N02W16R001M)
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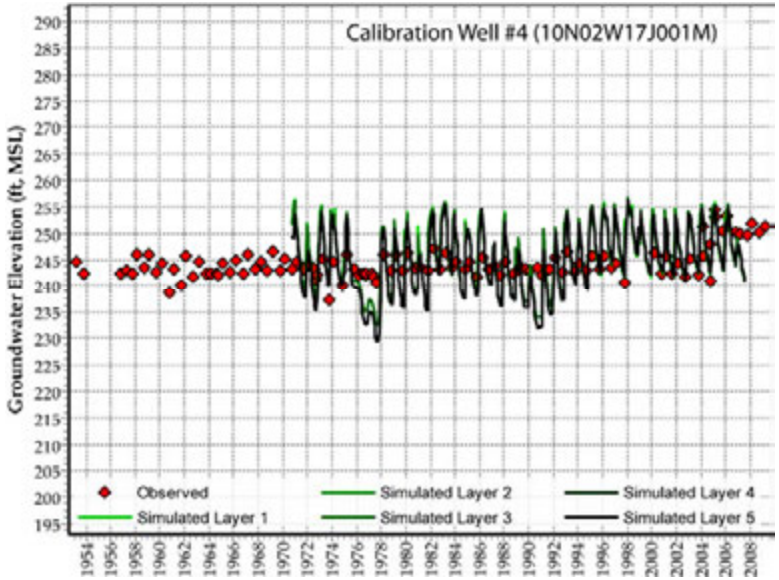
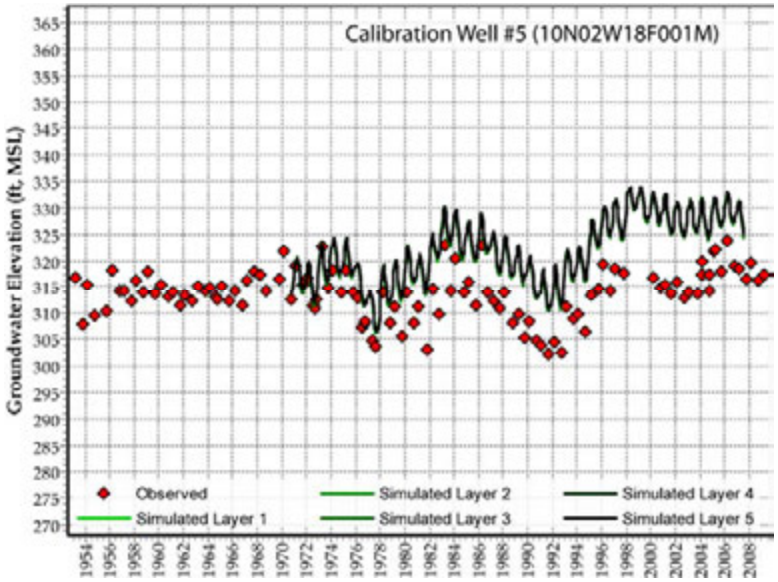
Observed
Simulated Layer 1
Simulated Layer 2
Simulated Layer 3
Simulated Layer 4
Simulated Layer 5


Calibration Well #4 (10N02W17J001M)
Groundwater Elevation (ft, MSL)
Observed
Simulated Layer 1
Simulated Layer 2
Simulated Layer 3
Simulated Layer 4
Simulated Layer 5


Calibration Well #5 (10N02W18F001M)
Groundwater Elevation (ft, MSL)
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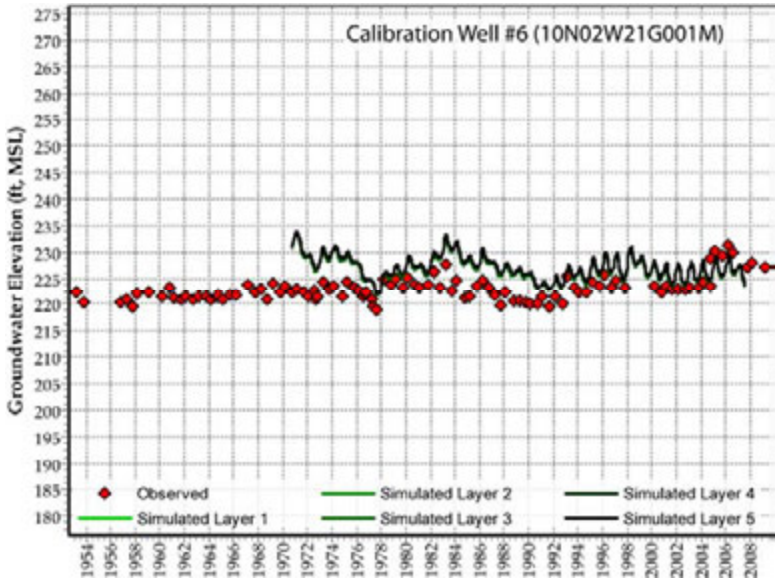
Simulated Layer 2
Simulated Layer 3
Simulated Layer 4
Simulated Layer 5


Calibration Well #6 (10N02W21G001M)
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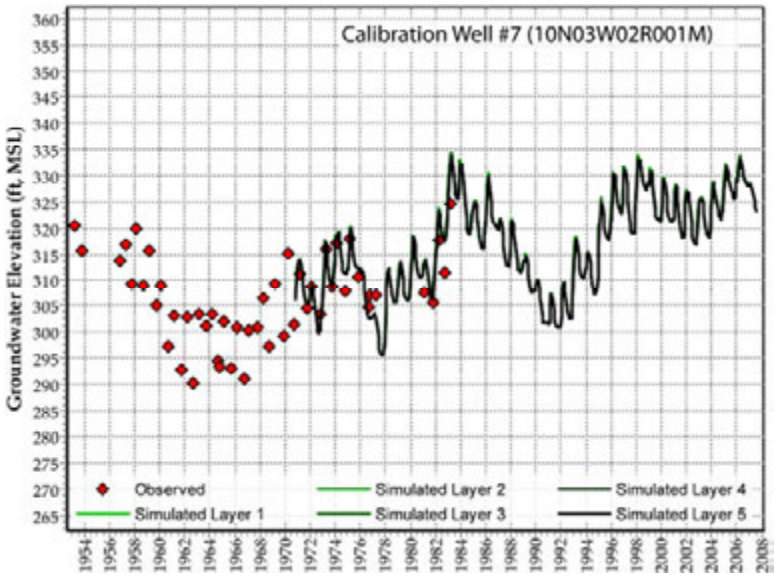
Calibration Well #7 (10N03W02R001M)
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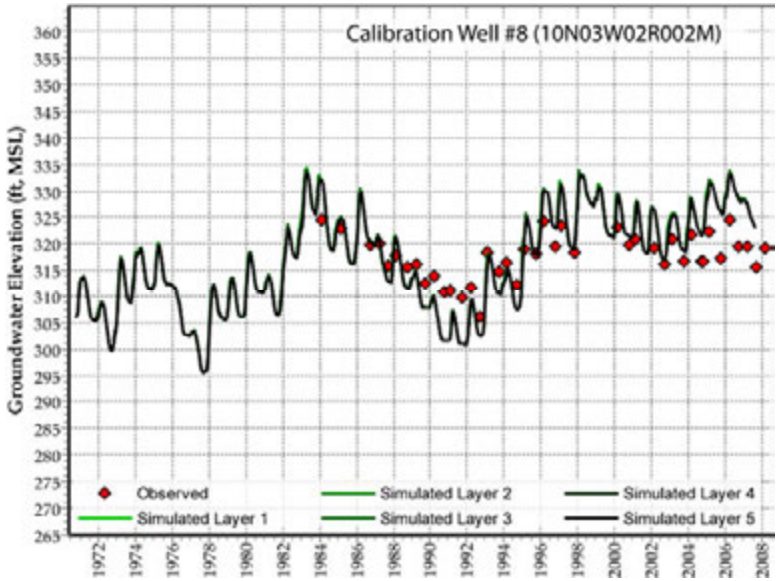
Calibration Well #8 (10N03W02R002M)
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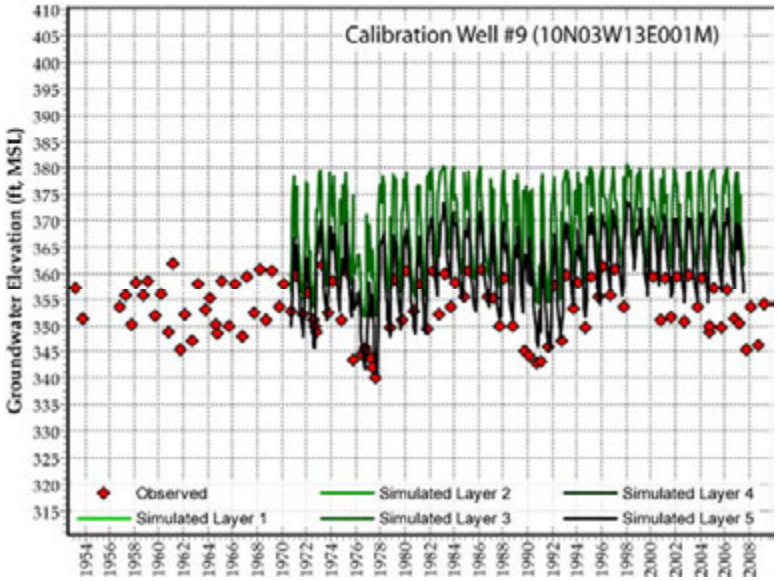
Simulated Layer 4
Simulated Layer 5


Calibration Well #9 (10N03W13E001M)
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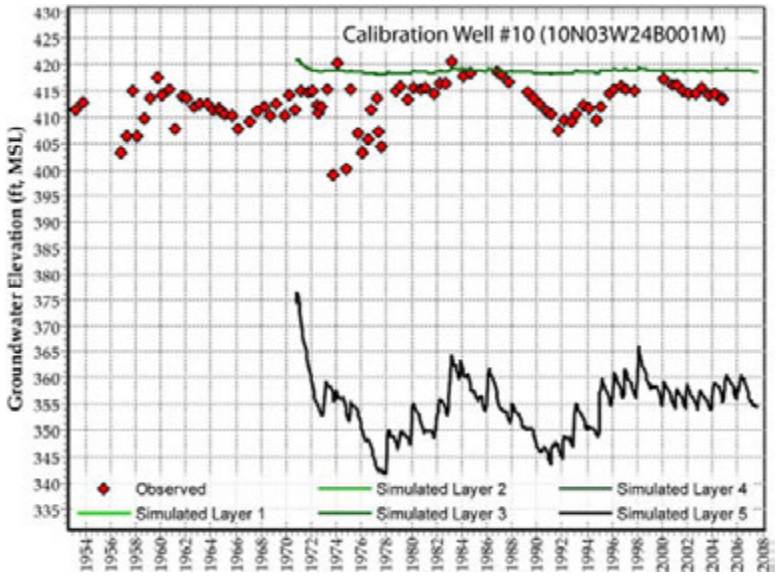
Simulated Layer 3
Simulated Layer 4
Simulated Layer 5


Calibration Well #10 (10N03W24B001M)
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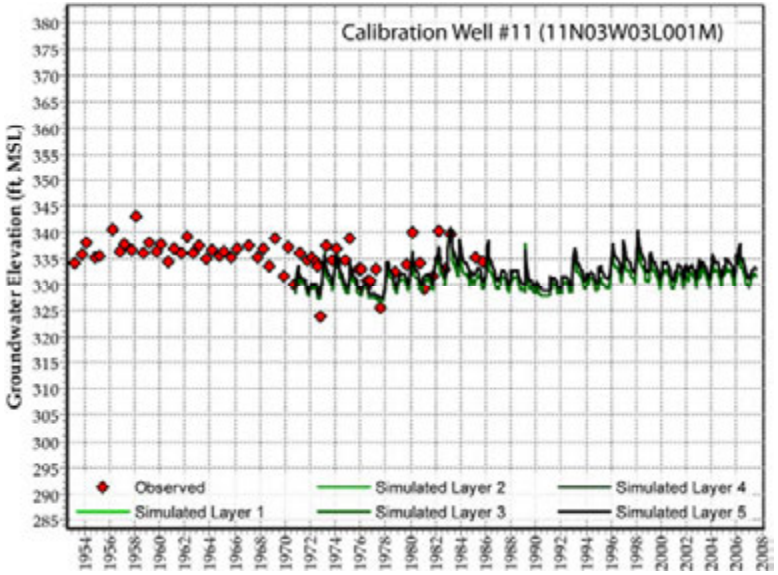
Simulated Layer 5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Groundwater Elevation (ft, MSL)
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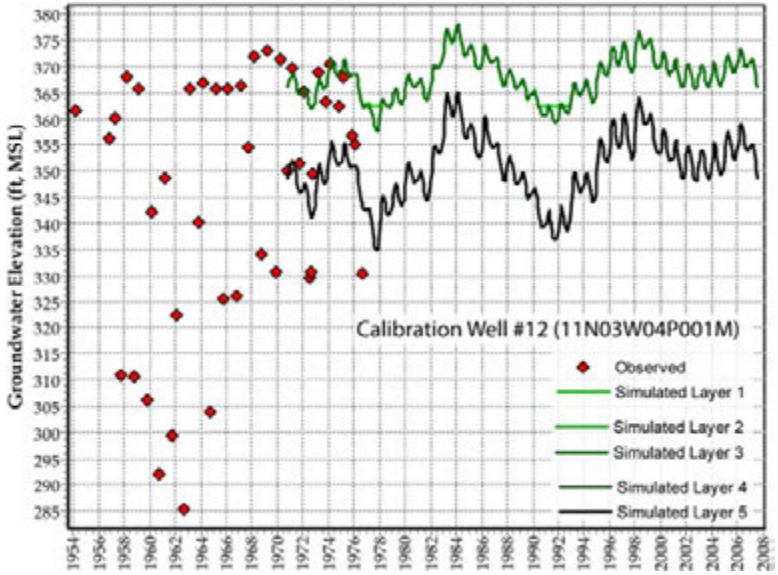
Simulated Layer 5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Observed
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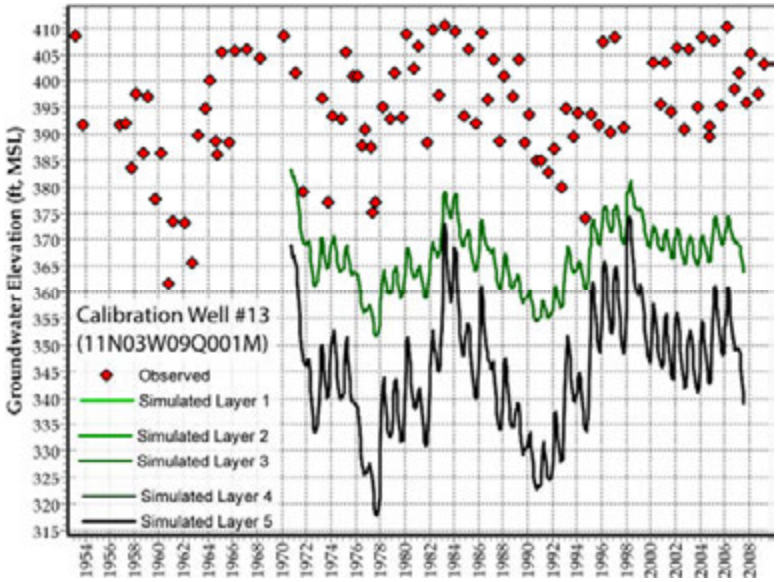
Simulated Layer 4
Simulated Layer 5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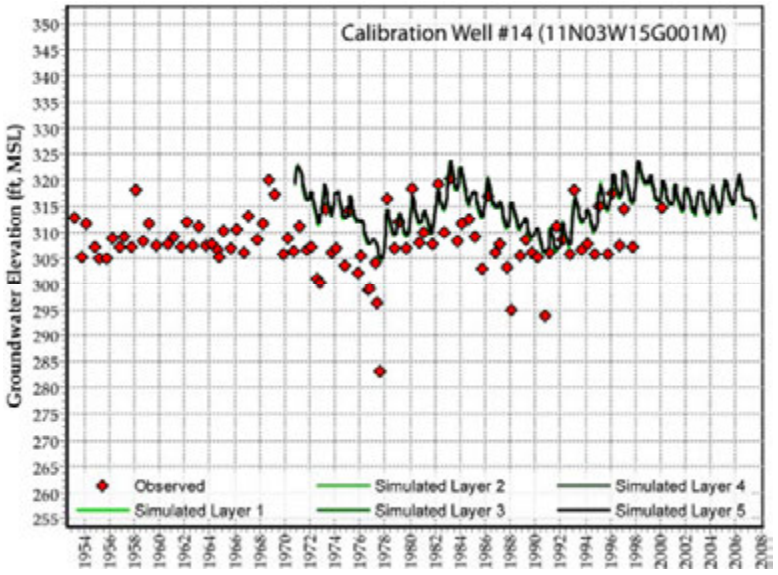
Simulated Layer 3
Simulated Layer 4
Simulated Layer 5


Calibration Well #14 (11N03W15G001M)
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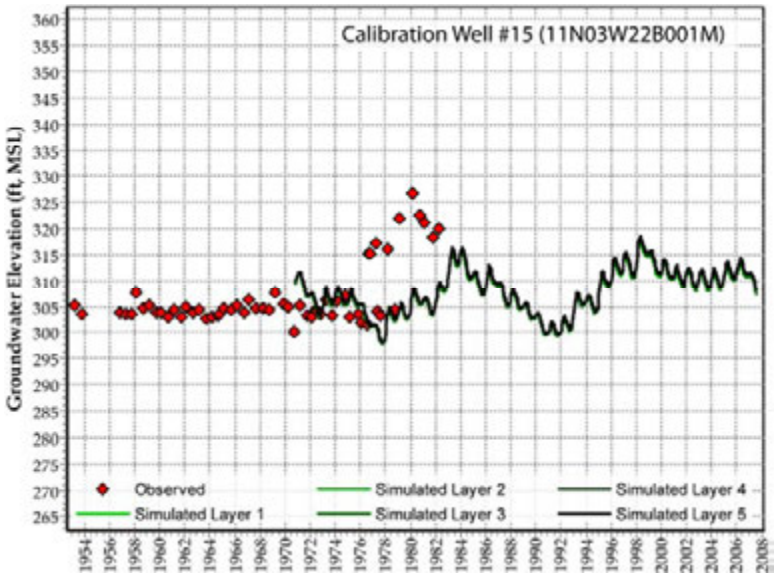
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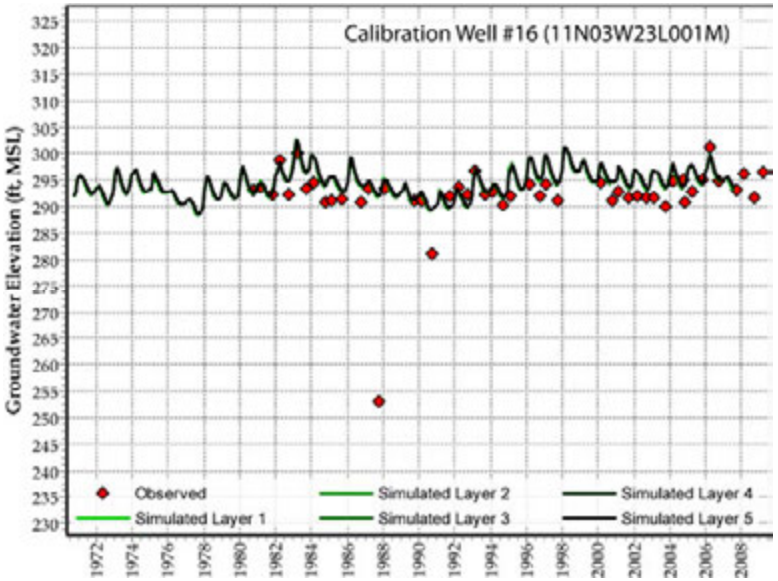
Calibration Well #16 (11N03W23L001M)
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Observed
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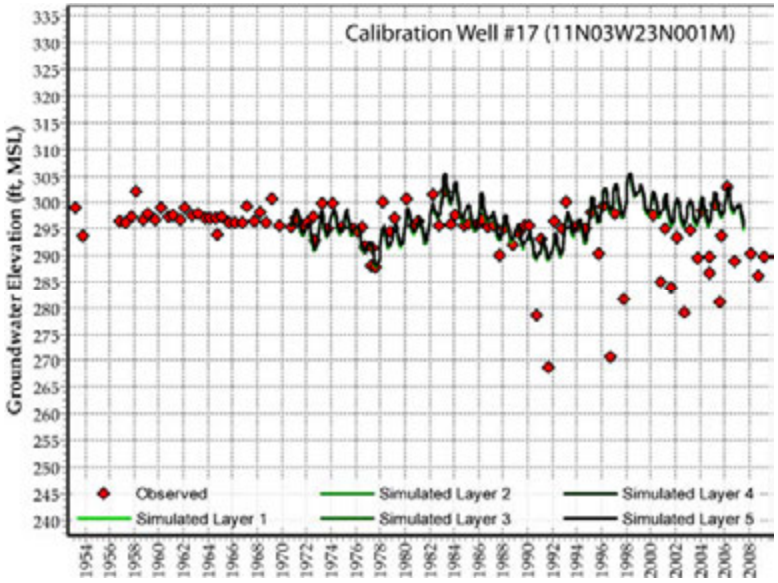
Calibration Well #17 (11N03W23N001M)
Groundwater Elevation (ft, MSL)
Observed
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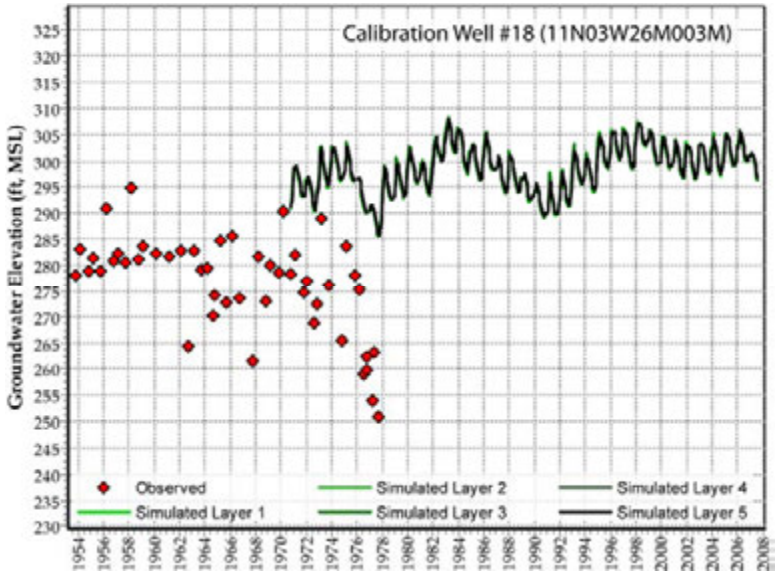
Simulated Layer 3
Simulated Layer 4
Simulated Layer 5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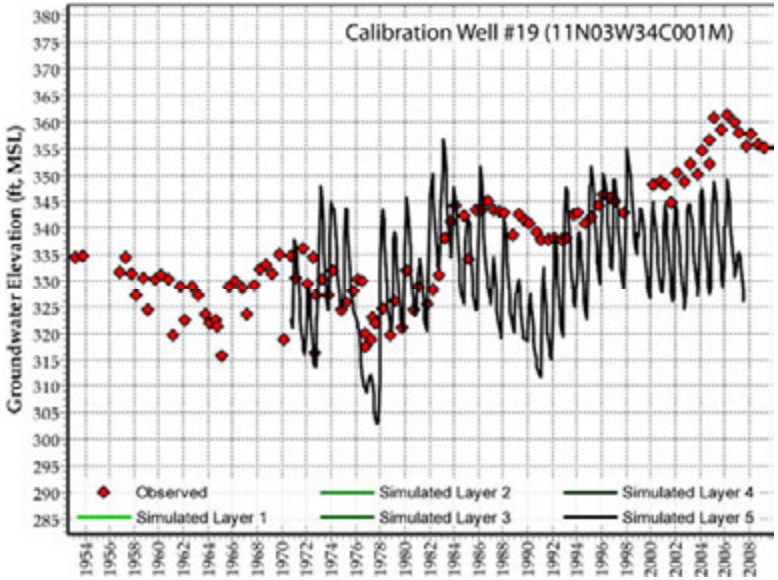
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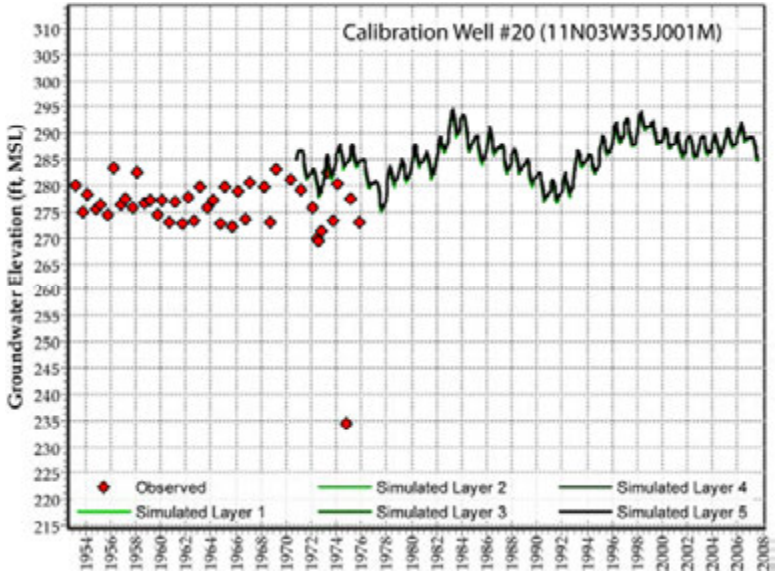
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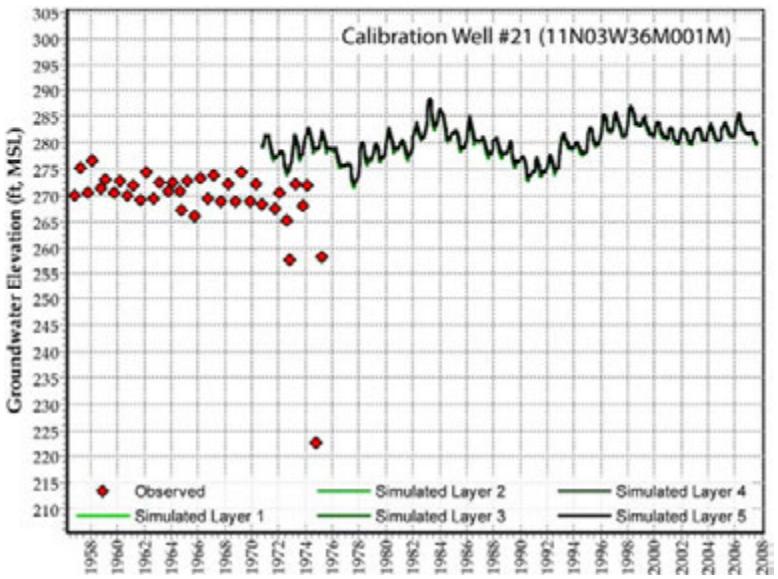
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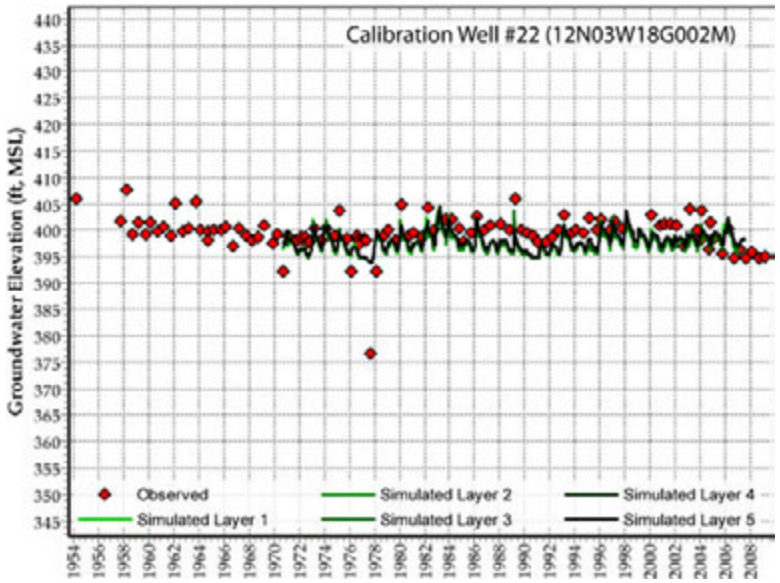
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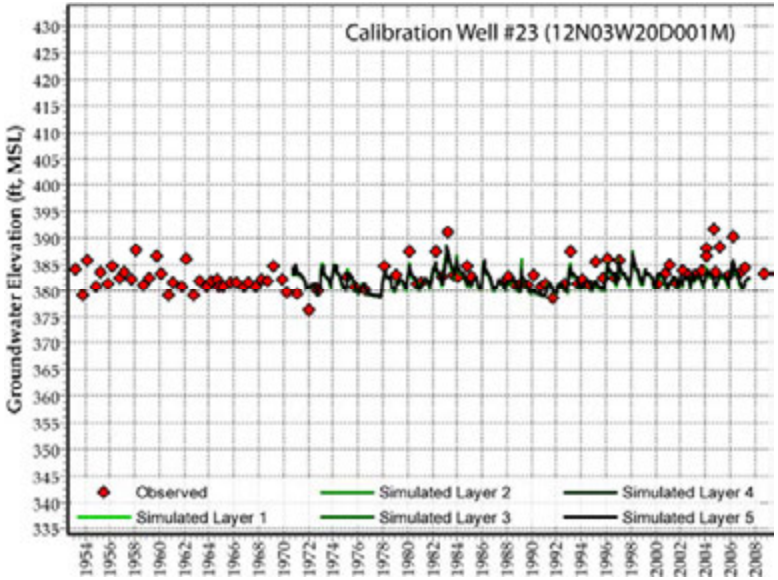
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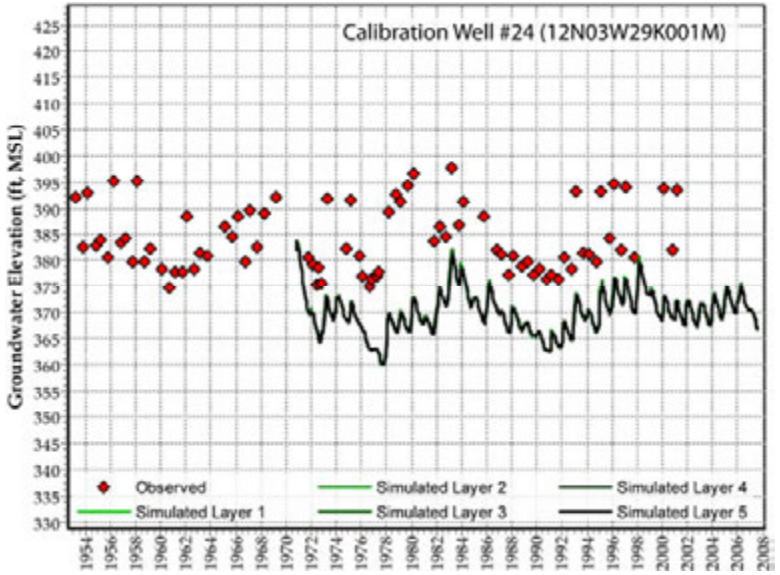
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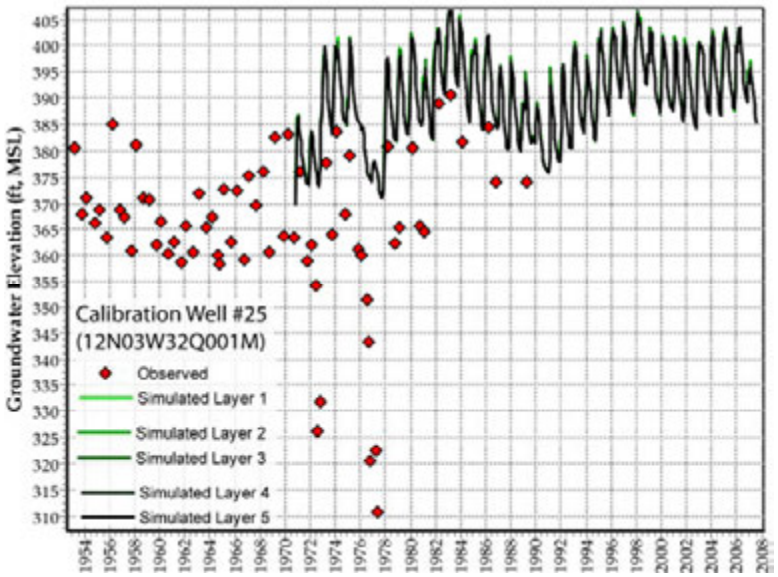
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(12N03W32Q001M)
Groundwater Elevation (ft, MSL)
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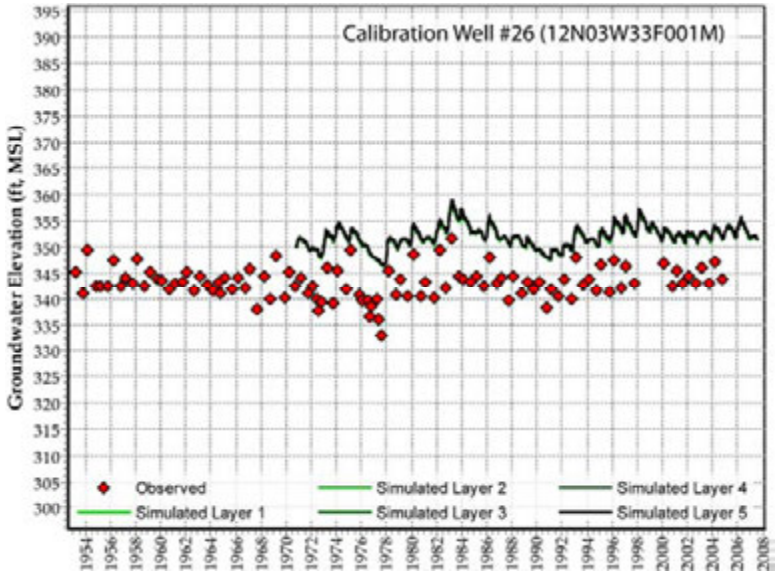
Simulated Layer 4
Simulated Layer 5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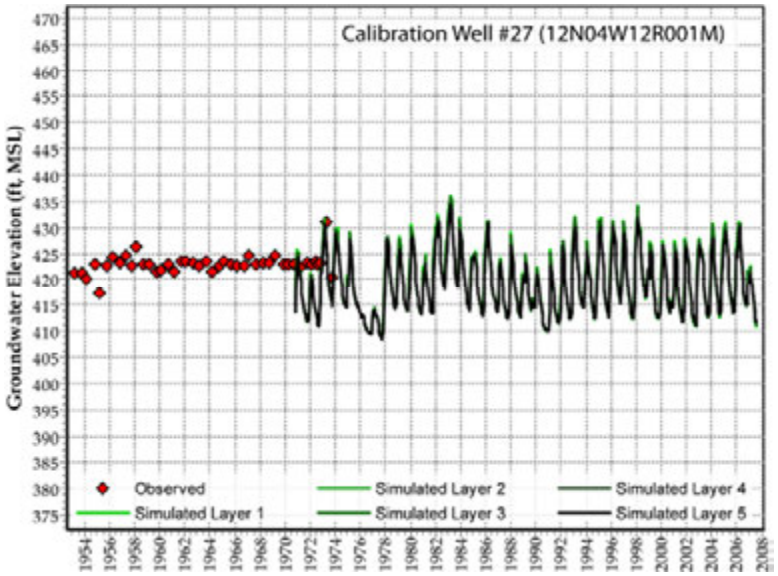
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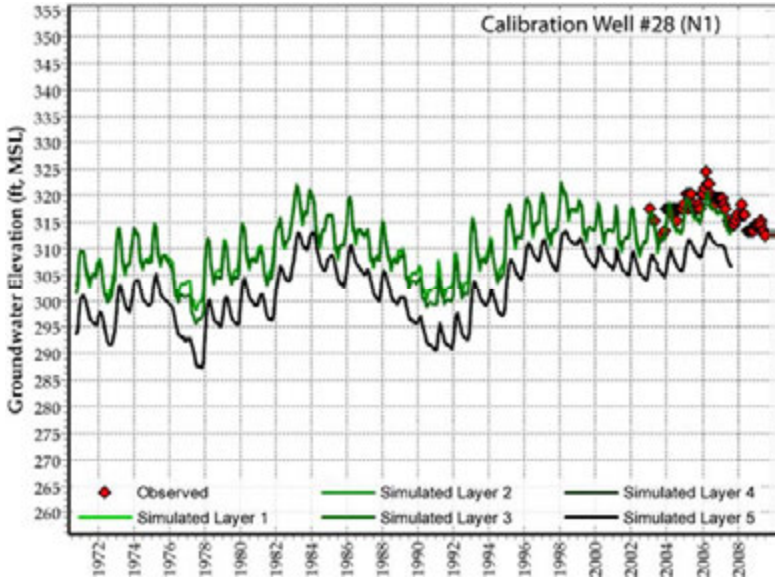
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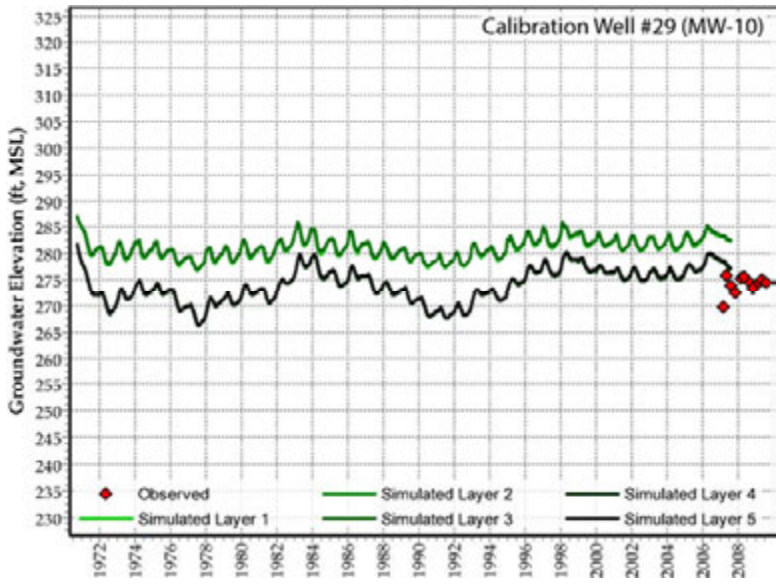
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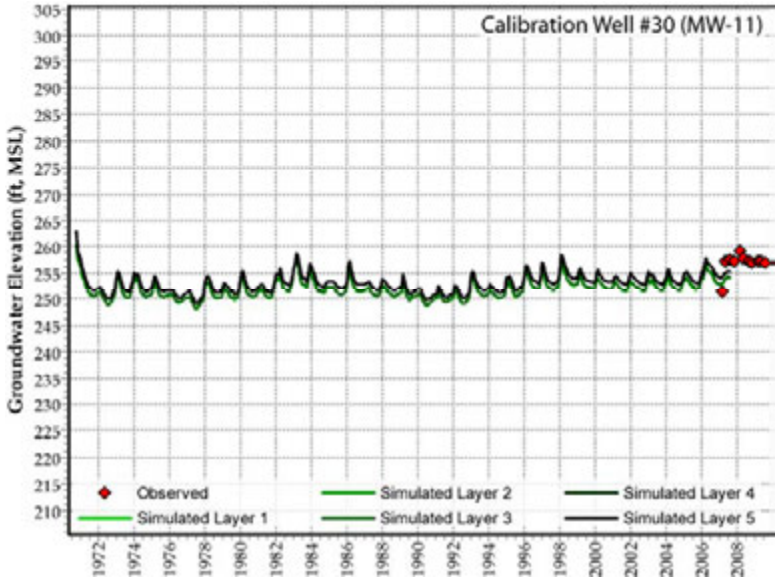
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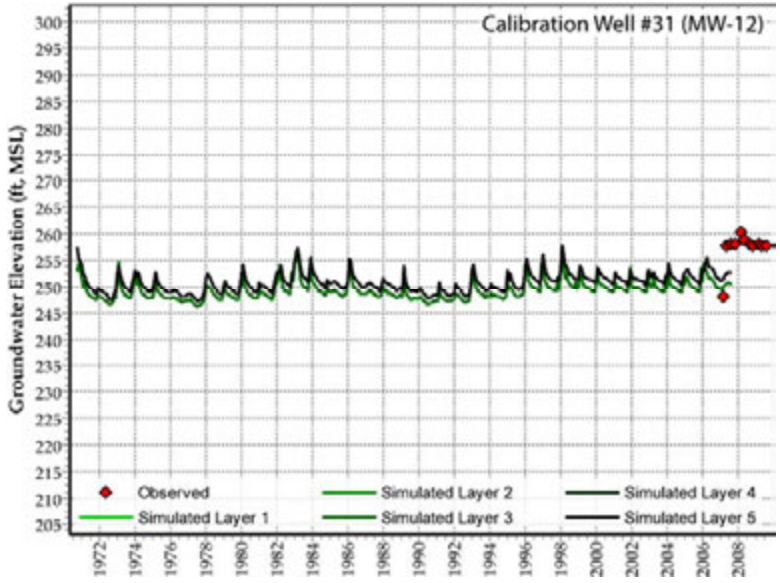
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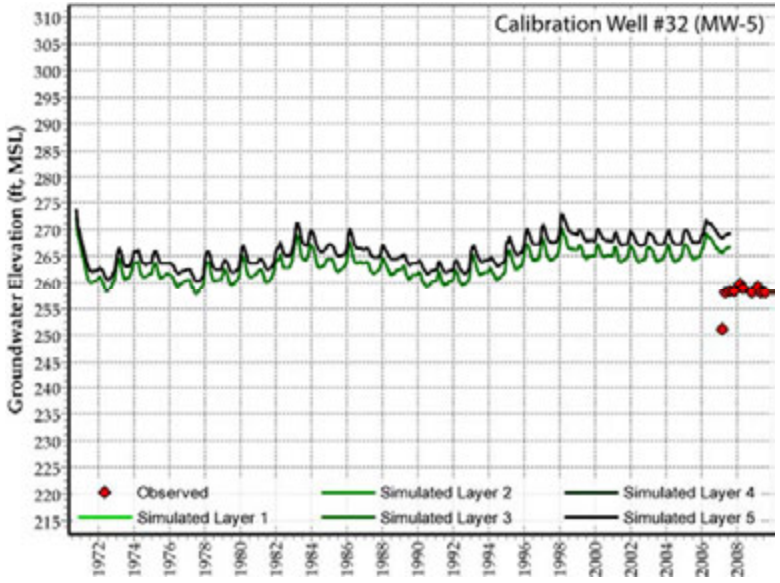
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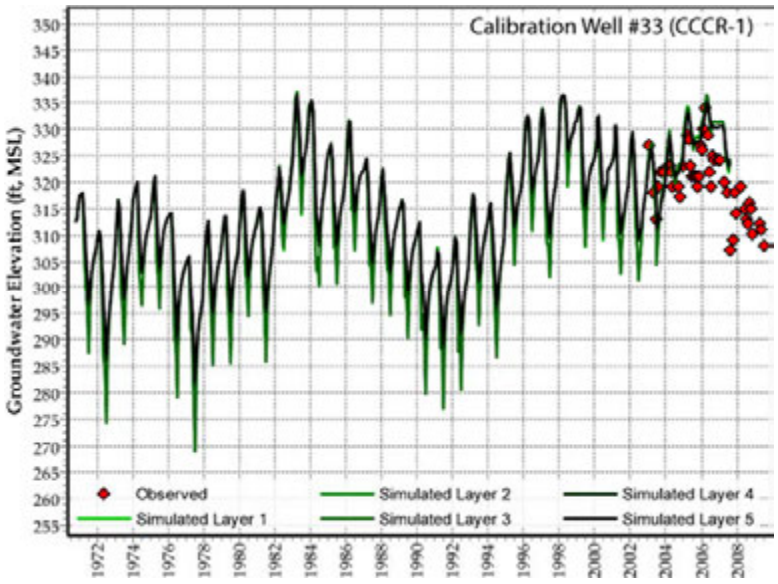
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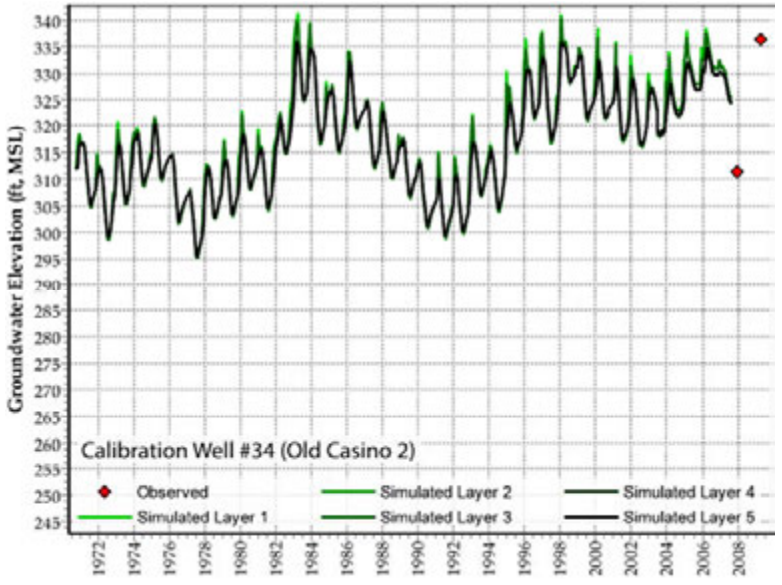
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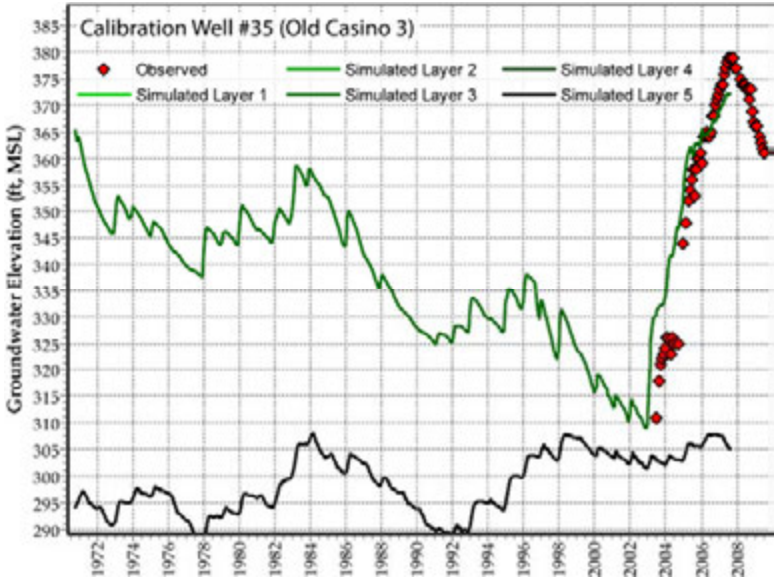
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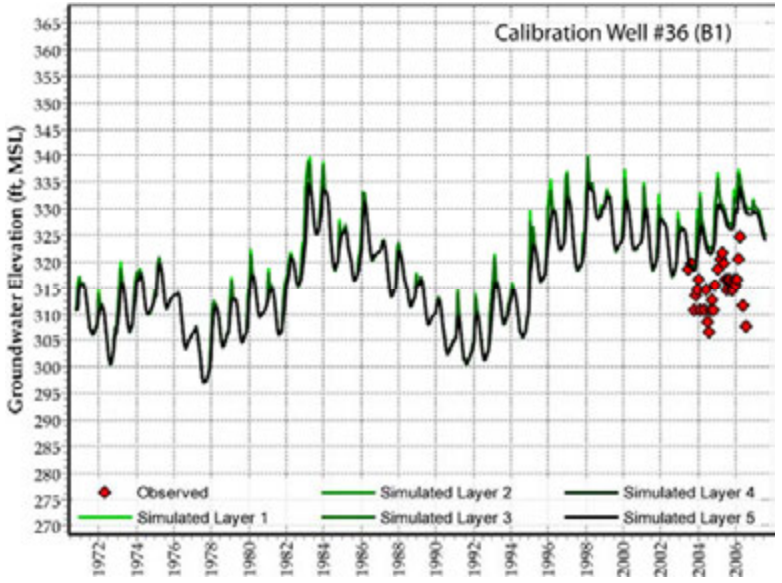
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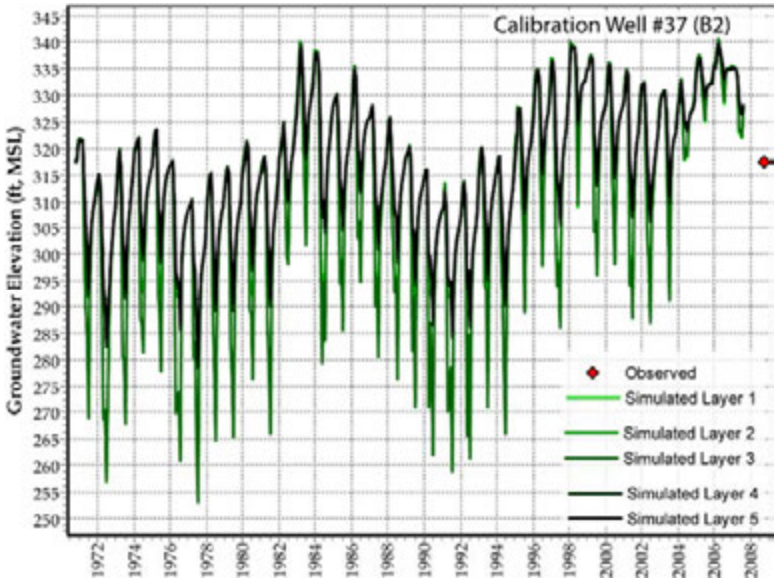
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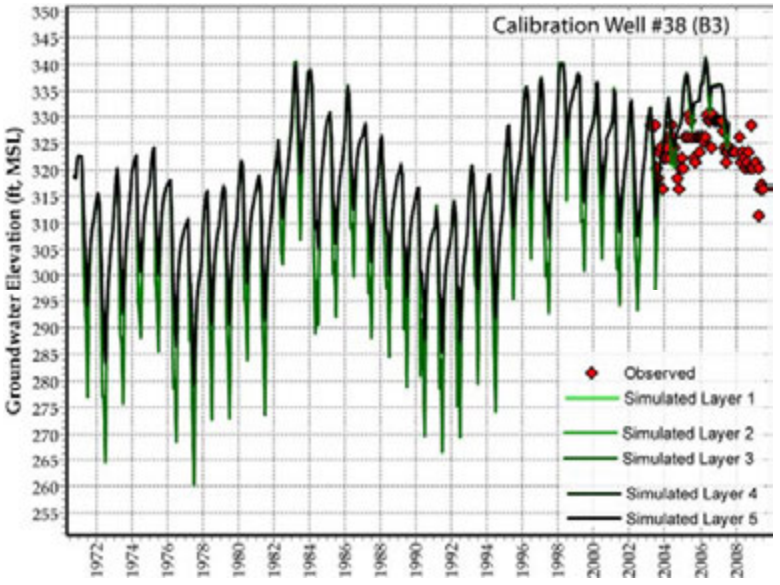
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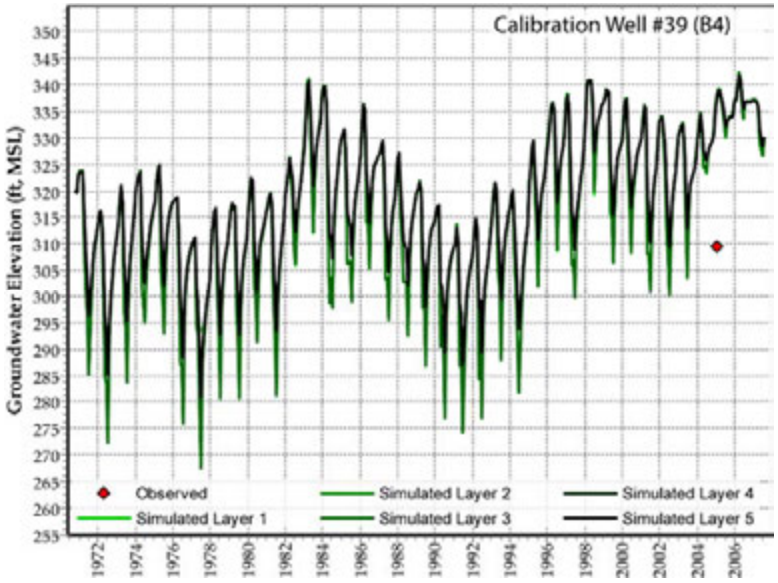
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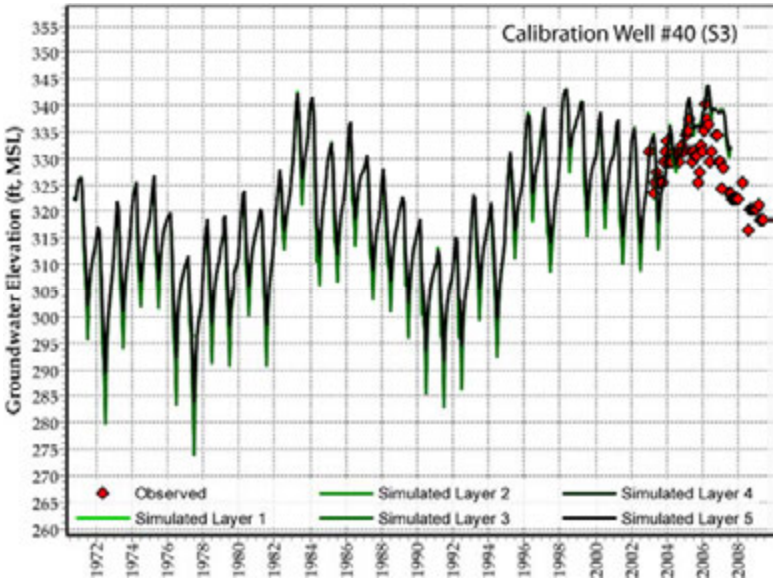
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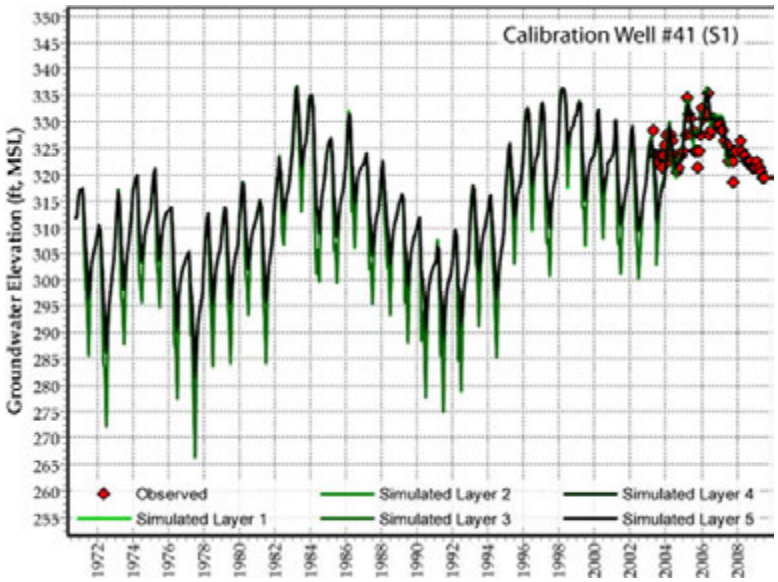
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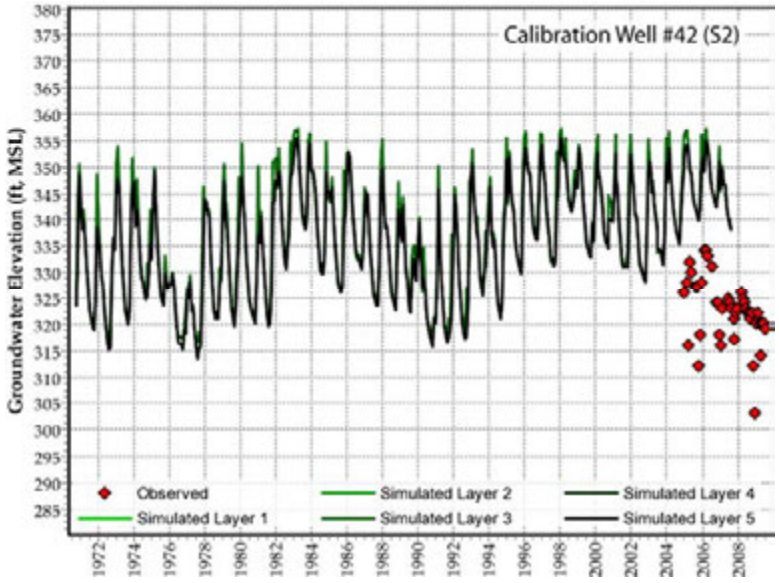
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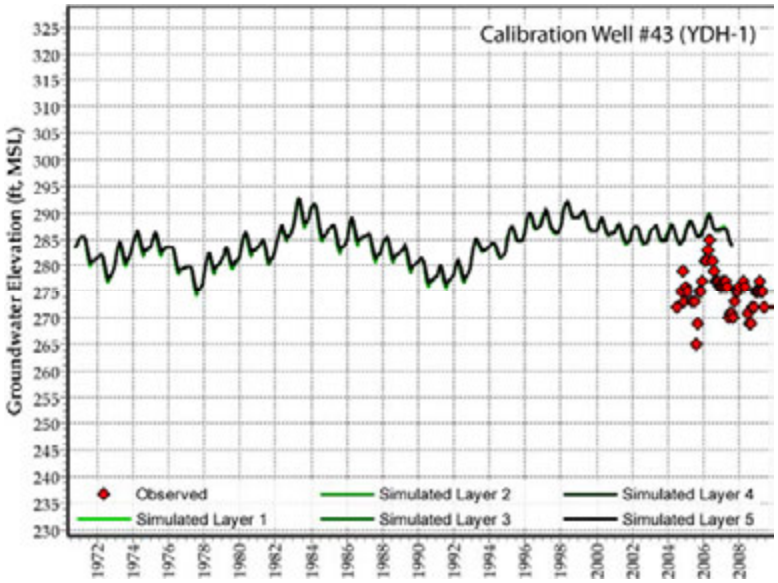
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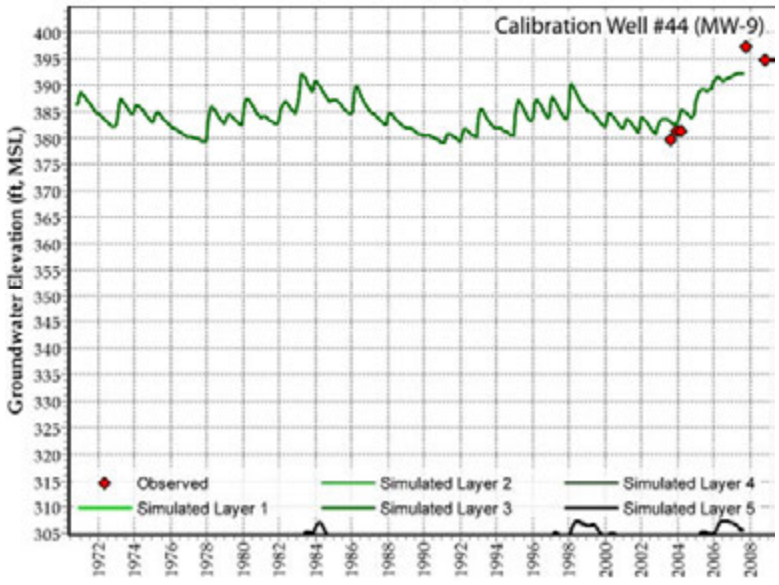
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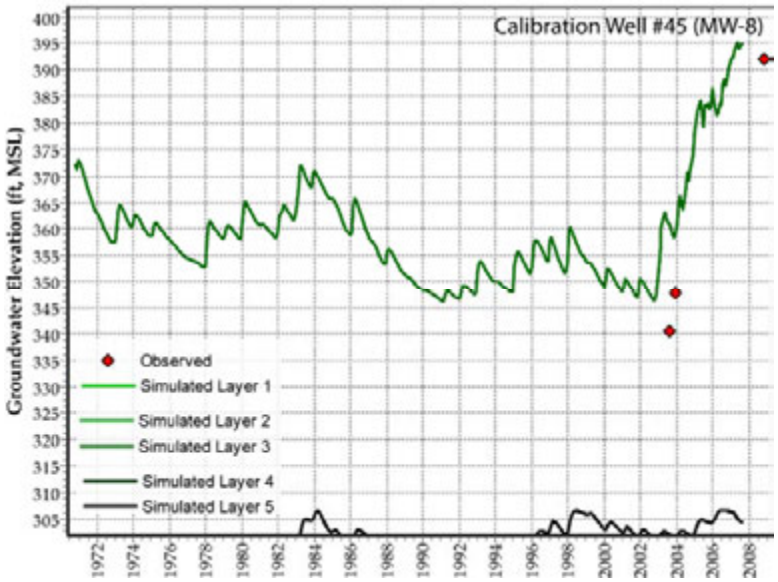
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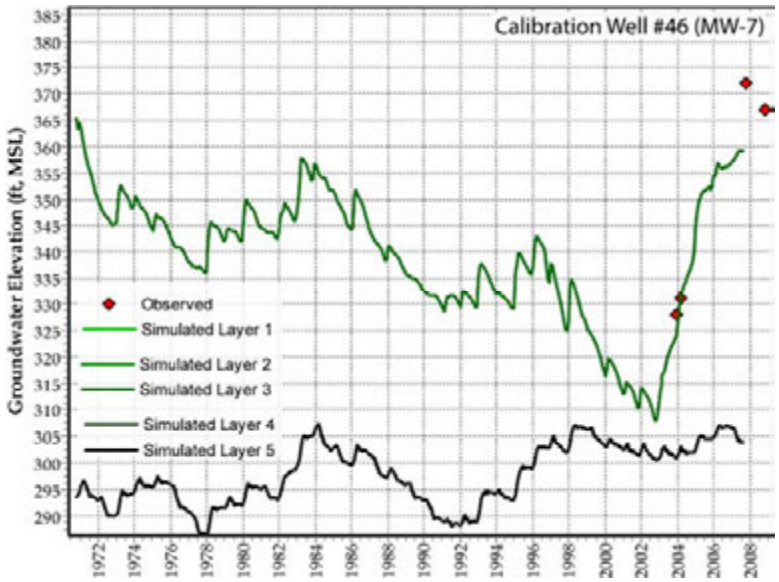
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APPENDIX F

WATER AND WASTEWATER FEASIBILITY STUDY

Yocha Dehe Wintun Nation

Cache Creek Hotel Expansion Project Water and Wastewater Feasibility Study

Prepared by HydroScience Engineers

July 2016

HydroScience
Strategic Water Solutions

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SECTION 1 – INTRODUCTION

This *Water and Wastewater Feasibility Study* (Study) was prepared by HydroScience Engineers, Inc. (HydroScience) for Analytical Environmental Services (AES) as a supporting document to the Cache Creek Hotel Expansion Project Tribal Environmental Impact Report (TEIR). This Study addresses two project alternatives: (1) the Hotel Expansion Project, referred to as the Proposed Project, and (2) the Reduced Intensity Alternative, which includes a lower number of hotel rooms than the Proposed Project. This Study addresses the supply of potable water, treatment and disposal of wastewater, and reuse of recycled water for the project alternatives.

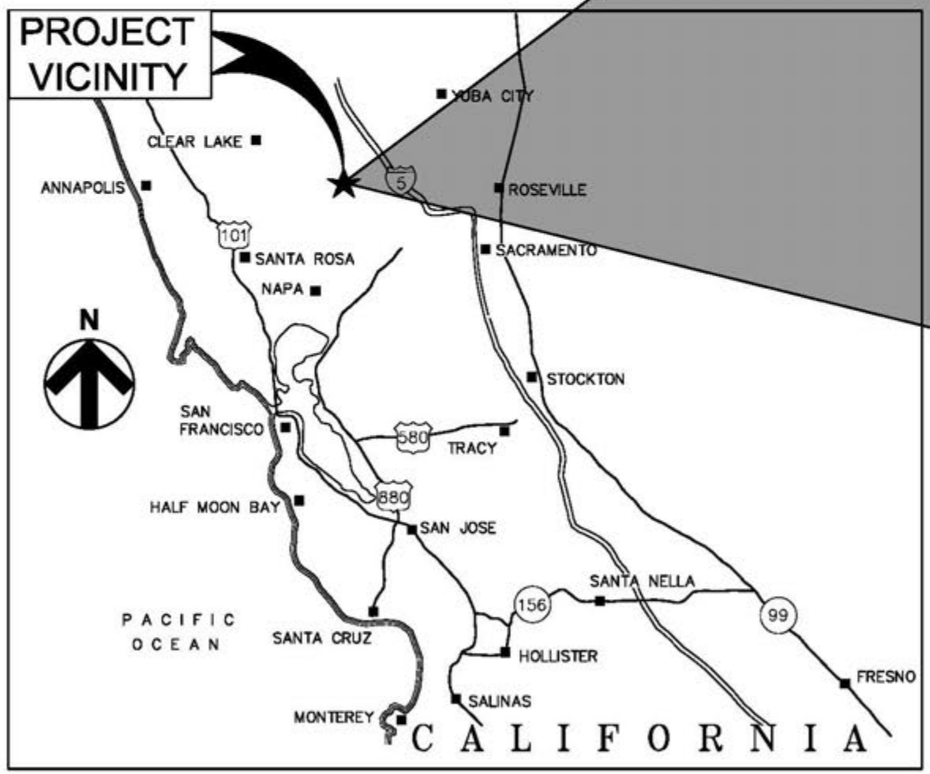
1.1 Background

The Cache Creek Casino Resort (Resort or CCCR) is located in Yolo County, California, approximately 20 miles west of Woodland (**Figure 1-1**). The Tribe owns and operates CCCR, which is located on land held in Trust by the Federal Government. The Tribe also owns land that is not held in Trust, which is referred to in this Study as Fee Land, located adjacent to the Trust Land as shown in **Figure 1-2**. Public property adjacent to the Tribe's Trust Land includes a post office and the California Division of Forestry (CDF) Fire Station.

The existing casino and hotel area of the Resort covers a total of approximately 414,000 square feet of space. Various other facilities (e.g., gas station) are also located on trust land near the Resort. The Resort and all of these facilities are collectively referred to as Existing Facilities in this Study. Except for a portion of the golf course, all of the Existing Facilities are located on Trust Land (see individual parcels on **Figure 1-2)**. Components of the Existing Facilities include:

- Gaming areas (casino)
- Restaurants (dining)
- 200-room hotel
- Back of house
- Golf course and clubhouse
- Mini-mart gas station
- Fire station
- Parking garage
- Tribal offices
- Generator plant
- Other facilities and infrastructure (including water and wastewater treatment)

The Tribe currently owns and operates a water and wastewater system to support the Existing Facilities. Both the existing water and wastewater systems will be evaluated in this Study in order to determine additional facility needs (additions or modifications) to support the Proposed Project and the Reduced Intensity Alternative.



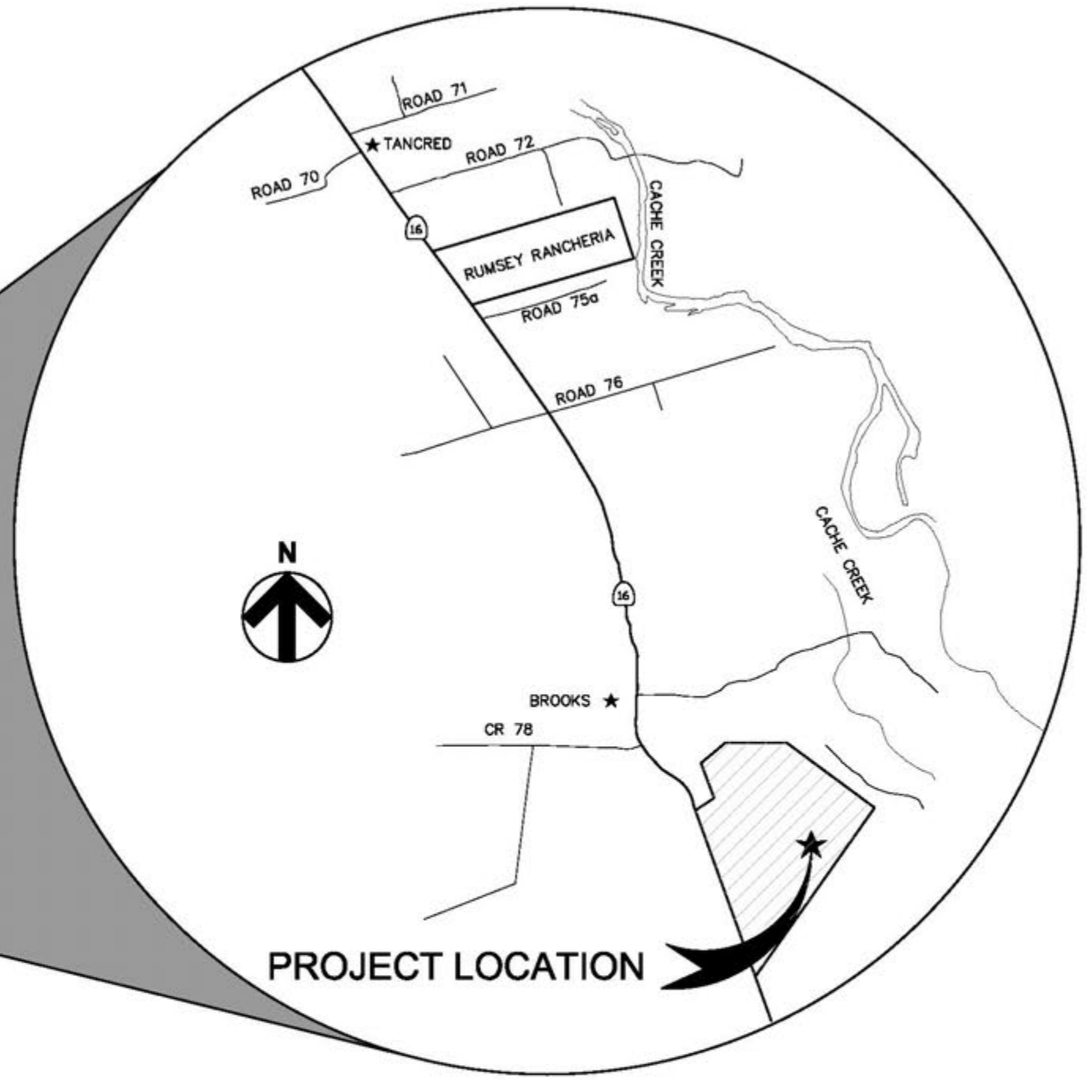


FIGURE 1-1
Yocha Dehe Wintun Nation
Cache Creek Hotel Expansion Project
Site Vincinity and Project Location Map

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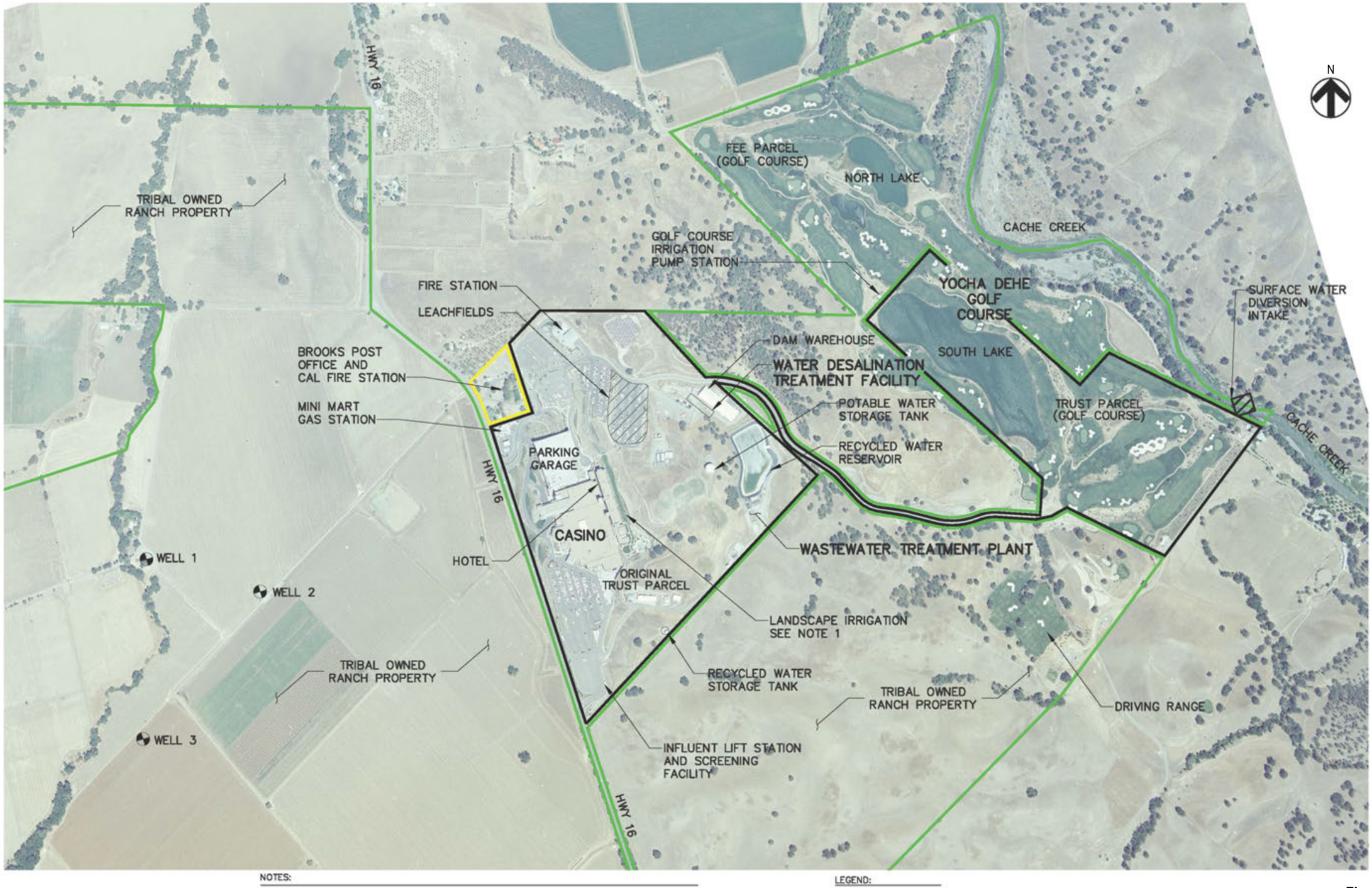

NOTES:

1. LANDSCAPE IRRIGATION TYPICAL AROUND CASINO. AREAS NOT HATCHED FOR CLARITY.
2. BOUNDARIES SHOWN ARE APPROXIMATE.

LEGEND:

- TRUST LAND
- FEE LAND
- STATE

HydroScience

Figure 1-2
Yocha Dehe Wintun Nation
Cache Creek Hotel Expansion Project
Aerial Site View

The potable water system consists of wells, treatment, storage, and distribution facilities. Currently, water is supplied by three groundwater wells. Because salinity levels in the groundwater supply are high, an existing Water Desalination Treatment Facility (WDTF) conditions and softens the potable water prior to distribution from a 1.1 million gallon (MG) potable water storage tank, with an additional second tank in the process of being evaluated for incorporation into the system if required. The location of these existing and planned potable water components are shown in **Figure 1-2**. The WDTF consists of an electrodialysis reversal (EDR) system to soften the potable water and an enhanced form of reverse osmosis (RO) to concentrate brine for off-haul disposal. The WDTF also includes chemical storage and pumping, and a laboratory. Refer to **SECTION 4** for a more detailed description of the potable water system.

All of the wastewater generated from the casino, hotel, support facilities, and golf course is collected and pumped to the on-site wastewater treatment plant (WWTP), located northeast of the Resort as shown in **Figure 1-2**. The WWTP employs a membrane bioreactor (MBR) process that produces highly treated tertiary quality effluent acceptable for irrigation purposes and other reuse applications. Additional facilities at the WWTP include an operations building with a laboratory, a building housing blowers and motor control center (MCC) panels, a chlorine contact basin (CCB), and a solids handling facility. The highly treated effluent produced by the WWTP provides recycled water for toilet flushing in the casino and to supplement golf course irrigation demand. These effluent disposal areas are also shown on **Figure 1-2**. **SECTION 5** and **SECTION 6** of this Study provide more information with respect to the WWTP system and effluent disposal, respectively.

1.2 Objectives

The goal of this Study is to support the water resources evaluation in the TEIR by identifying a feasible approach for providing potable water and wastewater service to the project alternatives. Specific objectives of this Study are to:

- Evaluate the existing water supply and wastewater collection, treatment, and disposal systems.
- Estimate domestic water demand and wastewater flows of the project alternatives.
- Estimate total raw source water supply requirements.
- Summarize the regulatory requirements associated with upgrades to the water, wastewater, and recycled water facilities.
- Determine modifications required to existing water, wastewater, and recycled water facilities to support the project alternatives and maintain compliance with regulatory requirements and public health objectives.
- Provide a summary of the recommended improvements necessary to support the project alternatives.

1.3 Existing Facilities and Project Alternatives

This section describes the components of the Existing Facilities and the two development alternatives. **Table 1-1** summarizes Existing Facilities elements.

Table 1-1: Summary of Existing Resort Elements

Element	Units	Program
Casino / Gaming Floor	sq-ft	94,505
Dining	sq-ft	32,353
Club 88	sq-ft	10,168
Misc. Public Spaces	sq-ft	40,857
Other Back of House		
Employees – Operating & Hotel	employee	2,000
Employees – Administration	employee	200
Hotel	sq-ft	137,320
Rooms	ea	200
Spa	sq-ft	11,800
Other Facilities		
Dam Warehouse, Mini Mart, WWTP, etc	ea	1
Cooling Tower Blowdown	ea	3
Yocha Dehe Golf Club	ea	1

The Tribe is evaluating two development alternatives: the Proposed Project and a Reduced Intensity Alternative. The two alternatives have common components, the difference between the two being the total number of hotel rooms. The planned components include the following:

- Hotel room expansion, including new lounge bar
- 1,325-seat ballroom
- Expansion of two existing restaurants and addition of a new sushi bar and a new steakhouse
  - Eliminate C^2
  - Expand Chang Shou
  - Expand Canyon Cafe
  - New Sushi Bar
  - New Steakhouse
- Back-of-the-house expansion
- Meeting space

1.3.1 Proposed Project

The Proposed Project includes all of the above components with a 459-room hotel expansion. **Table 1-2** and **Table 1-3** provide summaries of the Proposed Project and Reduced Intensity Alternative components. The site plan for the Proposed Project is shown in **Figure 1-3**.

Table 1-2: Summary of Proposed Project Elements

Element	Units	Program
Dining		
C2 (reduction)	sq-ft	-1,600
Canyon Café (expansion)	sq-ft	600
Chang Shou (expansion)	sq-ft	2,100
New Sushi Bar	sq-ft	1,275
New Steakhouse	sq-ft	6,500
Lounge		
New Hotel Lobby Bar	sq-ft	600
Entertainment		
New Ballroom Banquet Area	sq-ft	13,350
Other Back of House		
Employees – Operating & Hotel	employee	195
Hotel	sq-ft	346,801
Rooms	ea	459
Cooling Towers	ea	3

1.3.2 Reduced Intensity Alternative

The Reduced Intensity Alternative is made up of the same components as described above, except with a reduction in the number of new hotel rooms to 399. **Table 1-3** provides a summary of the Reduced Intensity Alternative.

Table 1-3: Summary of Reduced Intensity Alternative Elements

Element	Units	Program
Dining		
C2 (reduction)	sq-ft	-1,600
Canyon Café (expansion)	sq-ft	600
Chang Shou (expansion)	sq-ft	2,100
New Sushi Bar	sq-ft	1,275
New Steakhouse	sq-ft	6,500
Lounge		
New Hotel Lobby Bar	sq-ft	600
Entertainment		
New Ballroom Banquet Area	sq-ft	13,350
Other Back of House		
Employees – Operating & Hotel	employee	195
Hotel	sq-ft	346,801
Rooms	ea	399
Cooling Towers	ea	3

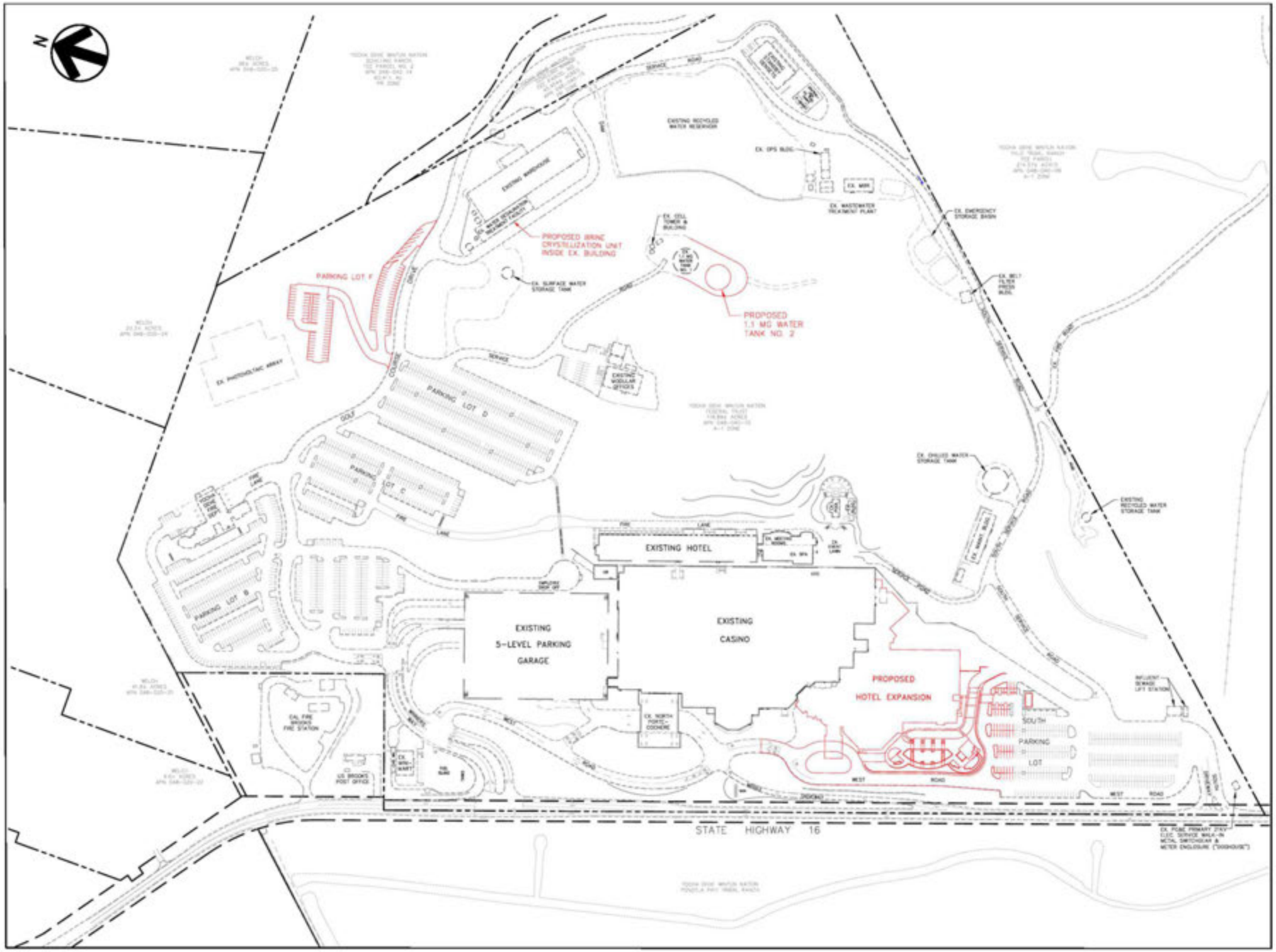

Figure 1-3
Yocha Dehe Wintun Nation
Cache Creek Hotel Expansion Project
Project Site Plan

HydroScience

SECTION 2 – WASTEWATER FLOWS AND WATER DEMANDS

This section presents estimated wastewater flows, potable water demands, and recycled water demands for both the Proposed Project and the Reduced Intensity Alternative. At this and other gaming facilities, HydroScience Engineers has established a reliable method for determining a casino's wastewater flows and water demands:

1. Compile recent historical flows based on existing flowmeter data.
2. Develop an Existing Facilities model based on measured data in order to validate unit flow factors by facility.
3. Apply these unit flow factors to future project quantities to project future flows.

2.1 Recent Historical Flows

Table 2-1 below presents recent historical flow measurements for wastewater generation, recycled water consumption, and well pumping at the Existing Facilities.

Table 2-1: Historical Flow Measurements

	Wastewater Flow [1]		Recycled Water Consumption[1]		Finished Water Flow [1]	
Year	Annual Total (gal/yr)	Average Daily Flow (gpd)	Annual Total (gal/yr)	Average Daily Flow (gpd)	Annual Total (gal/yr)	Average Daily Flow (gpd)
2015	83,944,000	230,000	19,934,000	55,000	84,692,000	232,000
2014	70,213,000	192,000	16,414,000	45,000	86,938,000	238,000
2013	73,576,000	202,000	20,335,000	56,000	92,881,000	254,000

Notes:
1. Rounded to the nearest 1,000 unless otherwise noted.

2.2 Wastewater Flows

The wastewater flow generation model for Existing Facilities is presented first and compared to the data provided in **Table 2-1**, and the additional flows due to the Project are calculated based on the size of the Project facilities relative to the Existing Facilities. Total wastewater flows for the Project that include the Existing Facilities' flows are then summarized.

2.2.1 Existing Facilities Wastewater Flow Model

Table 2-2 presents an estimated breakdown of wastewater generation by existing facility component. Existing facility quantities/sizes were provided by Resort staff. Wastewater generation factors for each component were derived from prior studies of the Resort, the experience and professional judgment of HydroScience, and an examination of flowmeter records for individual facility demands such as the casino floor, hotel, golf course clubhouse, and other facilities. The resulting Total Average Daily Wastewater Flow of 238,000 gpd was compared to WWTP flow records for the period of 2011 – 2015 and found to be in agreement with and slightly higher than average measured flows, validating the calibration of this flow model

and indicating that conservative results are obtained from the model (see table footnotes for comparisons).

Similarly, a wastewater peaking factor of 1.4 was developed based on a review of flowmeter data and recent prior experience with similar facilities. The peaking factor was applied to the modeled Total Average Daily Wastewater Flow to determine a Total Peak Daily Wastewater Flow, checked against measured peak flows, and found to be in agreement.

Inflow and infiltration (I&I) is typical in older gravity sewer collection systems, in areas of poor surface drainage and high groundwater, or with long gravity collection systems. I&I impacts to the wastewater generated must be evaluated. However, because this existing system is relatively new, poor surface drainage and high groundwater are not issues at the site, and existing influent flows do not exhibit I&I tendencies, I&I is unlikely to contribute to the wastewater flows and is not part of this analysis. The peaking factor selected for the model and checked against measured flows does not indicate significant I&I.

This calibrated flow model will be utilized in the next subsection to develop estimates of flows for the Project.

Table 2-2: Wastewater Flows - Existing Wastewater Generating Facilities

Element	Units	Program	Average Daily Flow (gpd) [1]
Casino / Gaming Floor	sq-ft	94,505	57,648
Dining [2]	sq-ft	32,353	73,921
Club 88	sq-ft	10,168	6,609
Misc. Public Spaces	sq-ft	40,857	0
Other Back of House			
Employees – Operating & Hotel	employee	2,000	19,000
Employees – Administration	employee	200	2,000
Hotel	sq-ft	3,800	NA
Rooms	Rooms	200	38,000
Spa	sq-ft	11,800	1,000
Other Facilities			
Dam Warehouse, Mini Mart, WWTP, etc.	lump sum	1	18,000
Cooling Tower Blowdown	lump sum	1	18,000
Yocha Dehe Golf Club	ea	1	4,000
Total Average Daily Wastewater Flows [3]			**238,000**
Peak Daily Wastewater Flow (PF=1.4) [3]			**333,000**

Notes:
NA = Not applicable or not calculated. Wastewater contribution included in other elements.
1. Rounded to the nearest 1,000 gpd, unless otherwise noted.
2. Wastewater flow estimated at 2.6 gpd/sq-ft for all restaurants.
3. In comparison to this model output, the measured average annual wastewater flow range for 2011-2015 is 196,000 – 232,000 gpd. Measured peaking factor approximately 1.4. .

2.2.2 Projected Incremental Wastewater Flows

The calibrated flow model presented above was then adapted to estimate incremental wastewater flow generation for the project alternatives. The unit flow factors developed for the Existing Facilities were applied to the changes in facilities (square footage, quantity of rooms, etc.) for the two project alternatives to produce wastewater flow estimates. The incremental flows for the Proposed Project are shown in **Table 2-3**. **Table 2-4** provides the incremental flows for the Reduced Intensity Alternative.

Table 2-3: Estimated Incremental Wastewater Flows for Proposed Project

Element	Units	Program	Average Daily Flow (gpd)
Dining			
C2 (Reduction)	sq-ft	-1,600	-4,160
Canyon Café (Addition)	sq-ft	600	1,560
Chang Shou (Addition)	sq-ft	2,100	5,460
New Sushi Bar	sq-ft	1,275	3,315
New Steakhouse	sq-ft	6,500	16,900
Lounge			
New Hotel Lobby Bar	sq-ft	600	300
Entertainment			
New Ballroom Banquet Area	sq-ft	13,350	10,000
Other Back of House			
Employees – Operating & Hotel	employee	195	1,853
Hotel			
Rooms	Rooms	459	87,210
Cooling Tower Blowdown	lump sum	1	6,000
Total Average Daily Wastewater Flows [1]			**128,000**
Peak Daily Wastewater Flow (PF=1.4) [1]			**179,000**

Notes:
1. Rounded to the nearest 1,000 gpd.

Table 2-4: Estimated Incremental Wastewater Flows for Reduced Intensity Alternative

Element	Units	Program	Average Daily Flow (gpd)
Dining			
C2 (Reduction)	sq-ft	-1,600	-4,160
Canyon Café (Addition)	sq-ft	600	1,560
Chang Shou (Addition)	sq-ft	2,100	5,460
New Sushi Bar	sq-ft	1,275	3,315
New Steakhouse	sq-ft	6,500	16,900
Lounge			
New Hotel Lobby Bar	sq-ft	600	300
Entertainment			
New Ballroom Banquet Area	sq-ft	13,350	10,000
Other Back of House			
Employees – Operating & Hotel	employee	195	1,853
Hotel			
Rooms	Rooms	399	75,810
Cooling Tower Blowdown	lump sum	1	6,000
Total Average Daily Wastewater Flows [1]			**117,000**
Peak Daily Wastewater Flow (PF=1.4) [1]			**164,000**

Notes:
1. Rounded to the nearest 1,000 gpd.

2.2.3 Total Projected Wastewater Flows

To determine the total projected wastewater flows, the estimated incremental flows from **Table 2-3** and **Table 2-4** are added to the existing flows in **Table 2-2**. Total wastewater flows for the Existing Facilities plus either of the project alternatives are summarized in **Table 2-5**.

Table 2-5: Total Projected Wastewater Flows

Parameter	Proposed Project Flow (gpd)	Reduced Intensity Alternative Flow (gpd)
Existing Facilities [1]	238,000	238,000
Project (Incremental) [2]	128,000	117,000
Total Average Daily Wastewater Flow [3]	**366,000**	**355,000**

Notes:
1. See **Table 2-2**.
2. See **Table 2-3** and **Table 2-4**.
3. Projected flows for Existing Facilities plus project alternatives.

2.3 Facility Water Demands

This section presents the estimated facility water demands for the Existing Facilities plus each of the project alternatives. Net potable water demand is calculated as the difference between base water demand and the demand served by recycled water. Base water demands are estimated from a water loss factor applied to the projected wastewater flows (**Table 2-5**). Recycled water demands are then estimated for toilet and urinal flushing. Since using recycled water reduces the total water demand, these recycled water demands are subtracted from the base water demand to determine the net potable water demand. Water demands for irrigation are addressed separately.

2.3.1 Estimated Recycled Water Demands

For the purposes of this Study, recycled water is defined as WWTP effluent which has been oxidized, filtered, and disinfected to a product water quality meeting the State of California's definition of disinfected tertiary recycled water, and is subsequently delivered to on-site non-potable demands suited for using recycled water. Related regulations are further detailed in **SECTION 3**.

In order to conserve potable water and reduce disposal of treated wastewater, disinfected tertiary recycled water is currently produced on-site and reused for toilet and urinal flushing within the non-hotel public and employee restrooms in the facility. The distribution and disposal of recycled water is discussed in greater detail in **SECTION 6**. **Table 2-6** summarizes the existing and projected recycled water demand for toilet and urinal flushing. Existing average recycled water demand was determined from prior studies and checked against current flow records. The metered recycled water returned to the casino in 2015 was an average of 55,000 gpd.

Incremental recycled water demands for the project alternatives were projected by applying the ratio of current recycled water use divided by Existing Facilities square footage to the non-hotel incremental square footage associated with the project alternatives. The Proposed Project and the Reduced Intensity Alternative will have the approximately the same recycled water demand, because recycled water is not used in the Resort's hotel rooms nor will it be used in the additional hotel rooms added by either project alternative.

Table 2-6: Projected Toilet and Urinal Flushing Recycled Water Demand

Parameter	Demand (gpd) [1]
Existing Facilities [2]	55,000
Project (Incremental) [3]	15,000
Total Average Daily Recycled Water Demand	**70,000**

Notes:
1. All values rounded to nearest 1,000 gpd.
2. Measured recycled water demand was 56,000 in 2013, 45,000 gpd in 2014 and 55,000 in 2015.
3. Existing property is 414,000 sq-ft. Ratio of recycled water use to total sq-ft is 0.13. Project adds 152,946 of non-hotel square footage. Applying recycled water use ratio of 0.13 to the added square footage results in 20,000 gpd. Multiply by 0.75 for conservatism. Result is 15,000.

2.3.2 Estimated Net Water Demand

The net potable water demand is the difference between the base water demand and the recycled water demand and represents the Resort's actual potable water demand. The base water demand is the total water demand of fixtures in the Resort including those served by potable water and those served by recycled water.

Base water demand estimates were calculated by applying a typical water loss percentage to the projected wastewater flows. Prior studies identified a measured annual average facility water loss of about 19%. Water losses can be attributed to human consumption, cooking activities, evaporation, leaks, and cooling tower losses. For planning purposes, an annual average of 20% will be used in this Study. Recycled water demands are subtracted from base demands to determine net potable demands which drive the sizing of wells and water treatment. **Table 2-7** and **Table 2-8** presents the base, recycled water, and net potable water demands for the Proposed Project and the Reduced Intensity Alternative.

Table 2-7: Proposed Project – Net Potable Water Demand

Parameter	Base Demand (gpd)	Recycled Water Demand (gpd)	Net Potable Demand (gpd)
Existing Facilities [1]	300,000	55,000	245,000
Proposed Project (Incremental) [2]	160,000	15,000	145,000
Total [3]	**460,000**	**70,000**	**390,000** [4]

Notes:
1. Percent water loss to wastewater (WW) generated = 20%
2. Existing Facilities water demand = WW generated (**Table 2-2**) / (1-%loss), rounded to nearest 10,000 gpd.
3. Proposed Project water demand = WW generated (**Table 2-3**) / (1-%loss), rounded to nearest 10,000 gpd.
4. All flows in this table are average day flows. Apply a peaking factor (PF) of 1.4 to obtain estimated peak flows.

Table 2-8: Reduced Intensity Alternative - Net Potable Water Demand

Parameter	Base Demand (gpd)	Recycled Water Demand (gpd)	Net Potable Demand (gpd)
Existing Facilities [1]	300,000	55,000	245,000
Reduced Intensity Alternative (Incremental) [2]	150,000	15,000	135,000
Total [3]	**450,000**	**70,000**	**380,000** [4]

Notes:
1. Percent water loss to wastewater (WW) generated = 20%
2. Existing Facilities water demand = WW generated (**Table 2-2**) / (1-%loss), rounded to nearest 10,000 gpd.
3. Reduced Intensity Alternative water demand = WW generated (**Table 2-4**) / (1-%loss), rounded to nearest 10,000 gpd.
4. All flows in this table are average day flows. Apply a peaking factor (PF) of 1.4 to obtain estimated peak flows.

2.4 Irrigation Water Demands

Irrigation demands at the Resort include landscaping around the Resort facilities. Irrigation is also used at the golf course. Additionally, the Tribe Land Management Department operates 130 irrigable acres on Fee Lands which are irrigated with raw water from Cache Creek (this off-trust agricultural irrigation is not part of the scope of this Study and is not affected by the project alternatives).

The Tribe has a Raw Water Intake and Pump System that it operates under permit from the YCFCWCD (Yolo County Flood Control & Water Conservation District) in order to take allocated surface water from Cache Creek for non-potable uses during the irrigation season (April 15 – October 15). Permitted non-potable uses include golf course, landscape, and off-trust crop irrigation. Cache Creek water is pumped to the golf course North Lake and also to a 110,000 gallon Irrigation Storage Tank which serves Resort landscaping and off-trust agricultural demands. That tank can also be supplied with raw well water for casino landscaping use during non-irrigation season.

2.4.1 Golf Course Irrigation

All recycled water generated by the WWTP which is not otherwise recycled in casino toilets and urinals is currently delivered to the golf course for seasonal storage and subsequent irrigation use. Because the WWTP does not produce enough recycled water to fully meet golf course irrigation demands, this water is supplemented by raw water supplied from Cache Creek. **Table 2-9** provides the total annual average irrigation demand for the golf course in both acre-feet (ac-ft) and in MG. For planning purposes, meter data was adjusted to better represent long-term agronomic irrigation rates. This table represents the total demand which is met by a blend of Cache Creek raw water and recycled water. The amount of recycled water available each year varies slightly as well as actual application rates to the golf course based on precipitation. Refer to **SECTION 6** for a discussion of recycled water as a component to meet the overall golf course irrigation demand. The project alternatives will not modify the irrigated area of the golf course or the associated irrigation water demand.

Table 2-9: Golf Course Irrigation Applied

Parameter	Units	Golf Course
Golf Course Area, total	acres	135
Irrigation Applied, Annually [1]	ac-ft/year	495
	MG/year	161

Notes:
1. Based on average precipitation conditions and agronomic factors.

2.4.2 Landscape Irrigation

The Resort includes 12.5 acres of irrigated landscaped area. All of the landscaped area is located on Trust Land. Projected landscape irrigation demands are based on existing landscape water meters with agronomic correction factors applied. Landscape demands are currently met with Cache Creek raw water supplemented by raw well water when necessary. The project alternatives will not significantly modify existing landscaped areas though there will be a 0.72 acre addition around the pool area and a 0.28 acre green roof. **Table 2-10** provides the total annual average landscape irrigation demand for the Existing Facilities and the project alternatives.

Table 2-10: Landscape Irrigation Applied

Parameter	Units	Landscape Irrigation
Existing Landscape Area, Total	acres	12.5
Anticipated Additional Pool Area Landscaping	acres	0.72
New Green Roof	acres	0.28
Total Landscaped Area	**acres**	**13.5**
Existing Landscape Irrigation Applied, Total	MG/year	11.0
Anticipated Additional Pool Area Landscaping	MG/year	0.63
New Green Roof	MG/year	0.25
Total Anticipated Irrigation Applied	**MG/year**	**11.88**

2.5 Water Supply Requirements

Water demands presented above represent the water necessary to meet the total demands of the Existing Facilities plus the project alternatives. However, treatment and process losses add to the source water supply requirements. The water supply requirements that take into account these treatment losses are discussed and estimated in **SECTION 5**.

SECTION 3 – REGULATORY REQUIREMENTS

This section details the regulatory issues associated with water and wastewater service for the existing facilities and the Project. Regulations for water reuse and wastewater effluent disposal are also discussed.

3.1 Regulatory Authority

Because the Resort is located on the Tribe's Trust Land, the United States Environmental Protection Agency (EPA) has jurisdiction over on-site water and wastewater service. Although the State of California has no jurisdictional authority over facilities located on tribal Trust Land, a portion of the golf course is located on Fee Land (non Trust). For this portion, recycled water quality and application must conform to California Code of Regulations (CCR) Title 22 recycled water standards.

3.2 Potable Water System

This section summarizes the significant Federal regulations that apply to the potable water treatment and distribution facilities. The potable water source is from three groundwater wells regulated by EPA. EPA classifies the Existing Facilities as a Non-Transient Non-Community (NTNC) Public Water System serving 12,500 people. EPA defines NTNC as a water system that serves at least 25 of the same people more than six months of the year, but not as primary residence, such as schools, businesses, and day care facilities. The Public Water System Monitoring Schedule and Compliance Report (Monitoring and Compliance Report) summarizes current monitoring and sampling requirements established by EPA for the Existing Facilities. A copy of this Monitoring and Compliance Report is contained in **Appendix A**. All water facilities and water systems operations are compliant with current EPA drinking water regulations.

Upon implementation of either project alternative, EPA will re-evaluate the Existing Facilities due to occupancy and water service changes. Based on their observations and requirements, EPA will establish a new site specific Monitoring and Compliance Report. EPA evaluates each site on a case-by-case basis, so actual requirements cannot be quantified at this time. However, the Tribe will meet all sampling and monitoring requirements established by EPA for either project alternative.

3.2.1 Regulatory Background

The Safe Drinking Water Act (SDWA) was signed into law in 1974 to protect the quality of drinking water in the United States. The SDWA targets all waters actually or potentially designed for drinking use, whether from above ground or underground sources. Under the SDWA, the Federal Government, through EPA, is given the authority to set standards and regulations for drinking water quality. Since its establishment in 1974, the SDWA has undergone several amendments. The following sections detail some of the major legislation and executive orders related to drinking water treatment including disinfection requirements, surface water treatment rules, and other requirements and criteria for protection of the public health with respect to drinking water.

3.2.2 Drinking Water Regulations

The following details EPA drinking water regulations as applicable.

3.2.2.1 Primary and Secondary Maximum Contaminant Levels

The national primary drinking water standards are a list of the maximum allowable concentrations of specific contaminants in the water for protection of public health. EPA set mandatory Maximum Contaminant Levels (MCLs) for these constituents. An MCL is the highest level of a contaminant allowable in drinking water and are enforceable by EPA. The groups of contaminants with federally limited primary MCLs are:

- Microorganisms
- Disinfectants
- Disinfection Byproducts
- Inorganic Chemicals
- Organic Chemicals
- Radionuclides.

National Secondary Drinking Water Regulations (NSDWRs or secondary standards) are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (e.g., skin or tooth discoloration) or aesthetic effects (e.g., taste, odor, or color) in drinking water. Examples of NSDWR include total dissolved solids (TDS), pH, and iron. EPA recommends secondary standards to water systems, but does not require systems to comply. A full list of the primary and secondary MCLs is included in **Appendix B**. The WDTF treats the groundwater to meet all primary MCLs. The WDTF also achieves the Tribe's criteria for aesthetic water quality objectives (e.g., hardness), and thus meets EPA secondary standards.

3.2.2.2 Total Coliform Rule

Total coliforms are a group of bacteria that are (with few exceptions) not harmful to humans, but are considered by EPA to be a useful indicator of other pathogens for drinking water. Total coliforms are used to determine the adequacy of water treatment and the integrity of the distribution system.

The EPA published the Revised Total Coliform Rule (RTCR) on February 13, 2013 and minor corrections on February 26, 2014. All public water systems (PWSs) must comply with the RTCR as of April 1, 2016. Key provisions of the RTCR include:

- Setting a MCL goal (MCLG) and MCLs for E. coli for protection against potential fecal contamination
- Setting a total coliform treatment technique (TT) requirement
- Requirements for monitoring total coliforms and E. coli according to a sample siting plan and schedule specific to the PWS.
- Provisions allowing public water systems (PWSs) to transition to the RTCR using their existing Total Coliform Rule (TCR) monitoring frequency, including PWSs on reduced monitoring under the existing TCR

- Requirements for seasonal systems (such as Non-Community Water Systems not operated on a year-round basis) to monitor and certify the completion of a state-approved start-up procedures
- Requirements for assessments and corrective action when monitoring results show that PWSs may be vulnerable to contamination
- Public notification (PN) requirements for violations

Potable water is currently tested for total coliforms at a minimum of ten (10) samples per month prior to distribution to the existing facilities. In addition, chlorine residual tests are conducted daily at the 1.1 MG storage tank and at several points in the distribution system. The results are reported monthly to EPA in accordance with the Monitoring and Compliance Report.

3.2.2.3 Lead and Copper Rule

The Lead and Copper Rule (LCR) sets limits for the amount of lead and copper that is allowed in drinking water at the tap. A NTNC water system is subject to LCR requirements. The LCR was published by EPA in 1991 and was revised in January 2000. The January 2000 revision set action levels for lead at 0.015 milligrams per liter (mg/L) and copper at 1.3 mg/L based on the 90th percentile level of tap water samples. The number of lead and copper sampling sites is based on the number of people being served.

Table 3-1 provides information for the number of lead and copper tap sampling and monitoring sites required per system size. Sampling and monitoring at the Existing Facilities is currently conducted as a medium sized system (12,500 system size). It is anticipated that the Existing Facilities plus either project alternative would still fall under the medium size category within the range of 10,001-50,000.

Table 3-1: Lead and Copper Sampling Taps and Tap Monitoring

		Number of Lead and Copper Sampling Sites		Number of Water Quality Parameters Tap Sampling Sites	
Size Category	System Size	Standard	Reduced	Standard	Reduced
Medium	10,001 – 50,000	60	30	10	7
	3,301 – 10,000	40	20	3	3

Source: http://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=60001N8P.txt

Because the Resort's existing water system is currently in operation and regulated by the EPA, optimal water quality parameter (OWQP) specifications have been established. All water tested and sampled at the existing facilities is in compliance with the OWQP and EPA's specific requirements. Therefore, per the Monitoring and Compliance Report, "reduced" water quality tap monitoring, as listed in **Table 3-1**, applies to the Existing Facilities. It is anticipated that water quality after expansion will remain in compliance with OWQP specifications, and that the lead and copper sampling will remain at the "Reduced" number of sampling sites (e.g., 30 sample sites). **Table 3-2** provides reduced monitoring criteria for lead and copper.

Table 3-2: Criteria for Reduced Lead and Copper Monitoring

Can Monitor…	If the system…
Annually	1. Serves ≤ 50,000 people and is ≤ both action levels for two consecutive 6-month monitoring periods; or
	2. Meets OWQPs and is ≤ lead action level for two consecutive 6-month monitoring periods.
Triennially	1. Serves ≤ 50,000 people and is ≤ for both action levels for three consecutive years of monitoring; or
	2. Meets OWQP specifications and is ≤ lead action level for three consecutive years of monitoring; or
	3. Has 90th percentile lead levels ≤ 0.005 mg/L and 90th percentile copper levels ≤ 0.65 mg/L for two consecutive 6-month periods (i.e. accelerated reduced lead/copper tap monitoring)
Every 9 years	Serves ≤ 50,000 people and meets the monitoring waiver criteria found in 40 CFR 141.86(g)

Source: http://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=60001N8P.txt

Potable water is sampled at the tap after remaining in the lines for a minimum of 12 hours (referred to as first draw), and is analyzed for lead and copper content. A total of 30 lead and copper samples (reduced medium category, see **Table 3-1**) are required to be collected triennially (every three years) and reported to EPA in accordance with the Monitoring and Compliance Report. Per **Table 3-2**, it is anticipated that the sample frequency will not change after implementation of either project alternative.

3.2.2.4 Disinfectants and Disinfection Byproducts Rule

Rules to balance the risk of microbial pathogens and disinfection byproducts (DBPs) were developed by EPA in 1996 as part of the amendments to the SDWA. The first phase of these rules was promulgated in 1998 as the Stage 1 Disinfectants and Disinfection Byproducts Rule (DBPR) (Stage 1 DBPR).

In 2006 the Stage 2 Disinfectants and Disinfection Byproducts Rule (Stage 2 DBPR) was promulgated to build upon the Stage 1 Rule of 1996. The Stage 2 DBPR target systems with the greatest risk and strengthens the compliance monitoring requirements for two groups of DBPs: Trihalomethanes (TTHMs) and Haloacetic acids (HAA5).

Table 3-3 lists the contaminants that are regulated under the Stage 2 DBPR along with their respective MCLGs and the MCLGs for using chlorine. Per the SDWA, an MCLG is a non-enforceable concentration of a drinking water contaminant, set at the level at which no known or anticipated adverse effects on human health occur.

Table 3-3: Stage 2 DBPR Regulated Contaminants

Regulated Contaminants	MCLG (mg/L)	MCL (mg/L)
Total Trihalomethanes (TTHM)	--	0.080 LRAA [1]
Chloroform	0.07	
Bromodichloromethane	zero	
Dibromochloromethane	0.06	
Bromoform	zero	
Five Haloacetic Acids (HAA5)	--	0.060 LRAA [a]
Monochloroacetic Acid	0.07	
Dichloroacetic Acid	zero	
Trichloroacetic Acid	0.02	
Bromoacetic Acid	--	
Dibromoacetic Acid	--	

Source: EPA, http://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100A2D4.txt
Notes:
1. LRAA: Locational running annual average calculated at each monitoring location

Disinfectant residuals continue to be regulated under Stage 1 DBPR. For systems that use chlorine as a disinfectant, the maximum residual disinfection levels (MRDL) for chlorine is 4.0 mg/L as Cl_2 and the MRDL goal (MRDLG) is 4.0 mg/L).

3.2.3 Groundwater

Three existing groundwater wells are available to supply the Resort and nearby facilities. The wells were completed consistent with Yolo County, Department of Environmental Health, and the State of California Water Well Standards.

The groundwater quality in all three wells meets all Federal primary standards. Some water samples from the wells exceed secondary standards (e.g., TDS). The Tribe's WDTF was installed to soften the water and reduce salinity in the recycled water by reducing salinity in the source water. While achieving these goals, the WDTF also lowers concentrations of various secondary contaminants, resulting in finished potable water that meets the secondary standards.

3.3 Wastewater Treatment Plant

The operation of the WWTP is regulated by EPA because it is located on Trust Land. State of California agencies do not have jurisdiction over the operation of the plant or the use of recycled water and disposal of wastewater on Trust Lands. Use of recycled water on State lands (Fee Land) is governed by the State of California. The WWTP is currently operated in accordance with EPA requirements and will continue as such after implementation of either project alternative. The quality of the effluent (recycled water) produced by the WWTP must meet all requirements that apply to each method of reuse or disposal, as described in the following sections.

3.4 Effluent Disposal and Reuse

EPA regulates recycled water use on Trust Land and the State of California, through the Regional Water Quality Control Board, Region 5 (RWQCB), regulates recycled water use off Trust Land (Fee Land).

Golf course irrigation on Fee Land is the primary disposal means of recycled water, which is under the jurisdiction of the State of California. Recycled water is also used for toilet/urinal flushing in the casino area of the facilities, and is occasionally disposed of in leach fields, all of which are on Trust Land.

3.4.1 Land Discharge – Fee Land

Recycled water use on the Fee Lands portion of the golf course is currently covered under Waste Discharge Requirements (WDR) Order No. R5-2006-0121, adopted on October 26, 2006, and Resolution No. R5-2008-0130, Amending Waste Discharge Requirements Order No. R5-2006-0121 (WDR Amendment), both included in **Appendix C**. These Orders were issued to the Tribe by the RWQCB, and they enforce CCR Title 22, Chapter 3, Water Recycling Criteria (Title 22), as administered by the State Water Resources Control Board (SWRCB) Division of Drinking Water (DDW). The RWQCB has jurisdiction over the quality of recycled water utilized on Fee Land and the operation of recycled water storage facilities and irrigation systems. The RWQCB does not have jurisdiction over the method of treatment, but the product water delivered to Fee Land must meet Title 22 quality standards. For reasons of practicality and safety, the Tribe treats all recycled water to be used on both Fee Land and Trust Land to the same Title 22 water quality standards. The WWTP produces “disinfected tertiary recycled water” as defined by Title 22, and will continue to do so for either project alternative. This is the highest level of treatment defined under Title 22 and has the most allowable uses, including flushing toilets and urinals, and irrigating food crops, parks, playgrounds, and golf courses.

The WDR covers land application of recycled water by spray irrigation to the Fee Land portion of the existing golf course, to a driving range, and to fill a decorative pond. Specific monitoring requirements and water quality criteria set by the WDR and the required treatment to meet these criteria is discussed below. Refer to **Appendix C** for more details on recycled water specifications, prohibitions, and requirements.

3.4.1.1 Disinfection Requirements

The WDR stipulates that the tertiary filtered wastewater from the WWTP shall be disinfected by a chlorine disinfection process that provides a CT value (the product of total chlorine residual and modal contact time measured at the same point) of not less than 450 milligram-minutes per liter at all times with a modal contact time of at least 90 minutes. A tracer study was completed on the existing CCB at the WWTP to determine the CT. The results were presented in the WWTP Chlorine Contact Basin Compliance Report (HydroScience, 2007). This study demonstrated that the CCB has a maximum disinfection capacity of 498,000 gpd (at 5 mg/L chlorine residual). This capacity was recognized by the California Department of Public Health (now referred to as the Department of Drinking Water or DDW) (May 9, 2007). See **Appendix D** for the associated letter. The WWTP must be upgraded prior to utilizing this capacity. If the projected wastewater flow exceeds 498,000 gpd, additional contact time may need to be provided through either facility modification or expansion.

3.4.1.2 Water Quality Criteria

Order No. R5-2006-0121 contains the limits shown below in **Table 3-4** and **Table 3-5**. The limits in tables **Table 3-4** and **Table 3-5** reflect the most stringent limits set forth in the *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition* and do not take into account ambient background chemistry at the site; therefore, the limits are very conservative. Order No. R5-2006-0121 called for the preparation of a Background Groundwater Quality Report by the Tribe based on monitoring well data collected at the site. Provision G.13 in that Order provided for reopening of the permit to establish site-specific limitations based on the results of groundwater monitoring (**Appendix C**).

Table 3-4: Recycled Water Limits

Constituent	Units	Effluent Concentration Limit	
		30-Day Average	Daily Average
5-Day Biochemical Oxygen Demand (BOD_5)	mg/L	10	20
Settleable Solids	ml/L	0.1	0.2
Total Nitrogen [1]	mg/L	10	20

Source: WDR R5-2006-0121 in **Appendix C**.
Notes:
1. Sum of Total Kjeldahl Nitrogen and nitrate nitrogen.

Table 3-5: Blended Irrigation Water Salinity Limits (Not Currently in Effect)

Constituent	Units	Recycled Water Concentration Limit 30-Day Flow-weighted Average [1]
Total Dissolved Solids (TDS)	mg/L	650
Chloride	mg/L	106
Sodium	mg/L	69

Source: WDR R5-2006-0121 and R5-2008-0131 in **Appendix C**.
Notes:
1. Limits apply to the point of discharge to the golf course irrigation system.

The Tribe implemented advanced desalination of potable water to reduce the concentration of salinity in the recycled water (completed August 2009), and further dilutes this salinity through the blending of Cache Creek water prior to irrigation. Furthermore, the Tribe has worked diligently to characterize background groundwater quality in order to support site-specific limitations, and has shown that degradation of groundwater is not occurring.

The Tribe submitted a *Background Groundwater Quality Report* (AES, 2009) in accordance with the WDR. On July 19, 2010, the RWQCB issued a letter (**Appendix C**) requesting a more detailed characterization of groundwater with additional monitoring wells. The letter stated that the RWQCB would forgo enforcement of the limits in **Table 3-5** to allow time for this additional study to occur and for the RWQCB to revise the WDR following submittal of the revised report. In the interim, provisional limitations were put into effect by the letter and are shown in **Table 3-6**. These limits remain in effect today, and the blended irrigation water is in compliance with these limits.

Table 3-6: Provisional Blended Irrigation Water Salinity Limits (In Effect)

Constituent	Units	Recycled Water Concentration Limit 30-Day Flow-weighted Average [1]
Total Dissolved Solids (TDS)	mg/L	855
Chloride	mg/L	200
Sodium	mg/L	202

Source: WDR R5-2006-0121 and R5-2008-0131 in **Appendix C**.
Notes:
1. Limits apply to the point of discharge to the golf course irrigation system.

On December 1, 2011, the Tribe submitted a *Revised Background Groundwater Quality Report and Request for Amendment to WDR and M&R Program Order No. R5-2005-0121* ("Revised Background Groundwater Quality Report", YDWN, December 2011). This report proposed a revised M&R program and, based on a detailed analysis of ambient site-specific background concentrations, proposed the following revised irrigation water limitations (**Table 3-7**):

Table 3-7: Proposed Irrigation Water Limitations Based on Background Levels

Constituent	Units	Recycled Water Concentration Limit 30-Day Flow-weighted Average [1]
Arsenic	µg/L	8.02
Chloride	mg/L	666
Nickel	µg/L	12.84
Sodium	mg/L	684
Total Coliform (15-tube)	MPN/100 mL	28.66
Total Dissolved Solids (TDS)	mg/L	1,800

Source: *Revised Background Groundwater Quality Report*, YDWN, December 2011
Notes:
1. Limits apply to the point of discharge to the golf course irrigation system.

The Tribe is in contact with RWQCB regarding an update to the WDR in response to this report. The current understanding is that Board action to adopt new site-specific limitations would occur in 2016 or 2017.

3.4.1.3 Land Discharge Monitoring, Sampling, and Reporting Requirements

The WDR includes a Monitoring and Reporting Program (MRP) pursuant to Water Code Section 13267. An MRP describes requirements for monitoring wastewater treatment, recycled water, supplemental irrigation supply water, groundwater, and reporting the results to the RWQCB. A copy of the MRP is included in **Appendix C** following the WDR.

The existing MRP includes tertiary effluent monitoring requirements for the constituents and reporting frequencies summarized in **Table 3-8**. Effluent samples are collected downstream of the CCB at the chlorine residual analyzer (except for turbidity, which is monitored downstream of membrane filtration).

Table 3-8: Tertiary Effluent Monitoring Requirements

Constituent	Units	Type of Sample	Sample Frequency	Reporting Frequency
Flow	gpd	Continuous	Daily	Monthly
Turbidity [1]	NTU	Continuous	Daily	Monthly [1]
Total Chlorine Residual	mg/L	Continuous	Daily	Monthly
Total Coliform Organisms [2]	MPN [3]/100 ml	Grab	Daily	Monthly
pH	pH units	Grab	Weekly	Monthly
TDS	mg/L	Grab	Weekly	Monthly
Sodium	mg/L	Grab	Weekly	Monthly
Chloride	mg/L	Grab	Weekly	Monthly
Nitrate Nitrogen	mg/L	Grab	Monthly	Monthly
Total Kjeldahl Nitrogen	mg/L	Grab	Monthly	Monthly

Source: MRP for WDR R5-2006-0121 in **Appendix C**.
Notes:
1. For each day, report the minimum and maximum recorded turbidity.
2. Using a minimum of 15 tubes or three dilutions.
3. MPN = Most Probable Number

The MRP also describes requirements for monitoring recycled water and supplemental irrigation supply water and these monitoring requirements are summarized in **Table 3-9** and **Table 3-10**.

Table 3-9: Supplemental Water Supply Monitoring Requirements

Constituent	Units	Type of Sample	Sample Frequency	Reporting Frequency
Supplemental Water Supply Monitoring				
pH	pH units	Grab	Weekly	Monthly
TDS	mg/L	Grab	Weekly	Monthly
Sodium	mg/L	Grab	Weekly	Monthly
Chloride	mg/L	Grab	Weekly	Monthly

Source: MRP for WDR R5-2006-0121 in **Appendix C**.

Table 3-10: Recycled Water Storage and Golf Course Monitoring Requirements

Constituent	Units	Type of Sample	Sample Frequency	Reporting Frequency
Recycled Water Storage Lake Monitoring				
Freeboard [1]	0.1 feet	Measurement	Weekly	Monthly
Dissolved Oxygen [2]	mg/L	Grab	Weekly	Monthly
Odors	---	Observation	Daily	Monthly
Golf Course Reclamation Monitoring				
Flow from Cache Creek to Five Pond	gpd	Continuous	Daily	Monthly
Flow from South Lake to irrigated areas	gpd	Continuous	Daily	Monthly
Rainfall	inches	Measurement	Daily	Monthly
Acreage Applied [3]	acres	Calculated	Daily	Monthly
Water Application Rate:				
Recycled Water	gal/acre/day	Calculated	Daily	Monthly
Fresh Water	gal/acre/day	Calculated	Daily	Monthly
Nitrogen Loading Rate [4]	lbs/ac/month	Calculated	Monthly	Monthly
Dissolved Solids Loading Rate	lbs/ac/month	Calculated	Monthly	Monthly

Source: MRP for WDR R5-2006-0121 in **Appendix C**.
Notes:
1. Date(s) and estimated volume of overflows to fee land and/or surface water are reported, if any.
2. Samples collected opposite the pond inlet at a depth of one foot between 0700 and 0900 hours.
3. Specific irrigation areas identified.
4. Including chemical fertilizers.

In addition, the MRP requires the Tribe to sample and report water quality from monitoring wells used to monitor the golf course on a quarterly basis, or once every three months. **Table 3-11** presents the sampling and reporting requirements of the groundwater monitoring wells around the golf course.

Table 3-11: Groundwater Monitoring Requirements

Constituent	Units	Type of Sample	Sample Frequency [4]	Reporting Frequency [4]
Depth to groundwater	0.01 feet	Measurement	Semi-Annually	Semi-Annually
Groundwater elevation [1]	0.01 feet	Calculated	Semi-Annually	Semi-Annually
Gradient	feet/feet	Calculated	Semi-Annually	Semi-Annually
Gradient Direction	degrees	Calculated	Semi-Annually	Semi-Annually
pH	pH units	Grab	Semi-Annually	Semi-Annually
TDS	mg/L	Grab	Semi-Annually	Semi-Annually
Nitrate as Nitrogen	mg/L	Grab	Semi-Annually	Semi-Annually
Standard Minerals [2]	mg/L	Grab	Semi-Annually	Semi-Annually
Metals [3]	ug/L	Grab	Semi-Annually	Semi-Annually

Source: MRP for WDR R5-2006-0121 in **Appendix C**.
Notes:
1. Groundwater elevations shall be determined based on depth-to-water measurements using a surveyed measuring point elevation on the well and a surveyed reference elevation.
2. At a minimum, the following standard minerals shall be included: boron, chloride, sodium, and sulfate.
3. At a minimum, the following metals shall be included: arsenic and manganese. Samples for metals shall be filtered with a 0.45-micron filter prior to sample preservation. Analytical methods shall be selected to provide reporting limits below the Water Quality Limit for each constituent.
4. The Discharger shall establish a sampling schedule for groundwater monitoring such that samples are obtained approximately every six months during the second and fourth quarter of each calendar year.

The results from this monitoring are combined with operational monitoring data at the WWTP and reported monthly to the RWQCB. A separate groundwater monitoring report is submitted to the RWQCB semi-annually. The Tribe also provides the same reports to EPA and Yolo County Environmental Health Department. All laboratory testing is performed in full compliance with both EPA and RWQCB requirements. Annual reports are also submitted to the RWQCB presenting an overall evaluation of WWTP performance.

3.4.2 Land Discharge – Trust Land

Currently, recycled water is discharged for land application to landscape irrigation and golf course irrigation within Trust Land, which is under EPA jurisdiction. The RWQCB adopted a WDR (**Appendix C**) for areas that are on Fee Land, which are more stringent than EPA's requirements. When applying recycled water to Trust Land, the Tribe meets the WDR requirements. This simplifies operations and maintains consistency. No site specific permit is required for Trust Land application of recycled water.

Reporting of recycled water distributed on Trust Land is conducted voluntarily by Operations Staff. All recycled water disposal options are metered and read and recorded daily. Monthly reports submitted to EPA account for all recycled water applied on-site.

3.4.3 Leach Field Disposal – Trust Land

Leach fields are sometimes used on Trust Land to dispose of some effluent (recycled water) from the WWTP. Leach field disposal is regulated under the Federal Underground Injection

Control (UIC) Program, which works to prevent contamination of drinking water resources from underground injection of waste. The UIC Program is administered by EPA, not only because the leach fields are located on Trust Land, but because California is a Direct Implementation State (40 CFR Part 144.83). The UIC program is a crucial component of the source water assessment and protection program, because it identifies, permits, and regulates the design, siting, operation, and maintenance of leach field disposal systems that are designed to dispose of waste underground. Subsurface disposal of recycled water from the WWTP through leach fields is classified as a Class V injection well under the UIC Program. All Class V injection well owners in California and on Trust Land are required to submit inventory information to the EPA.

The leach fields are located on Trust Land (**Figure 1-2**). EPA regulates the use and application of the leach fields and requires that the flow volumes going to the leach fields be reported. In addition, the Tribe and Yolo County agreed to a groundwater monitoring program. Monthly reports (applicable to leach field operations) are submitted to EPA and to Yolo County that include:

- Wastewater influent and recycled water (effluent) flows and quality
- Recycled water (effluent) distribution (volumes sent to each of the three leach fields)
- Daily readings and summary reports from the site observation wells

Annual sampling of the three monitoring wells around the leach fields is also reported to both EPA and Yolo County. The groundwater is sampled for the constituents listed in **Table 3-12**.

Table 3-12: Existing Annual Groundwater Monitoring Parameters for the Leach fields

Parameter	Method
Total Coliform	Standard Method 9221, or equivalent
BOD	Standard Method 5210B, or equivalent
General Minerals (including nitrate)	EPA Methods and other Standard Methods
General Physical (color, odor, turbidity)	EPA Methods and other Standard Methods
Nitrite	EPA Method 300.0 or equivalent
Metals	Priority Pollutant Metal Series, EPA Method 245.1, 200.7, and 200.8, or equivalent
Hydrocarbons	EPA Method 1664 or equivalent

3.4.4 Toilet/Urinal Flushing

To conserve potable water, recycled water for toilet and urinal flushing is currently supplied to restrooms located on the first floor of the casino. Since the casino is located on Trust Land, this use of recycled water falls under the jurisdiction of the EPA. However, the quality of recycled water delivered to these uses, and the overall operation of the distribution system, is voluntarily conducted in accordance with CCR Title 22 guidelines and requirements.

While the use of recycled water for toilet flushing conserves potable water and is a green initiative, it can have the detrimental effect of increasing the recycled water's salinity. As potable water is consumed through domestic uses and waste streams are produced, salinity increases. Recycled water therefore has higher salinity than the potable water source it was derived from.

The use of recycled water in toilets and urinals is a “closed loop” activity, in that this recycled water returns again to the WWTP as a waste stream. This “loop effect” can increase, or “cycle up” salinity and other dissolved constituent concentrations in the wastewater and subsequent recycled water. The amount of “cycling up” is limited by the diluting effects of the larger system, which includes the continuous introduction of potable water and the disposal of a portion of the recycled water on golf course turf, which does not involve a return stream.

Currently, the chlorine residual and total coliform concentrations are collected daily and reported to EPA on a monthly basis. It is anticipated that this monitoring and reporting process will remain unchanged after completion of either project alternative as dual-plumbed restrooms will continue to be used.

3.5 Recycled Water Storage

Recycled water is stored in three existing storage reservoirs. These reservoirs include: 1) WWTP Reservoir, 2) Golf Course South Lake, and 3) 64,000 recycled water storage tank. The existing reservoirs are shown on **Figure 1-2**. Even though both impoundments are located within Trust Land boundaries, discharge from either storage area may impact Waters of the State of California. Therefore, the storage reservoirs are operated as if they were located on Fee Land, as covered by the WDR.

Both existing impoundments are lined with high density polyethylene liners. The WWTP Reservoir is fully lined to the capacity of the impoundment. South Lake is lined from the bottom of the reservoir to an elevation of 270.5 feet above mean sea level, with an overflow elevation set at 282.7 feet average mean sea-level (ft-amsl). Several golf holes and fairways are located below the overflow elevation, but above the liner, within the watershed of South Lake. The Tribe is in the process of extending the HDPE liner for South Lake in order to increase storage capacity to provide an adequate irrigation supply to the golf course, particularly in drought years.

To comply with the WDR, specific prohibitions and other specifications are required by the Discharger (Tribe) in order to provide sufficient storage of recycled water to accommodate actual wastewater flow, all infiltration and inflow, agronomic use of recycled water, and design seasonal precipitation. The following are pertinent specifications specifically related to the operation of the recycled water storage impoundments, as listed in the WDR (**Appendix C**).

- Freeboard in any pond containing recycled water shall never be less than two feet as measured from the water surface to the lowest point of overflow.
- On or about October 15th of each year, available storage capacity shall be available to ensure containment of waste at all times.
- Finding 43: South Lake will have sufficient capacity to contain the design wastewater flow and seasonal precipitation during a normal rainfall year at a starting water depth of 265 ft-amsl by October 30.

Table 3-10, above, summarizes the reporting and monitoring requirements for South Lake and the WWTP Reservoir. Note that seasonal storage required to be maintained per the WDR is based on two precipitation periods: 1) Average precipitation, and 2) 100-year annual precipitation period. Average precipitation is the statistical mean precipitation that occurs at the site location in accordance with historical rainfall patterns. A 100-year annual precipitation period is the annual precipitation using a return period of 100 years, distributed monthly, or the

theoretical monthly precipitation amount that statistically is anticipated to occur once every 100 years.

3.6 Biosolids

The dewatered biosolids (greater than 16% solid) produced by the existing belt press at the WWTP are considered a special waste product which is acceptable at a Class 2 sanitary landfill as long as it meets specific waste acceptance criteria. Currently, the biosolids meet the Yolo County Landfill Waste Acceptance Criteria and are off-hauled to the landfill for disposal. The biosolids are tested annually for the required constituents, and disposal permits are issued by Yolo County.

SECTION 4 – WATER ASSESSMENT

This Section summarizes the preliminary water supply, storage, treatment, and pumping requirements to provide potable water for the project alternatives based on projected water demands as detailed in **SECTION 2**. Facility needs are determined based on projected demand increases, water quality requirements, and capacity of existing facilities.

4.1 Existing Water System

The potable water source for the Resort and nearby facilities is groundwater from the water supply wells located west of State Highway 16 (**Figure 1-2**). The groundwater is treated prior to distribution to the Resort and nearby facilities. The Water Desalination Treatment Facility (WDTF) conditions and softens the potable water. This water is discharged to a blending tank inside the WDTF where it is blended with additional well water at a ratio that achieves the target potable water quality. Blended water is then disinfected and pumped to the 1.1 MG potable water storage tank. This storage tank is the common point prior to distribution of potable water to all potable water demands. The WDTF consists of two stages: an electrodialysis reversal (EDR) system to soften the potable water and an enhanced form of reverse osmosis (RO) to concentrate brine for off-haul disposal. **Figure 4-1** presents a process flow diagram of the existing potable water system and **Figure 4-2** shows the general location of the major components of the existing potable water system.

A raw water intake is utilized to deliver raw water from Cache Creek for golf course and casino landscape irrigation, and crop irrigation during the irrigation season. A portion of the golf course and all crop irrigation occur on Fee Land, while the remaining demands are on Trust Land. Golf course irrigation demand is met with a blend of Cache Creek raw water and recycled water.

The project alternatives will have no effect on the water demands of Fee Land agriculture, and therefore this Study does not evaluate that element further. At the golf course, the ratio of recycled water to Cache Creek water will increase due to higher availability of recycled water.

4.1.1 Existing Groundwater Production Wells

The Tribe's existing potable water supply system for the Resort consists of three water wells. The Tribe currently relies on Well 1 and Well 2 for most of the supply. Well 3 currently provides redundancy. **Figure 1-2** shows the location of all three wells within the production water well field.

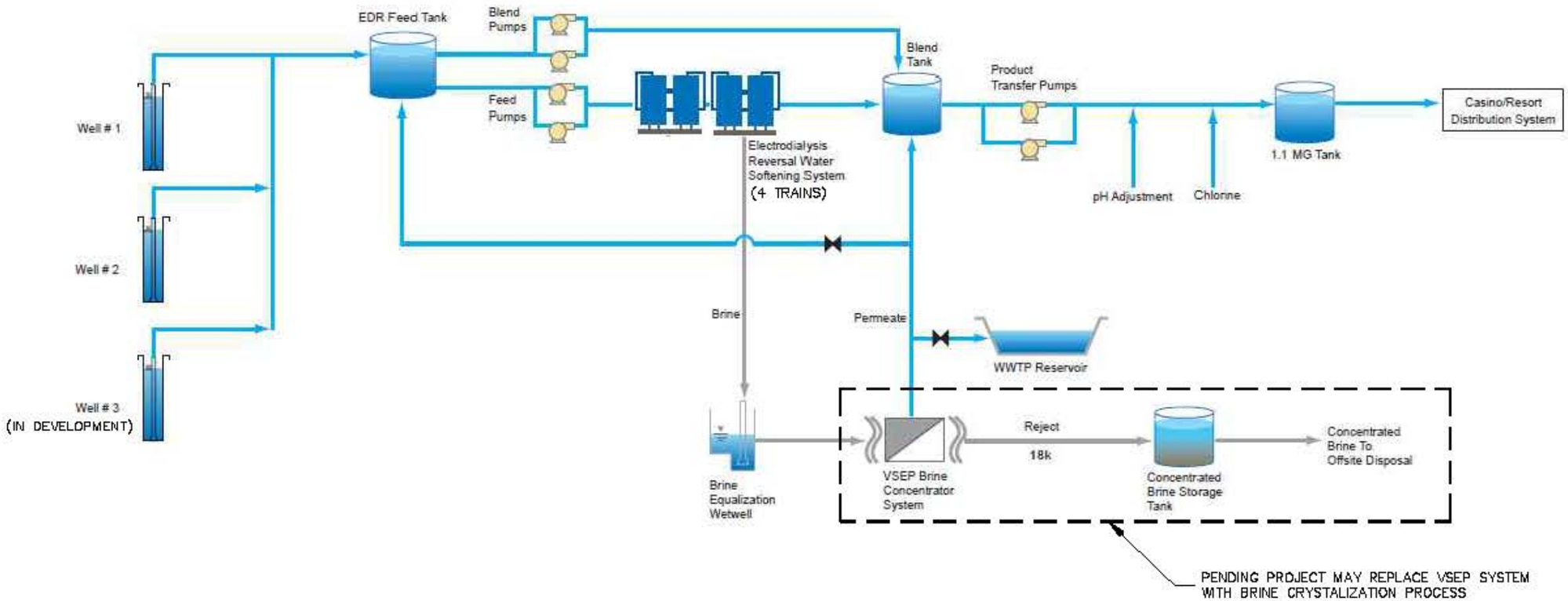

FIGURE 4-1
Yocha Dehe Wintun Nation
Cache Creek Hotel Expansion Project
Existing Potable Water Process Flow Diagram

HydroScience

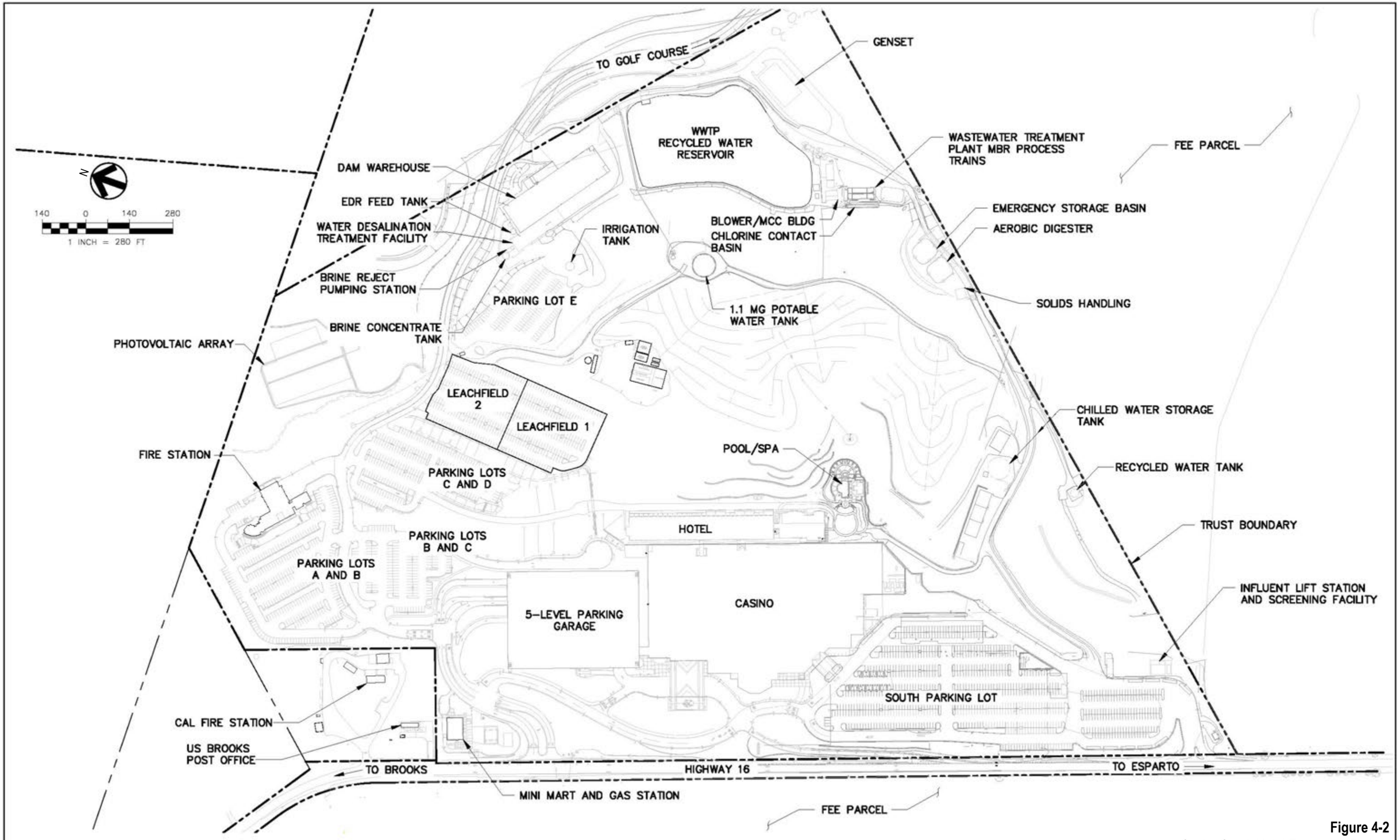

Figure 4-2
Cache Creek Hotel Expansion Project
Water and Wastewater Feasibility Study
Existing Water and Wastewater Facilities Site Plan

HydroScience

4.1.1.1 Groundwater Well Capacities

The capacity of each of the three wells is listed in **Table 4-1**. Pumping capacity from the three wells ranges from 200 gallons per minute (gpm) to 380 gpm.

Table 4-1: Existing Well Capacities

Well	Capacity	
	(gpm)	(gpd)
Well 1	380	547,000
Well 2	315	454,000
Well 3	200	288,000

4.1.1.2 Groundwater Quality

The existing wells have been tested for all Title 22 constituents, as required for drinking water wells. A list of detected constituents is included in **Table 4-2**. The water quality between the three wells is fairly similar in concentration levels.

While nitrate (as N) levels for Well 1 were 0.65 mg/L in December 2001 and 0.85 mg/L in August 2007, Well 2 had nitrate levels of 4.7 mg/L in December 2003 and 10 mg/L in August 2007. Well 3 had nitrate levels of 5.8 in October 2007 and 8.4 in March 2016. The MCL for nitrate is 10 mg/L, but the WDTF actually reduces nitrate levels through the treatment process to 0.9 mg/L, well below the MCL.

The measured TDS range of Wells 1, 2, and 3 is 460 – 600 mg/L. However, TDS is a secondary standard and is related to aesthetic purposes of the water, not protection of human health. Although not an EPA MCL or secondary standard, total hardness of the groundwater is considered Moderately Hard to Hard at 248 – 360 mg/L (calcium carbonate equivalent). High hardness in the water tends to leave water deposits (white precipitate) on dishware and other clear surfaces (e.g., shower glass doors) making them look opaque and difficult for staff to clean. The WDTF softens as well as desalinates the potable water delivered to the storage tank (approximately 3 grains hardness and 200 mg/L TDS), thereby fully addressing these aesthetic concerns.

Iron appears to be somewhat elevated in Well 3. This can be addressed by blending Well 3 water with the other two wells, or if necessary, pretreatment upstream of the EDR. Constituent concentrations may change over time. Regardless, concentrations of iron after treatment through the EDR will comply with the secondary standard of 0.3 mg/L.

Table 4-2: Detected Constituents in Groundwater Production Well Field

Detected Constituent	Units	Well 1		Well 2		Well 3	MCL/ Secondary Standard
		Dec 2001	Aug 2007	Nov 2003	Aug 2007	Jun 2016	
Conventional Chemistry Parameters							
Bicarbonate Alkalinity	mg/L	230	240	270	290	220	NA/NA
Total Alkalinity	mg/L	230	240	270	290	220	NA/NA
Color	Color Unit	13	ND	ND	ND	1	NA/15
TDS	mg/L	540	480	540	600	470	NA/500
Turbidity	NTU	5.4[1]	1.2	0.47	3.5	1.1	NA/NA
Chloride	mg/L	140	90	100	100	59	NA/250
Fluoride	mg/L	1.0	0.25	ND	0.26	NS	4/2
Nitrate as N	mg/L	0.65	0.85	4.7	10	NS	10/NA
Sulfate as SO4	mg/L	75	70	63	70	60	NA/250
Total Phosphorous as P	mg/L	NS	0.057	NS	0.060	0.10	NA/NA
pH	SU	7.3	7.02	7.26	7.22	7.16	NA/6.5-8.5
Specific Conductivity	umhos/cm	850	800	930	1,000	800	NA/1,600 [2]
Hardness	mg/L	NS	270	280	360	220	NA/NA
Metals							
Aluminum	mg/L	ND	ND	ND	ND	0.088	NA/0.05-0.2
Barium	mg/L	0.099	0.098	ND	0.100	ND	2/NA
Boron	mg/L	NS	0.770	0.78	0.790	0.92	NA/NA
Calcium	mg/L	ND	71	73	99	56	NA/NA
Copper	mg/L	ND	ND	ND	0.011	ND	NA/1.0
Iron	mg/L	0.37 [3]	ND	0.055	0.400	0.21	NA/0.3
Magnesium	mg/L	ND	24	23	30	19	NA/NA
Manganese	mg/L	0.021	ND	ND	ND	ND	NA/0.05
Mercury [4]	mg/L	ND	ND	ND	ND	NS	0.002/NA
Potassium	mg/L	NS	1.0	ND	ND	ND	NA/NA
Selenium	mg/L	ND	ND	0.0024	ND	NS	0.05/NA
Sodium	mg/L	NS	81	81	93	NS	NA/NA
Zinc	mg/L	0.450	0.024	ND	0.130	ND	NA/5
Purgeable Organic Compounds							
Bromodichloromethane	µg/L	1.5	NS	NS	NS	NS	NA/NA
Chloroform	µg/L	8.7	NS	NS	NS	NS	NA/NA
Dibromochloromethane	µg/L	0.72	NS	NS	NS	NS	NA/NA
TTHM	µg/L	11	NS	NS	NS	NS	80/NA
Toluene	µg/L	2.6	NS	NS	NS	NS	150/NA

Notes:
NA = Not Applicable, ND = Not Detected, ug/L = micrograms per liter, umhos/cm = micro-mhos per centimeter
1. Resampled: 0.47 mg/L on 2/18/02.
2. Recommended is 900 umhos/cm.
3. Resampled: 0.29 mg/L on 1/28/02 and 0.13 mg/L on 2/18/02.
4. Mercury Detection Reporting Limit = 0.001 mg/L.

4.1.1.3 Groundwater Disinfection

Typically, groundwater is pumped directly to the WDTF to be desalinated, and after being processed, the finished water is blended with raw groundwater and then treated with sodium hypochlorite solution for disinfection prior to distribution. Because the groundwater meets EPA water quality criteria and does not exceed MCLs, the groundwater may be bypassed around the WDTF and pumped directly to the potable water storage tank for distribution. The chlorine residual is tested as it leaves the storage tank, prior to distribution to the Existing Facilities, and at taps throughout the Resort.

4.1.2 Existing Water Desalination Treatment Facility

As discussed above, the groundwater meets all Federal water quality standards; however, the water contains elevated levels of TDS (salinity) that sometimes exceeds secondary standards. The salinity is reduced through treatment at the WDTF. The removal of salinity constituents through the WDTF improves water quality delivered to the Existing Facilities and reduces salinity levels in the recycled water for compliance with the WDR (**SECTION 3**). The WDTF was commissioned in August 2009.

The WDTF utilizes a two-stage approach to soften and desalinate the groundwater prior to distribution. An EDR system softens and desalinates the finished water (potable water); and a Vibratory Shear Enhanced Process (VSEP) reduces the volume of brine through a concentrating process for off-site disposal while producing additional product water (**Figure 4-1**).

The Tribe is currently evaluating a proposal to replace the VSEP brine concentration step with a Brine Crystallization System. Implementation of the Brine Crystallization System would produce a salt cake instead of a concentrated brine, significantly reducing the volume of salts that must be disposed, reducing truck trips, and improving overall WDTF water treatment efficiency.

4.1.2.1 WDTF First Stage – Groundwater Softening and Desalination

The groundwater is pumped to the WDTF where it is first softened and desalinated by the EDR process. The EDR is a membrane demineralization process that transfers ionic species from the source water through cation and anion membranes using direct current. At this specific facility, the purpose of the EDR is to separate hardness and TDS from groundwater. This process operates at a low pressure, and is more efficient (i.e. has higher recovery rates) than conventional RO for removing moderate levels of hardness and TDS. Removing hardness and TDS from the source also reduces TDS levels in the recycled water, as well as nitrates in the groundwater. Components of the water softening EDR system include:

- EDR Feed Tank
- EDR Treatment Trains
- Feed Pumps
- Blend Pumps
- Blend Tank
- Finished Water Pumps

The EDR system consists of four lines (process trains) with three stages per line, with a total peak day capacity of 475,000 gpd (with one line on standby). Approximately 20% of the water processed is rejected to the second stage, as described below. A bypass around the EDR is provided to facilitate blending with untreated groundwater, with the blended water subsequently disinfected. Blending is appropriate for meeting water quality objectives while optimizing facility operation. Bypassed well water currently represents approximately 20% of the blended water supply (this is adjusted as required to maintain water quality objectives).

4.1.2.2 WDTF Second Stage – Brine Concentration

To effectively remove salts from the water stream and meet discharge limits (**SECTION 3**), brine generated by the water softening stage (EDR) cannot be discharged to the sewer system. The reject is concentrated in a second stage process to cost effectively dispose of the brine off-site. All rejected water from the EDR process and other treatment systems is collected and sent to a VSEP brine concentrator. VSEP is an enhanced form of RO that applies a vibratory shear force to the membrane filter pack to minimize fouling and increase recovery rates. Components of the VSEP brine concentration system include:

- Reject wet-well and pump station
- VSEP feed tank
- Three (3) operational VSEP filter packs (with space for two (2) additional filter packs)
- Feed pumps, run in series
- Tankless hot water system
- Concentrated brine storage tank
- Chemical area
- Brine off-haul connection

Each VSEP filter pack can process up to 43,000 gpd of brine, producing up to 37,000 of permeate and 6,000 gpd of concentrated brine.

The VSEP permeate (clean product water) is conveyed to the blend tank along with treated water from the EDR and raw groundwater (**Figure 4-1**). This additional product water recovery increases overall recovery efficiency of the WDTF. In case of a malfunction, VSEP permeate can be redirected to the EDR feed tank or WWTP Reservoir (**Figure 4-1**). The concentrated brine from the VSEP system is sent to the Brine Storage Tank for ultimate disposal off-site.

4.1.2.3 Water Quality of Potable Water

Blended potable water from the WDTF and the well bypass is stored in the 1.1 MG storage tank and then distributed to potable water demands. The water contained in this storage tank consists of a blend of EDR product water, groundwater that bypassed the EDR, and VSEP permeate, as described previously. **Figure 4-1** showed the various blend streams and **Table 4-3** presents the water quality of the source groundwater from the wells versus the potable water distributed to the Existing Facilities. As shown in **Table 4-3**, the constituents of concern have been significantly reduced after the water is processed through the WDTF.

Table 4-3: WDTF Treatment Effectiveness

Parameter	Total Alkalinity (mg/L)	Bicarbonate (mg/L)	Carbonate (mg/L)	Hydrox (mg/L)	Hardness (mg/L)	Chloride (mg/L)	TDS (mg/L)
Source Groundwater [1]	258	258	ND	ND	303	108	540
Potable Water from 1.1 MG Storage Tank [2]	93	93	ND	ND	59	37	216

Notes:
1. Average of Well 1 and 2 sample results (**Table 4-2**). Well 3 was sampled when it was installed but was not included in the average because it is not currently in production. Well 3 sample data indicates similar quality to Well 1 and 2, and the water quality to the WDTF is not expected to change significantly.
2. Average of results from WDTF blend tank and 1.1 MG potable water storage tank, prior to distribution 4/2012 through 2/2016.

4.1.2.4 Overall Potable Water Production Capacity

Current normal WDTF operation consists of two EDR lines and two VSEP stacks operating, with the others on standby, and blending of about 20% bypassed well water into the total water supply, resulting in an overall production capacity of 490,000 gpd (based on full-time WDTF operation). The WDTF is currently run on a part-time basis to keep the 1.1 MG tank adequately supplied at current demands which are below full capacity.

4.1.2.5 Existing Brine Disposal

Because the Resort is not located near a large municipality or where a direct ocean discharge is feasible, the EDR reject brine must be concentrated and hauled off-site so that the salt loadings do not contribute to recycled water effluent concentrations. Currently, brine is off-hauled to East Bay Municipal Utilities District (EBMUD) in Oakland, California, and disposed of at EBMUD's Oakland Main Wastewater Treatment Plant. EBMUD's WWTP has excess capacity to accept liquid waste from outside their service area and can accommodate this waste stream in accordance with their current discharger permit. The Tribe pays appropriate tipping fees to EBMUD for disposal of the brine at their facility.

The WDTF has a recovery rate of over 95 percent, with less than 5 percent of the total water processed sent to the brine concentrate storage tank for disposal. The Brine tank is adjacent to a loading station for direct connection to liquid haul trucks to dispose of the brine to EBMUD. Approximately two (2) truckloads of liquid brine a day are currently hauled to EBMUD from the WDTF. Each haul truck carries approximately 5,000 gallons of brine.

4.1.2.6 Existing Water Storage Tank

All treated water is sent to a welded steel tank with a capacity of 1.1 MG for potable water storage. This tank is located on a hilltop above the Resort, as shown in **Figure 4-2**. The tank is sized adequately to meet existing fire and operational storage requirements. There is also a 110,000-gallon irrigation storage tank to supply irrigation demands, and thus there is no longer a draw on the potable water storage for irrigation water. This reduces the burden on the water

treatment plant to produce treated water for irrigation use, freeing up additional treatment capacity.

4.1.3 Existing Raw Surface Water – Cache Creek

The Tribe has a Raw Water Intake and Pump System that it operates under permit from the YCFCWCD in order to take allocated surface water from Cache Creek for non-potable uses during the irrigation season (April 15 – October 15). Potential non-potable uses include golf course and casino landscape irrigation and off-trust (Fee Land) crop irrigation. Cache Creek water is pumped directly to the golf course South Lake and also to a 110,000-gallon Irrigation Storage Tank which serves landscaping and off-trust agricultural demands and can also be supplied with raw well water. Water drawn from Cache Creek is metered and monthly volumes are reported to YCFCWCD.

Figure 1-2 shows the approximate location of the surface water diversion pump station. Pumped irrigation water is conveyed by pipeline into Five Pond on the golf course, located on Fee Land, in the northern area of the golf course. Water flows by gravity from Five Pond through a manmade stream into North Lake and from there it is pumped as needed into South Lake, which contains comingled recycled water and raw creek water. To prevent backflow of recycled water from South Lake into North Lake, the invert elevation of North Lake's pump discharge pipeline outlet is 2 feet higher than the South Lake overflow outlet elevation. The pump station at the north end of South Lake irrigates the golf course.

4.2 Potable Water Facilities Evaluation – Proposed Project

Potable water facility (supply, treatment, and storage) requirements to meet Proposed Project water demands are evaluated in this section.

4.2.1 Groundwater Wells

The capacity of each water production well was shown in **Table 4-1**. Well 1 has a capacity of 547,000 gpd, Well 2 has a capacity of 454,000 gpd, and Well 3 has a capacity of 288,000 gpd. According to the base water demand calculations (**Table 2-5**) the base water demand for the Existing Facilities plus Proposed Project would be 460,000 gpd. After deducting projected demands to be met by recycled water, the projected net potable water demand served by the wells is 390,000 gpd average day and 550,000 gpd peak day (PF=1.4). Therefore, the groundwater supply will be adequate for meeting the requirements of the Project.

4.2.2 Water Desalination Treatment Facility

The existing WDTF will be evaluated in this section to determine if additional capacity will be needed for the Proposed Project. As discussed above, the net projected water demand for Existing Facilities plus the Proposed Project is 390,000 gpd average day and 550,000 gpd peak day, which will be served by blended potable water from the 1.1 MG storage tank.

4.2.2.1 EDR System

The projected net peak day water demand for the Existing Facilities plus the Proposed Project exceeds the production capacity of the WDTF, assuming one EDR line continues to be reserved as standby. It would be prudent for redundancy and operational flexibility to add a fifth EDR line in the space reserved for that equipment. This will allow average and peak demands to be met even if an EDR train is out of service for maintenance.

4.2.2.2 VSEP System

The VSEP system is currently operating with three functional VSEP stacks out of five originally constructed, which is sufficient to meet current demands. The run time of a VSEP stack is dictated by how frequently the stack must be taken out of service for cleaning. Permeate flowrate steadily declines as the VSEP operates. To support the Proposed Project while maintaining system redundancy and operational flexibility, the system should be restored to five operating stacks.

The Tribe is currently evaluating an alternative to the VSEP system, a Brine Crystallization System, that would perform the same function at better efficiency and lower operating cost. Should the Tribe elect to move forward with this system, it would completely replace the VSEP system and work in conjunction with the EDR units to produce treated potable water while concentrating the brine. In this case, the removed brine is concentrated into a dry cake which is mostly solid and can be hauled to landfill or beneficially reused, and more treated water is returned as product water due to improved recovery rate. The system would be sized to serve the Existing Facilities plus Proposed Project demands with reserve capacity for operational flexibility and redundancy. The Brine Crystallization System would be located within the existing WDTF.

4.2.3 Water Storage System

The Resort currently has 1.1 MG storage tank that serves operational storage, emergency storage, and fire suppression needs. The increase in potable water demand from the Project would result in storage requirements shown in **Table 4-4**, below. The existing storage tank is sufficient to meet the requirements of the Existing Facilities plus either of the project alternatives.

The Tribe is considering a second tank, which would be installed adjacent to the current tank. This would provide redundant storage capacity and increased operational and emergency storage, with the added capacity for these functions providing additional operational flexibility.

Table 4-4: Potable Water Storage Requirements for Project

Criteria	Storage Volume(gal) [1]
Operational Storage [2]	273,000
Emergency Storage [3]	390,000
Fire Suppression [4]	360,000
Total Water Storage Requirement	1,023,000
Existing Tank Size	1,100,000

Notes:
1. Rounded to nearest 10,000.
2. Operational Storage = Peak Factor * Average Day Water Demand (Table 2-7)) * Storage Requirement Factor = 1.4 * 390,000 * 0.5.
3. Emergency Storage = Average Day Water Demand (Table 2-7) * Storage Requirement Factor = 390,000 * 0.5 * 2.
4. Yocha Dehe Fire Department requirement.

4.2.4 Concentrated Brine Disposal

As discussed in **Section 4.1.2.5**, the current WDTF treatment loss is 5%, equal to the volume of brine necessary for disposal. Currently, approximately 2 trucks per day of liquid brine are hauled to EBMUD from the WDTF. Each haul truck carries approximately 5,000 gallons of brine. The Project would increase the Base Water Demand (see **Table 2-7** and **Table 2-8**) by a factor of 1.6. Therefore, brine hauling would increase to approximately 3 trucks per day.

If the Tribe implements a Brine Crystallization Facility, these truck trips would be substantially reduced to approximately 21 truck trips per year during annual maintenance intervals.

4.2.5 Proposed System Configuration

Figure 4-3 and **Figure 4-4** illustrate the proposed flow diagram and layout of the potable water supply, treatment, and storage facilities to support the Existing Facilities plus the Project. An additional EDR line will be added. Additional VSEP filter stacks will be added, or alternatively the entire VSEP system will be replaced with a brine crystallization system.

4.3 Potable Water Facilities Evaluation – Reduced Intensity Alternative

The recommended water supply, treatment, and storage facility improvements for the Reduced Intensity Alternative are the same as shown above for the Proposed Project. The Reduced Intensity Alternative's projected net potable water demand is 380,000 gpd average day and 530,000 gpd peak day (**Table 2-8**).

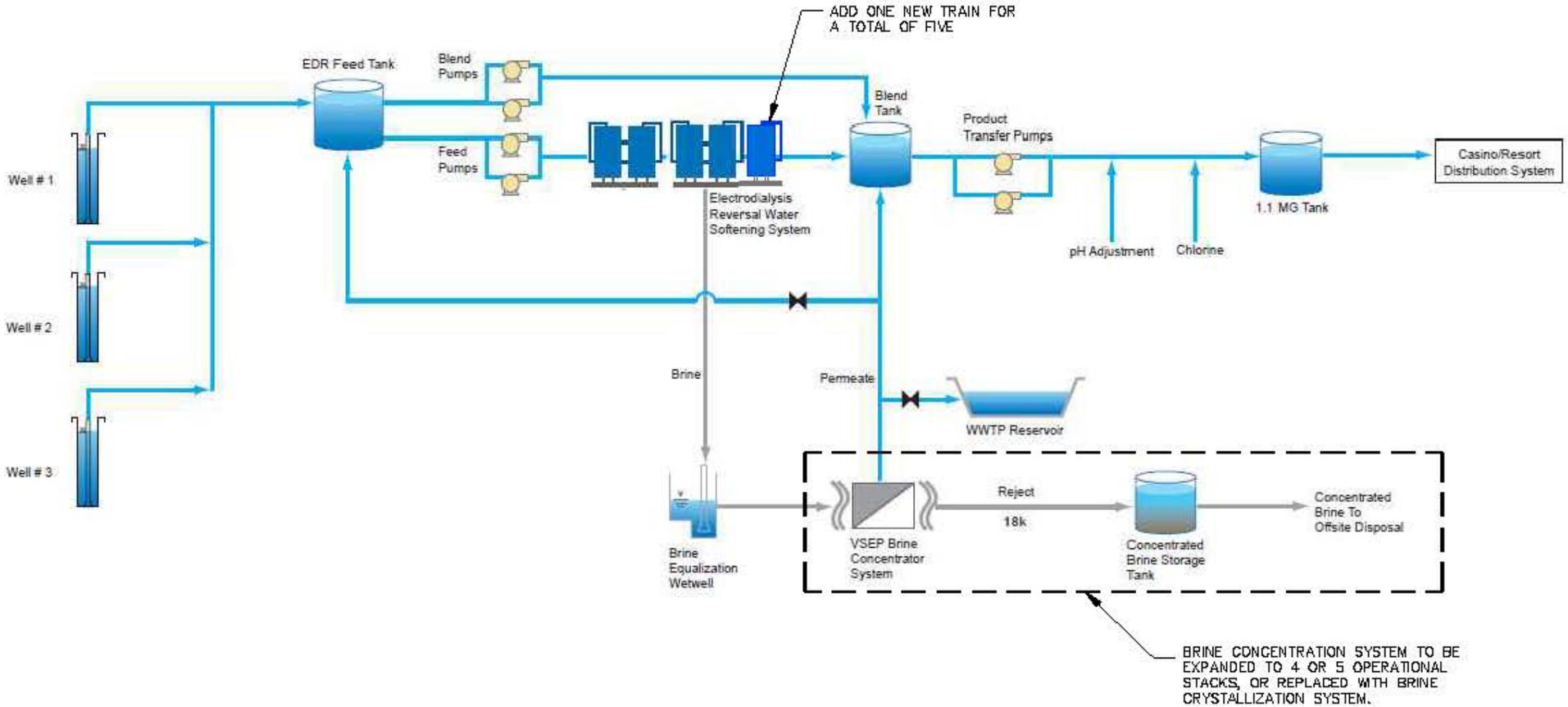

FIGURE 4-3
Yocha Dehe Wintun Nation
Cache Creek Hotel Expansion Project
Proposed Potable Water Process Flow Diagram

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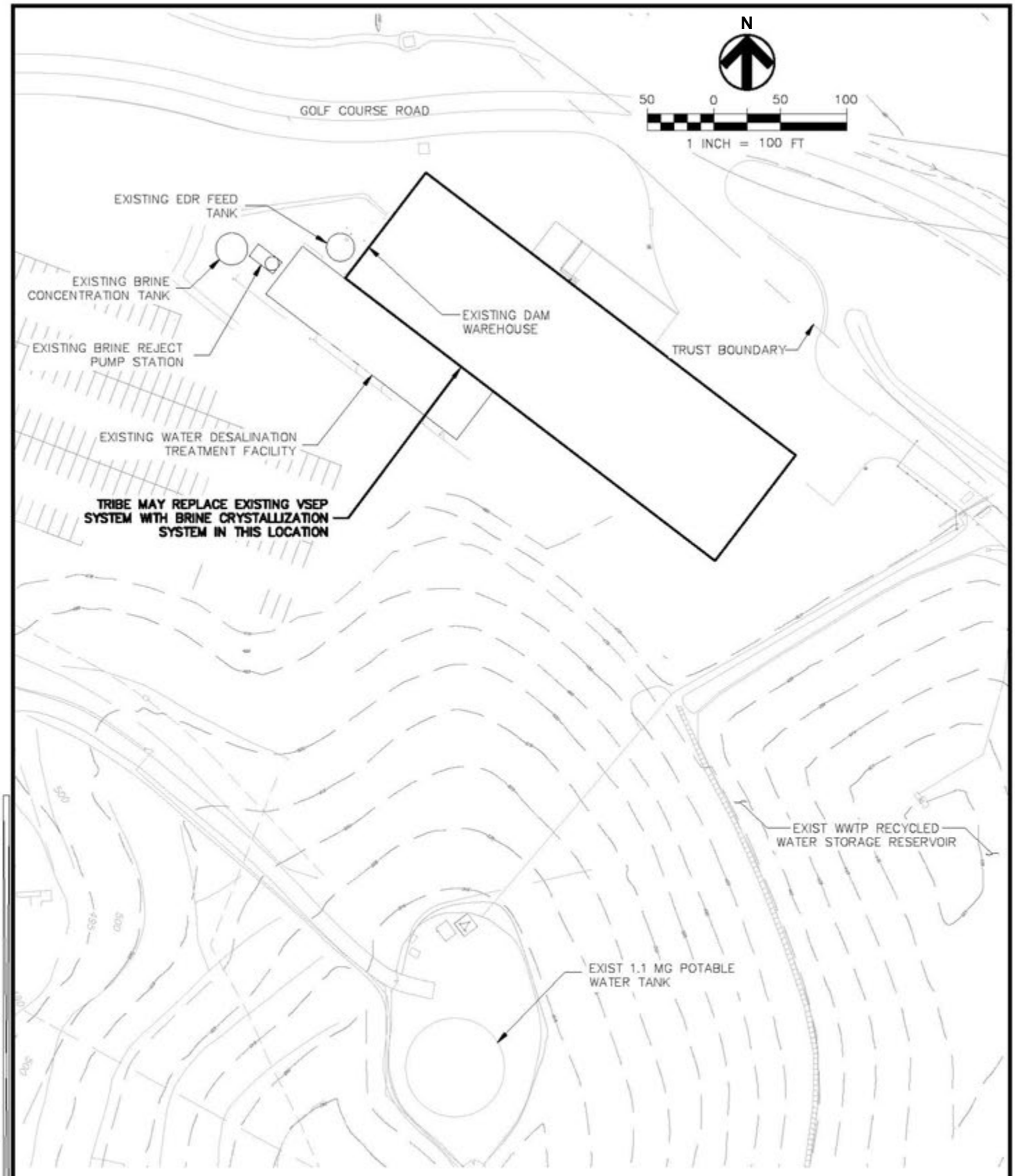


Figure 4-4
Cache Creek Hotel Expansion Project
Water and Wastewater Feasibility Study
Proposed Water Treatment Facilities Plan

HydroScience

SECTION 5 – WASTEWATER ASSESSMENT

This section describes the wastewater collection and treatment for the Existing Facilities, and identifies those facilities that must be upgraded, modified, or expanded to meet the projected flows for the project alternatives.

5.1 Existing Wastewater Facilities

All of the wastewater generated by existing facilities (casino, hotel, golf course, etc.) is collected and pumped to the on-site wastewater treatment plant (WWTP), located northeast of the Resort. The WWTP employs a membrane bioreactor (MBR) process that produces highly treated tertiary quality effluent acceptable for irrigation purposes and other reuse applications. The Resort recently upgraded the existing WWTP membranes to GE ZW500Ds membranes to improve system performance. The existing configuration is rated for 405,000 gpd sustained peak day flow. Space was retained for future addition of membrane modules to expand the flow capacity of the MBR.

5.1.1 Wastewater Facility Sizing Criteria

Existing wastewater flows were provided in **Table 2-2**. The average day flow of 238,000 gpd affects the sizing of biological treatment components and determines overall effluent storage and disposal requirements. The peak day flow of 333,000 gpd determines the hydraulic capacity requirements including membrane surface area, pumping, and disinfection.

5.1.2 Existing Wastewater Collection System

The Influent Lift Station and Screening Facility (ILS) is the primary lift station to the WWTP and is located on the southern end of the Resort adjacent to the South Parking Lot (**Figure 1-2**). Due to the topography of the project site, eight lift stations are used to pump the sewage from various facilities to the ILS:

- Yocha Dehe Fire Department lift station
- Mini-Mart lift station
- One (1) golf course lift station
- Dam warehouse and water treatment building
- 3-Tier warehouse
- Plant drain pump station for the WWTP operational areas

The ILS facility includes two wet wells with submersible pumps, headworks with two fine screens, and an MCC/equipment storage building. The ILS collects all of the wastewater generated by the casino and hotel facilities via gravity in addition to receiving the sewage from the eight lift stations. A large passive grease interceptor behind the casino building separates the fats, oil, and grease (FOG) from the sewage prior to entering the ILS.

The wastewater from the eight lift stations and the casino flows into the first wet well of the ILS, where three submersible chopper pumps break down fibrous material (e.g., rags) and pump the wastewater to two self-contained fine screen headworks units, one duty and one standby. Each fine screen has a built in washer/ compactor and 2-mm openings that remove hair, inorganics, and wastes. The 2-mm opening is necessary to protect the integrity of the membrane filters downstream. Each screen can handle 1.4 MGD. During normal operation, screened wastewater flows by gravity to the second wet well, and three submersible non-clog pumps are used to convey the wastewater to the WWTP. The washed and compacted screenings collected at the headworks are stored in bins on-site to be periodically disposed of at the Yolo County Landfill.

Each pump has a firm pumping capacity of approximately 400 gpm (580,000 gpd). Based on a peak day flow of 333,000 gpd, both the screens and the pumping capacity of the pumps located at the ILS are adequate for the Existing Facilities and have reserve capacity available.

5.1.3 Existing Wastewater Treatment System

The WWTP influent has a strength exceeding that typically found in municipal wastewater. **Table 5-1** summarizes the typical range of influent wastewater quality for the existing WWTP.

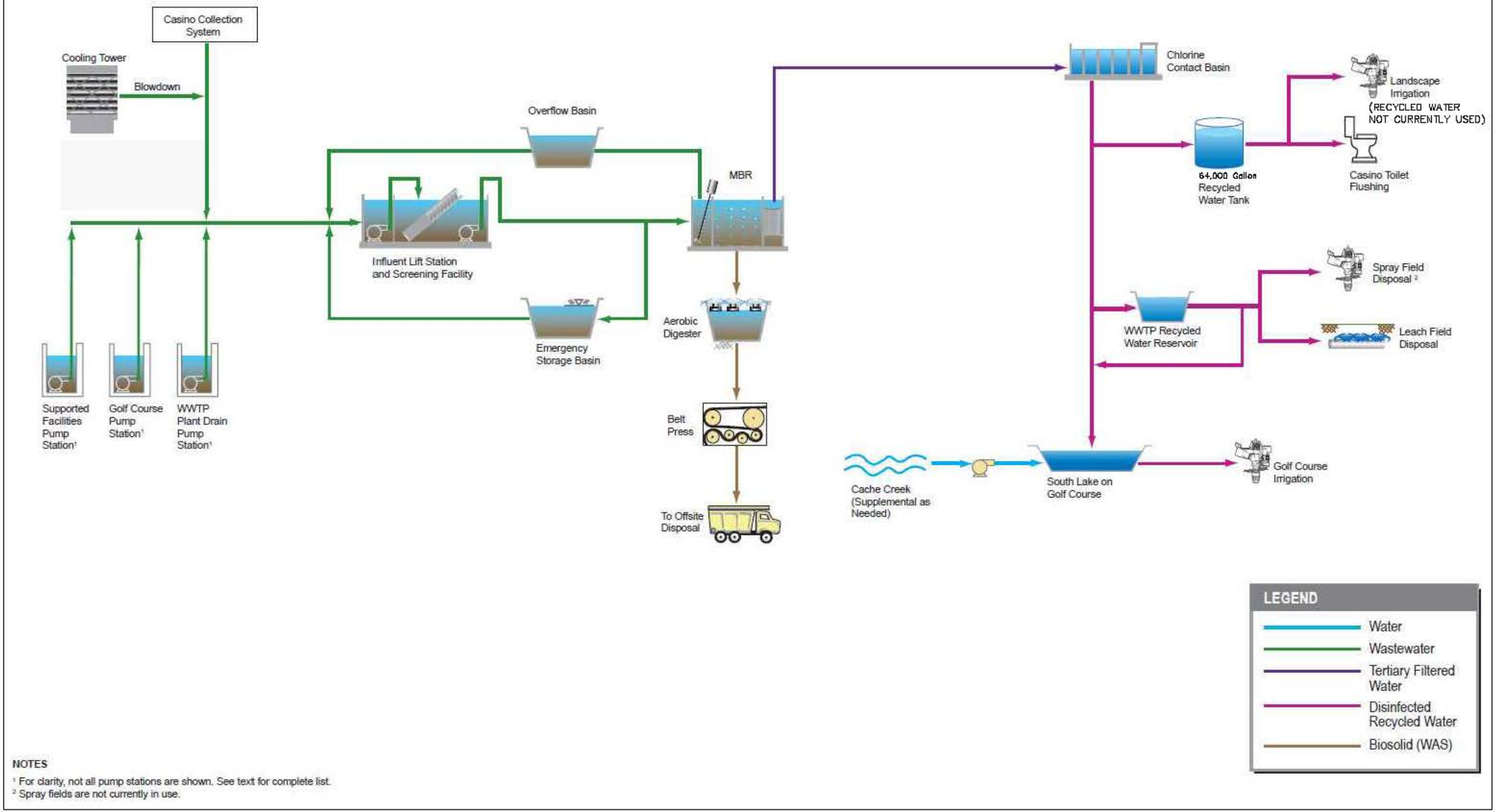
Table 5-1: Wastewater Characteristics for the Existing Facilities

Parameter	Units	Influent Wastewater Quality [1]		
		Average	Minimum	Maximum
BOD	mg/L	303	180	470
TSS	mg/L	166	17	380

Notes
1. Average measured values for period January 2015 – December 2015.

The Existing Facilities for wastewater collection and treatment are described below. A process flow diagram for the existing wastewater treatment and disposal system is shown in **Figure 5-1** with the existing WWTP layout presented in **Figure 5-2**. Major components of the existing WWTP include:

- Headworks – two self-contained, 2-mm screens at the ILS (see **Section 5.1.2**)
- Overflow and emergency storage – one 234,000-gallon basin and one 83,000-gallon basin
- MBR process and membrane trains – two trains with a combined tertiary treatment capacity of 405,000 gpd
- Plant drain pump station – One duplex submersible pump station with two 10 HP submersible pumps
- Operations building – approximately 1,200 sq-ft
- MCC/blower building - approximately 1,100 sq-ft
- CCB – 498,000 gpd disinfection capacity
- Aerobic Digester – 234,000 gallon aerated basin
- Belt Filter Press Building – 0.5 meter belt filter press to dewater waste activated solids (WAS).



NOTES

[1] For clarity, not all pump stations are shown. See text for complete list.
[2] Spray fields are not currently in use.

FIGURE 5-1
Yocha Dehe Wintun Nation
Cache Creekt Hotel Expansion Project
Existing Wastewater Process Flow Diagram

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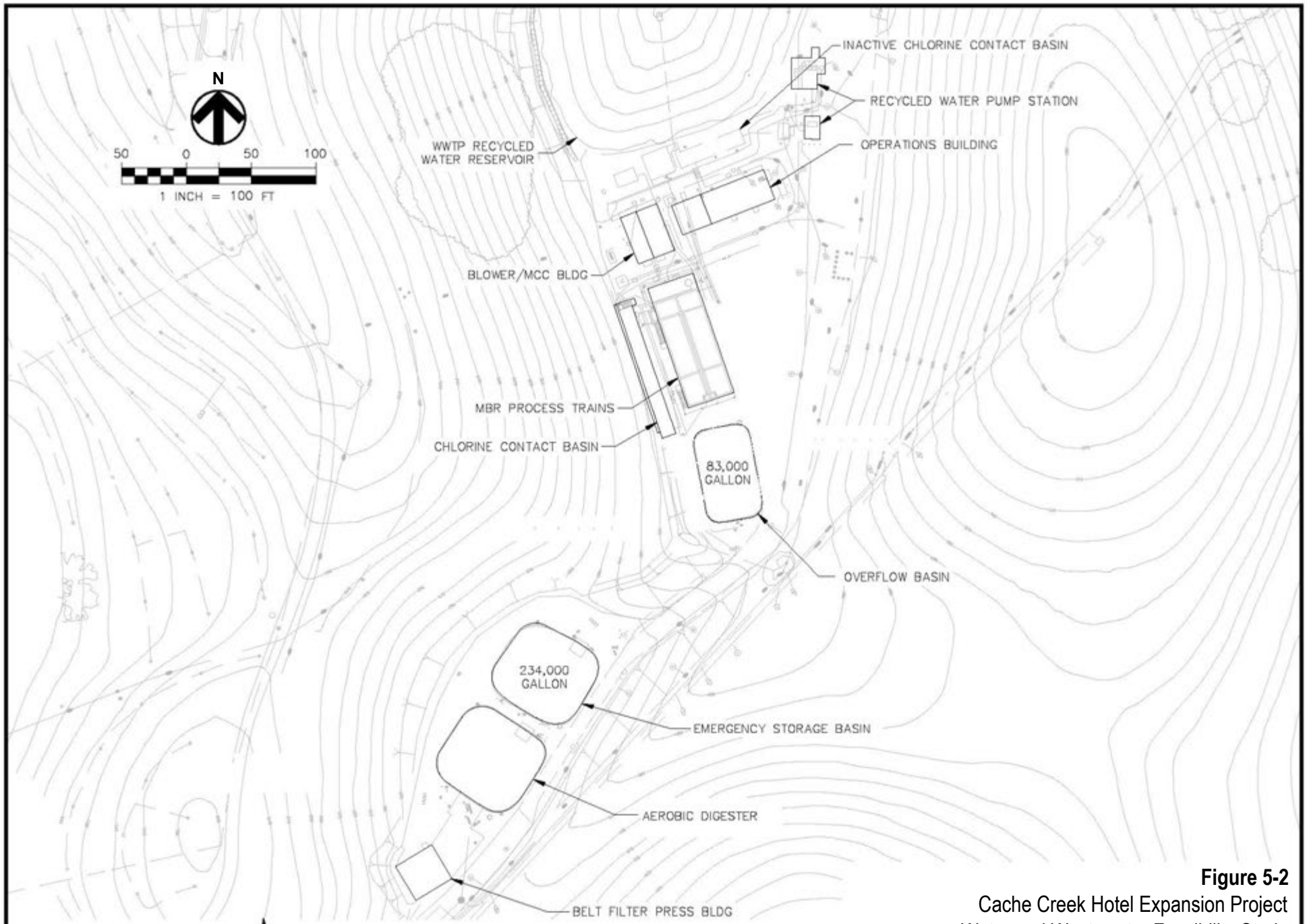

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Figure 5-2
Cache Creek Hotel Expansion Project
Water and Wastewater Feasibility Study
Existing Wastewater Treatment Plant Layout

5.1.3.1 Existing WWTP

The WWTP treats wastewater in an MBR process. The MBR is a modified activated sludge process designed for biological oxidation, nitrification (ammonia removal), denitrification (nitrate removal), and solids separation. The existing MBR plant, which has been in operation since 2002, meets all water quality permitting requirements and standards. The MBR has consistently produced a high-quality effluent meeting all applicable recycled water limitations and water quality objectives (**SECTION 3**).

The MBR has two parallel process trains. Each process train consists of an anoxic zone, aeration zone, and membrane filters, rated at a treatment capacity of 202,500 gpd. Screened influent is pumped from the ILS to the influent distribution structure and from there it is pumped to the MBR. The existing MBR is designed for a continuous peak day design flow of 405,000 gpd. As previously established, the maximum day flow to the WWTP is currently 333,000 gpd, which is less than the design flow of the MBR.

Treatment Basins: The anoxic zone is a basin where the influent sewage is mixed with the recirculated contents of the aeration basin, known as return activated sludge (RAS). The basin is mixed without aeration to promote denitrification, which converts nitrates to nitrogen gas.

The aeration basin converts dissolved BOD to a filterable solid material in a suspended growth process referred to as activated sludge. This basin also converts ammonia into nitrates. The basin is aerated and mixed through the use of a fine bubble diffuser system. A submersible pump recirculates the activated sludge to the anoxic zone.

Membranes: The membrane filters consist of long, hollow, bundles of spaghetti-like fibers with a pore size of approximately 0.04 microns. Suction is applied to the membranes by a low pressure permeate pump to draw liquid through the membranes and the suspended solids are filtered out by the membrane. The membrane filters replace a clarifier that is typically used in an activated sludge process to separate solids. Since the membranes have such a small pore size, they also replace the filtration process used after clarifiers to provide the advanced tertiary treatment necessary to meet Title 22 requirements.

The outside of the membranes are cleaned by providing coarse bubble scour air at the bottom of the module and periodically backwashed in place with a sodium hypochlorite solution. As needed (approximately once a quarter) the module is removed from the basin and dipped in a hypochlorite solution for cleaning. An overhead crane with a traveling bridge provides the mechanism to move these modules for service and/or cleaning. There is a chemical dip tank at the end of the basin.

Blowers: Two aeration blowers supply process air to the fine bubble diffuser system in the aeration basin to support the biological treatment process. There are two duty blowers to provide scour air to the membranes. A third blower is provided for each air system as a standby. All of the blowers are positive displacement type to provide a constant airflow under varying water level (head) conditions in the tanks. The blowers are located in the Blower MCC building (**Figure 5-2**).

5.1.3.2 Existing Disinfection

The recycled water from the MBR is pumped to a CCB for disinfection to meet Title 22. Sodium hypochlorite is injected using a mixer at the inlet point of the CCB. The existing CCB provides a

90 minute modal contact time at 498,000 gpd (**Section 3.4.1.1**). The WWTP must be upgraded prior to utilizing this capacity. Effluent from the CCB flows through another, out-of-service CCB that currently serves as a conveyance channel. This could be reinstated into service if additional contact time is needed.

At the exit point of the CCB, the recycled water meets all Title 22 criteria for recycled water, unrestricted use. Thus, the water can be used for landscape irrigation, golf course turf irrigation, and/or toilet and urinal flushing. Although the recycled water from the CCB has been disinfected and meets the Title 22 requirements, hypochlorite may be added at other points along the distribution lines to maintain a residual. Typically, a residual of 1-2 mg/L effectively prevents any regrowth in the recycled water distribution system.

5.1.3.3 Existing Emergency Storage

Currently, the WWTP has an emergency and overflow storage capacity of approximately 235,000 gallons in an emergency storage basin for diverted influent flow (**Figure 5-2**). There is an additional overflow basin south of the existing MBR process trains with a storage capacity of approximately 83,000 gallons, and the ILS provides an additional 100,000 gal of active storage, for a combined 418,000 gallons of emergency/overflow storage.

5.1.3.4 Existing Operations Building

The existing operations building is located north of the MBR trains (**Figure 5-2)**. This building currently has approximately 1,200 sf, housing a laboratory, operations room, and maintenance area.

5.1.3.5 Existing Biosolids Facilities

Biosolids generated in the MBR are pumped to the aerobic digester adjacent to the emergency storage basin (**Figure 5-2**). The 234,000-gallon aerobic digester is lined with 60-mil high density polyethylene and equipped with a surface aerator. A 0.5-meter belt filter press capable of handling up to 3,000 pounds of dry solids per day is currently used on-site to reduce the volume of biosolids to greater than 16 percent solids before it is hauled to the Yolo County Central Landfill by a licensed hauling contractor. The belt filter press and disposal waste bin are located within the belt press building to contain odors.

5.2 Wastewater Facilities Evaluation – Proposed Project

The facilities required to adequately treat wastewater generated by the Proposed Project are evaluated in this section.

The Existing Facilities plus Proposed Project influent flows are projected at 366,000 gpd (**Table 2-5**). A peaking factor of 1.4 was established for the Existing Facilities and is also applied to projected Project flows. **Table 5-2** presents the projected peak day wastewater influent flow necessary for sizing facilities for the Existing Facilities plus Proposed Project.

Table 5-2: Total Projected Wastewater Flows – Proposed Project

Parameter	Flow (gpd)
Total Projected Average Daily Wastewater Flow [1]	366,000
Peaking Factor	1.4
Total Peak Daily Wastewater Flow [2]	512,000

Notes:
1. See **Table 2-5**.
2. Peaking factor multiplied by the sum of average day wastewater flow, rounded to the nearest 1,000 gpd.

5.2.1 Wastewater Collection System

The existing wastewater collection system was described in **Section 5.1.2**. Improvements needed for the Proposed Project are assessed in this section.

5.2.1.1 Grease Interceptor

The Resort utilizes a passive grease interceptor for trapping the majority of FOG generated primarily by the restaurants. The grease interceptor system is currently near capacity, and additional grease interceptors are being incorporated with the expansion to protect the WWTP from excessive FOG load from the new restaurant and restaurant expansions. The architect should reevaluate existing and future restaurant flows and size traps accordingly, augmenting as needed.

5.2.1.2 ILS and Screening Facility

As presented in **Section 5.1.2**, each screen at the existing ILS is designed for 1.4 MGD of flow, and each pump is designed to pump up to 580,000 gpd. As shown in **Table 5-2**, the existing ILS facilities exceed the total projected peak day wastewater flows and therefore are sufficiently sized for the Proposed Project.

5.2.2 Wastewater Treatment System

This section discusses the modifications required to the WWTP and disinfection system necessary to accommodate additional influent flow from the Proposed Project. Based on the flows presented in **Table 5-2**, the existing MBR system is not sufficient to treat the increased flows to the WWTP. It is anticipated that the wastewater characteristics will remain similar to existing (**Table 5-1**) because the elements of the Proposed Project (hotel, restaurants, and support facilities) are the same types of facilities currently served by the WWTP.

Immersed MBR: The MBR consists of many elements evaluated individually to determine whether additional capacity is necessary. With the recent replacement of the membranes, there is increased current capacity as well as the opportunity to add future capacity. To accommodate the additional flows of the Proposed Project, the current membranes would be operating beyond peak day capacity; therefore, additional membranes would need to be added to each MBR train. Each MBR train currently has two and a half populated cassettes, and capacity for four total cassettes. To accommodate the flows from the Proposed Project, each train would need three and a half to four populated cassettes. Therefore, the Proposed Project can be accommodated by using the vacant space in existing cassettes.

Pumping: Both the return activated sludge (RAS) and waste activated sludge (WAS) pumps have adequate capacity for the Proposed Project. However, they are nearing end-of-life and require replacement. The configuration of RAS piping should be optimized for maximum operational flexibility and control. In addition, the facility may benefit from sodium hydroxide feed for alkalinity. This would be evaluated in the design phase.

Aeration System: The system is currently operating with one blower during weekday flows and two blowers for weekend flows. The aeration membranes in both tanks were replaced in 2016. The blower drives and controls should be modified to allow finer control of air feed and dissolved oxygen in the aeration basin, for improved biological treatment efficiency. The aeration blower pulleys may need to be re-sheaved to provide the required airflow.

Scour Air Blowers: Scour air requirements are based on membrane area. The need for additional scour air would be triggered by the addition of membranes; however, the addition of membranes would not require that the blowers be replaced, but that the belts and sheaves be modified to provide the additional air flow. The belts and sheaves should be adjusted to accommodate the Proposed Project's higher air flow.

Aerobic digester: The aerobic digester is used to optimize solids dewatering but is not a critical facility in the process train. WWTP operations reports, based on observations of current system performance, that there is sufficient capacity to accommodate additional solids from the Project.

Sludge dewatering: Currently, the belt press is operated four days per week for seven hours per day. In order to accommodate increased flows for the Proposed Project, the belt press will need to be operated more frequently. Based on a ratio of future projected flows to existing flows, the belt press will be operated five days per week for nine hours per day. The belt press will not require improvements or upsizing to operate in this way. The dewatered biosolids, or cake, produced by the belt press will continue to be disposed of at the Yolo County Landfill site.

Chlorine Contact Basin: The existing CCB has a tested and certified disinfection capacity of 498,000 gpd, which is less than the projected peak day flow in **Table 5-2**. Therefore, the CCB is not sufficiently sized to accommodate the additional Proposed Project flows. The active contact basin capacity will need to be supplemented by restoring to active service an older contact basin that currently operates in a "flow-through" passive mode. The sodium hypochlorite dosing system and controls should be improved as needed to accommodate the restoration of this inactive CCB to active service. A dye test will need to be performed on the modified disinfection system to demonstrate adequate contact time.

5.3 Wastewater Facilities Evaluation – Reduced Intensity Alternative

The Reduced Intensity Alternative would have most of the same recommended improvements as the Proposed Project.

5.3.1 Wastewater Collection System

The recommendations are unchanged from those provided above for the Proposed Project.

5.3.2 Wastewater Treatment System

Table 5-3 presents projected wastewater flows necessary for sizing facilities for the Existing Facilities plus the Reduced Intensity Alternative.

Table 5-3: Total Projected Wastewater Flows - Reduced Intensity Alternative

Parameter	Flow (gpd)
Total Projected Average Daily Wastewater Flow [1]	355,000
Peaking Factor	1.4
Total Peak Daily Wastewater Flow [2]	497,000

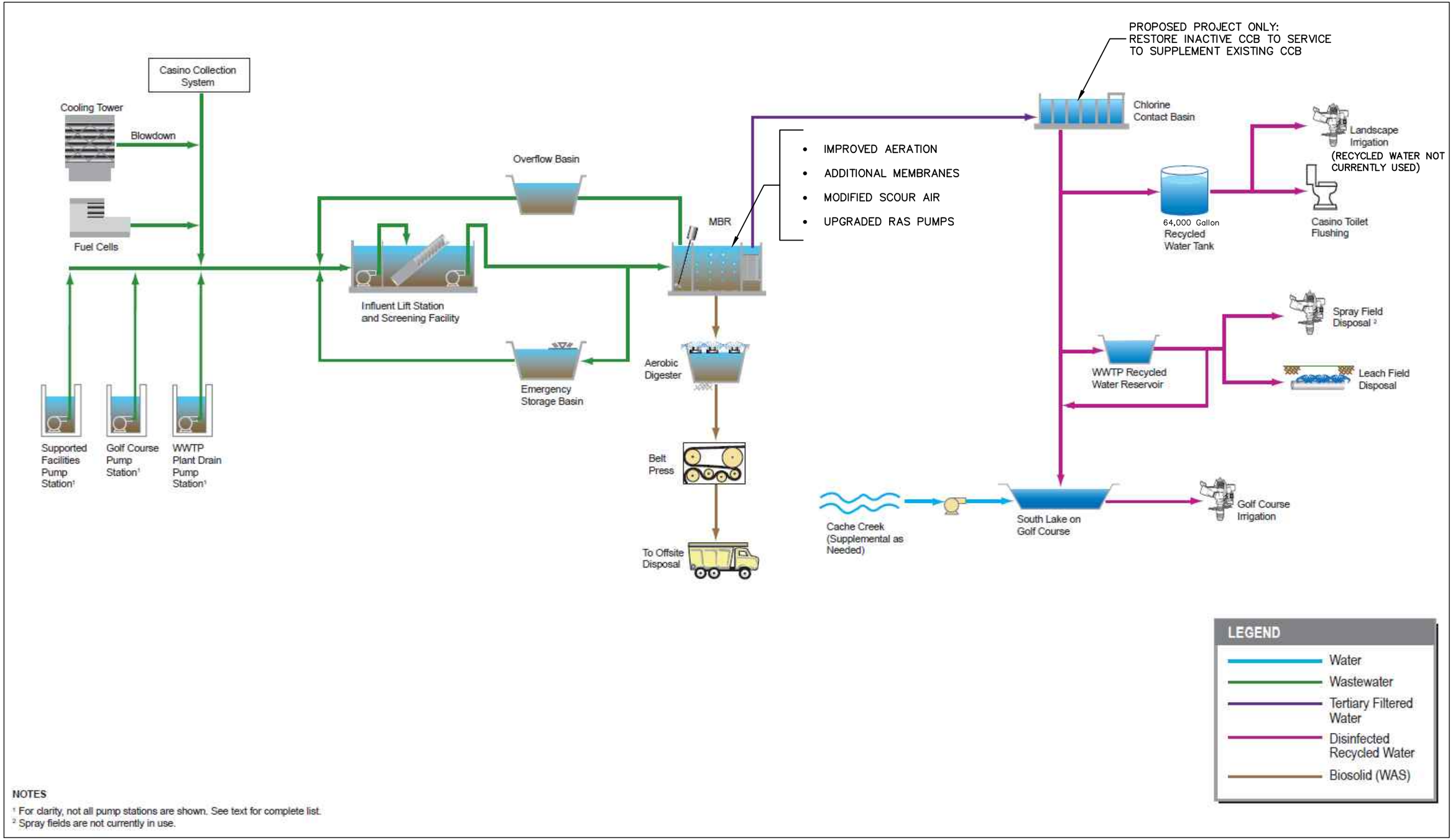
Notes:
1. See **Table 2-5**.
2. Peaking factor multiplied by the sum of average day wastewater flow, rounded to the nearest 1,000 gpd.

Because the projected flows in **Table 5-3** are within 3% of flows projected for the Proposed Project (**Table 5-2**), the facility improvement recommendations presented in **Section 5.2.2** also apply to the Reduced Intensity Alternative, with the following exceptions:

- A reduction in the quantity of additional membranes installed may be possible due to the slightly reduced flow.
- The size of the modified/replaced equipment described above may also be lower for the Reduced Intensity Alternative.
- The existing active CCB capacity should be sufficient for peak flows, though given that the projected flow is within 1,000 gpd of the rated capacity, this must be confirmed during detailed design. If necessary, the older contact basin that currently operates in a “flow-through” passive mode should be brought back into the disinfection system. Modify dosing system and controls as required.

5.4 Proposed System Configuration

A proposed wastewater process flow diagram is presented in **Figure 5-3** and a proposed layout is presented in **Figure 5-4**. Both the proposed diagrams are representative of the Proposed Project and the Reduced Intensity Alternative.

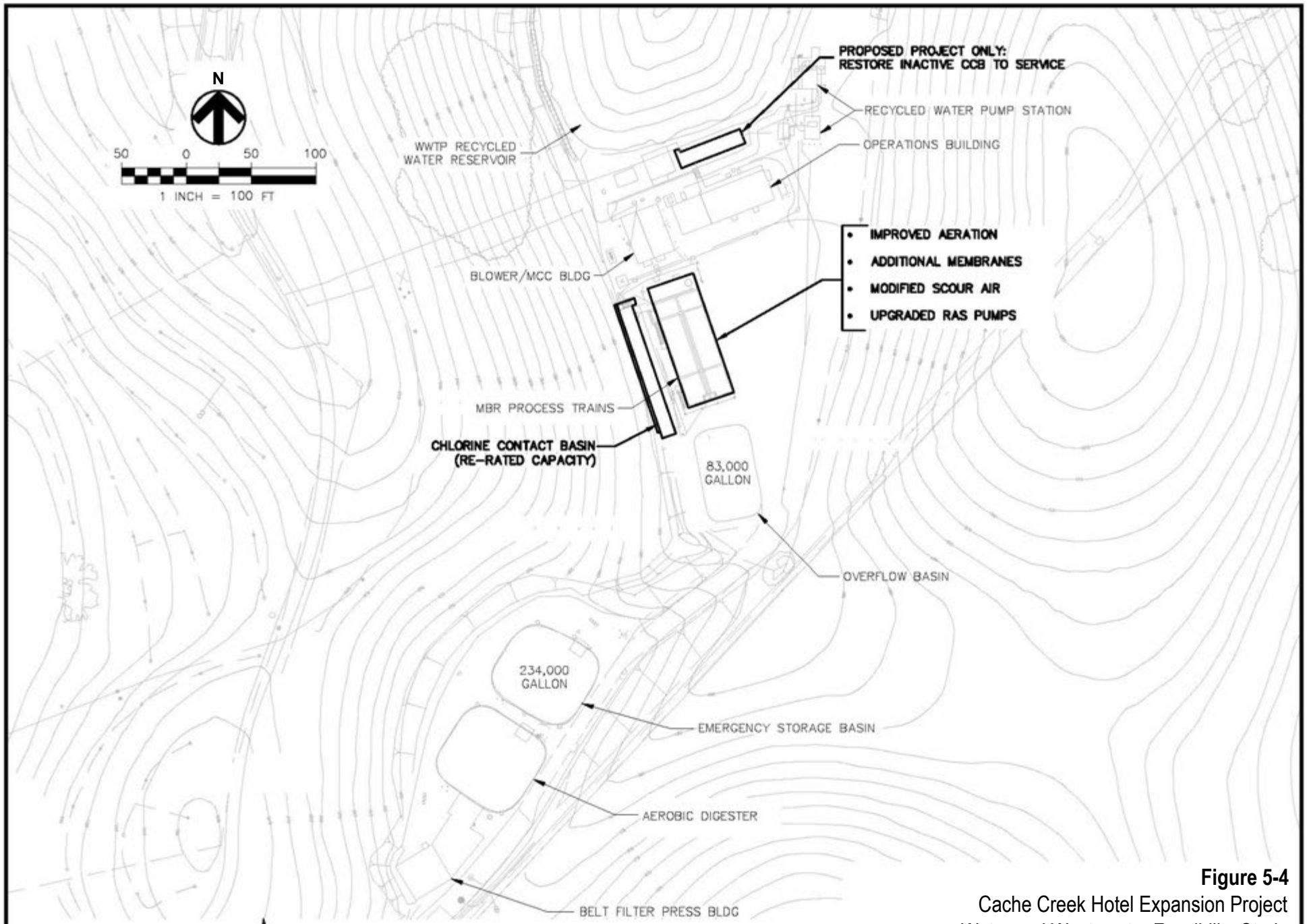


NOTES

[1] For clarity, not all pump stations are shown. See text for complete list.
[2] Spray fields are not currently in use.

FIGURE 5-3
Yocha Dehe Wintun Nation
Cache Creek Hotel Expansion Project
Proposed Wastewater Process Flow Diagram

HydroScience



HydroScience

Figure 5-4
Cache Creek Hotel Expansion Project
Water and Wastewater Feasibility Study
Proposed Wastewater Treatment Plant Layout

SECTION 6 – RECYCLED WATER ASSESSMENT

This section discusses the recycled water storage, distribution, and reuse strategies currently being used by the Tribe and modifications required to accommodate the increased flows from either project alternative.

6.1 Existing Recycled Water Distribution and Storage

Recycled water is reused and discharged as described below for the Existing Facilities. **Figure 6-1** shows the various locations where recycled water is distributed for disposal and stored for reuse.

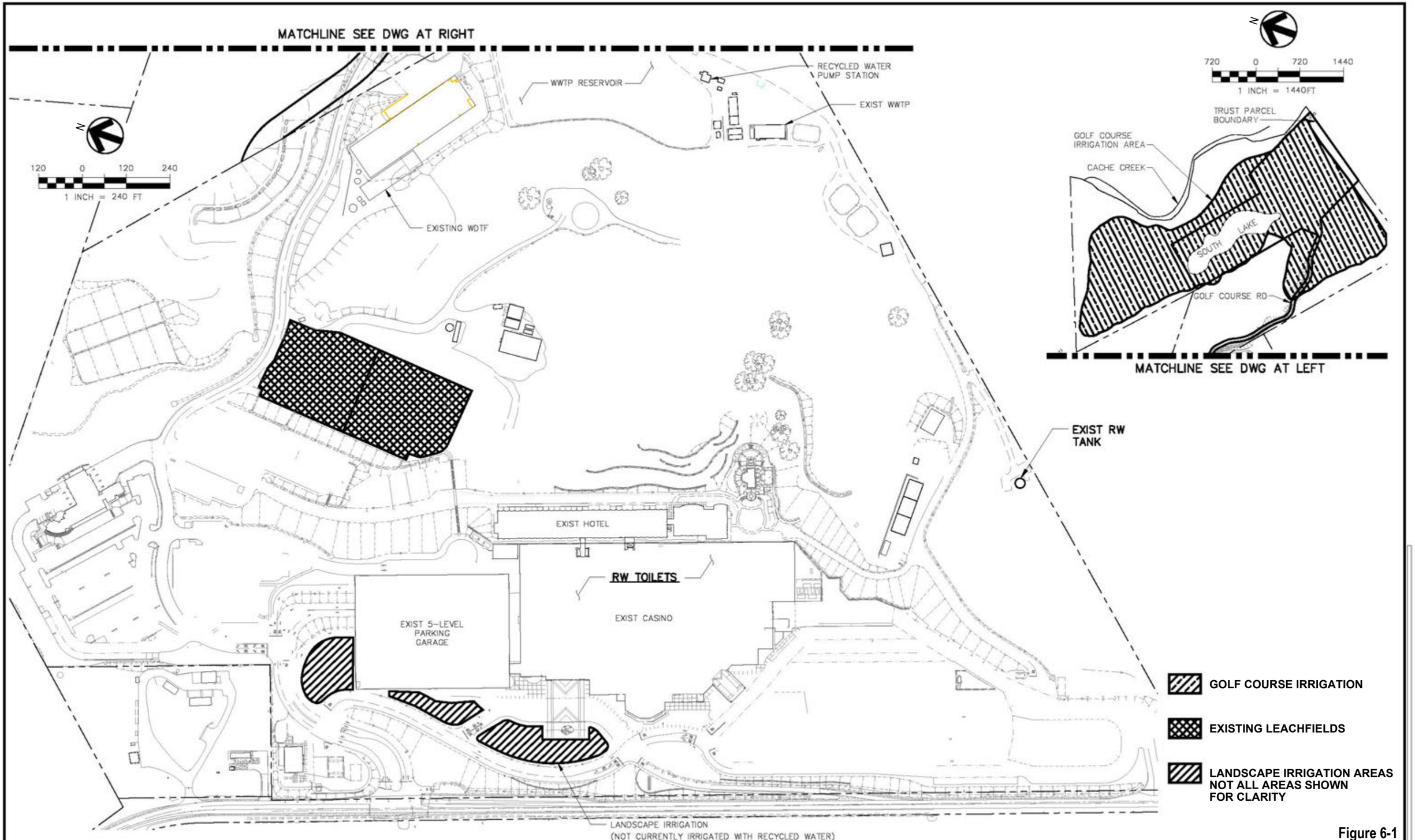
6.1.1 Existing Golf Course Irrigation

The Tribe is authorized by the RWQCB, under an existing WDR, to irrigate the portion of golf course and driving range that are on Fee Land (**Section 3.4**). The Tribe elects to irrigate the entire golf course on both Fee and Trust Land using recycled water that meets CDPH Title 22 disinfected tertiary recycled water standards and operate this system in a manner consistent with the WDR. Irrigation demand is greater than the quantity of recycled water generated, so surface water is currently the primary supply of irrigation water, with recycled water supplementing the demand and conserving raw water sources.

6.1.2 Existing Leach Fields

Three existing leach fields (**Figure 6-1**) were previously employed for disposal of wastewater effluent. The EPA regulates the use of the leach fields and requires that the flow volumes be reported. The leach fields may be used year-round. Observation wells located throughout the leach fields are inspected during operation to ensure the leach fields are not overly saturated. The leach fields originally had a total rated capacity of 90,000 gpd. Historically (pre 2009), approximately 60,000 gpd was applied. However, previous construction activities resulted in loss of portions of the leach fields. The leach fields are conservatively assumed to have an existing disposal capacity of 40,000 gpd based on current disposal rates.

Currently, the leach fields are rarely used. During normal operating conditions, there is sufficient recycled water demand for toilet and urinal flushing and at the golf course to use all tertiary recycled water produced, with sufficient seasonal storage in the existing reservoirs. The Tribe reserves the ability to use the leach fields when needed to dispose of effluent.



HydroScience

Figure 6-1
Cache Creek Hotel Expansion Project
Water and Wastewater Feasibility Study
Existing Recycled Water Disposal and Storage Locations

6.1.3 Existing Toilet/Urinal Flushing

Recycled water that meets Title 22 criteria is currently used in the casino restrooms for toilet and urinal flushing. Currently, the demand for toilet and urinal flushing in the casino restrooms is approximately 55,000 gpd. Although the use of recycled water in the restrooms of the casino is on Trust Land, recycled water quality meets Title 22 disinfected tertiary recycled water standards, and the distribution system is operated in accordance with CDPH Title 22 guidelines (**Section 3.4.4**).

For distribution of recycled water on Trust to the toilet and urinals in the casino, a 64,000-gallon storage tank is located on the hill above the influent lift station (**Figure 6-1**). If the water level drops below a predetermined level, the recycled water demand is augmented with treated potable water from the 1.1 MG storage tank.

6.1.4 Existing Recycled Water Seasonal Storage

Currently, recycled water is stored seasonally in either the WWTP Reservoir or at South Lake. While maintaining the required two feet of freeboard (**Section 3.5**), the WWTP Reservoir has a usable storage capacity of approximately 51 acre-feet (ac-ft). South Lake has an effective seasonal storage volume capacity of approximately 300 ac-ft, while maintaining two feet of freeboard. A total storage capacity of approximately 351 ac-ft (51 + 300 = 351 ac-ft) is potentially available. Note that utilizing the full storage capacity in South Lake inundates a portion of the golf course, although no overflow occurs.

South Lake normally provides approximately 83 ac-ft of seasonal storage under average precipitation conditions, which maintains surface water levels below the liner elevation of 270.5 ft-amsl and does not impact golf course play. A total of 134 ac-ft (51 + 83 = 134 ac-ft) of recycled water storage is available, without flooding any golf course area. For an extremely wet season, contingency storage of up to 351 ac-ft of storage is available but would cause areas of the golf course to be temporarily inundated. Golf course operations staff is prepared to accept and manage this condition, should it occur.

The seasonal storage necessary for the Existing Facilities under average precipitation conditions is approximately 83 ac-ft, which is far less than the 134 ac-ft of storage available. See **Appendix F** for the water balance completed based on the Existing Facility. Therefore, the existing seasonal storage is sufficient to accommodate the Existing Facilities storage requirements and provides excess storage capacity if necessary.

6.2 Recycled Water Distribution and Storage Evaluation – Proposed Project and Reduced Intensity Alternative

This section assesses the disposal of the additional recycled water generated by the Proposed Project and the Reduced Intensity Alternative.

6.2.1 Golf Course Irrigation

Golf course irrigation demands will continue to be served by a blend of recycled water and Cache Creek raw water, consistent with current practices and consistent with the current WDR permit

as amended (**Section 3.4.1**). The volume of recycled water delivered to this point of use will increase by an average of 128,000 gpd for the Proposed Project (**Table 2-3**), or 117,000 gpd for the Reduced Intensity Alternative (**Table 2-4**).

6.2.2 Leach Fields

The Project does not require regular use of the leach fields to dispose of recycled water (WWTP effluent). The leach fields are retained as a backup option for disposal should they be needed.

6.2.3 Toilet and Urinal Flushing

The Project includes construction of new common-area toilets and urinals that will be plumbed for recycled water use. The total recycled water demand for this use is estimated at 70,000 gpd per **Table 2-6**. The existing recycled water storage tank is 64,000 gallons. Recycled water demands in the casino are fed by gravity. This storage and delivery infrastructure is sufficient to serve the demand added by the project along with existing demands.

6.2.4 Recycled Water Seasonal Storage

The volume of recycled water delivered to the seasonal storage facilities (WWTP Reservoir and South Lake) for seasonal storage and use for golf course irrigation will increase. The resulting additional seasonal storage requirement during a 100-year return period rainfall must not exceed the 351 ac-ft of available effective storage capacity. The next section will present a water balance to evaluate storage requirements.

6.3 Project Water Balance – Proposed Project and Reduced Intensity Alternative

A water balance was prepared to assess the impact of the Proposed Project and Reduced Intensity Alternative on the storage and reuse facilities. The water balance was developed to assess recycled water use and storage conditions under average and 100-year return period rainfall conditions. The results are summarized in **Table 6-1**. The water balance is based on the average daily influent flow established in **SECTION 2**. Water balance spreadsheets are provided in **Appendix F**. The following assumptions were incorporated in the basis of the water balance:

- Recycled water is stored in the WWTP reservoir and South Lake.
- The WWTP Reservoir has a usable capacity of 51 acre-feet
- South Lake has a seasonal storage capacity of approximately 300 ac-ft while maintain two-feet of freeboard given the following conditions:
    - Starting elevation in South Lake is 265 feet
    - Top of liner is at 270.5 feet
    - Sand trap inundation occurs above 273 feet
    - Overflow occurs at 282.7 feet

  - Minimum freeboard is two feet, resulting in a maximum operating water level of 280.7 feet
- 70,000 gpd of recycled water is returned for casino toilet and urinal flushing
- Golf Course consists of 135 acres of irrigated area
- No recycled water is being applied to landscaping
- No recycled water is disposed of to the leach fields; however, up to 40,000 gpd of treated effluent can be can be disposed of, if necessary

Table 6-1: Summary of Seasonal Storage Requirements - Proposed Project and Reduced Intensity Alternative

	Units	Proposed Project		Reduced Intensity Alternative	
		Average Rainfall Conditions	100-year Rainfall Conditions	Average Rainfall Conditions	100-year Rainfall Conditions
Minimum Volume in South Lake [1]	ac-ft	28.8	78.9	28.8	78.9
Maximum Volume in South Lake	ac-ft	170.2	232.0	167.1	225.9
Maximum Elevation in South Lake [2,3]	ft-amsl	271.0	274.5	270.8	274.2

Notes:
1. Assuming starting elevation in South Lake of 265 ft-amsl
2. Mild inundation of sand traps occurs during 100-year annual precipitation conditions
3. No inundation of sand traps occurs during average annual precipitation conditions

The water balances in **Appendix F,** and as summarized in **Table 6-1**, indicate that sufficient storage currently exists to meet the additional recycled water storage and disposal needs of either project alternative with mild inundation occurring during a 100-year precipitation year. South Lake and the WWTP Reservoir have sufficient capacity to store the recycled water through the wet season for either project alternative using the available recycled water use options, under average precipitation conditions. In recent years, there has been a higher demand for recycled water for irrigation than was available. In order to provide additional storage capacity for recycled water in anticipation of increasing recycled water demands, the Tribe expects to implement a project to extend the liner up to 272.5'. This will help reduce the amount of Cache Creek water and raw groundwater needed for golf course irrigation.

SECTION 7 – CONCLUSIONS AND RECOMMENDATIONS

The water, wastewater, and recycled water facility improvements needed for the Proposed Project and the Reduced Intensity Alternative are summarized in this section.

7.1 Water Supply, Treatment, and Storage Facilities

7.1.1 Proposed Project

The recommended water supply, treatment, and storage facility improvements for the Proposed Project are as follows:

Wells: With three wells in operation, the groundwater supply will be adequate for meeting the requirements of the Project.

Treatment: At the WDTF, the existing four EDR lines (process trains) would be supplemented with a fifth line by installing new equipment in the space reserved for that equipment.

The additional brine generated by the EDR process would be processed by either expanding the VSEP system with two additional stacks or by replacing the VSEP system with a Brine Crystallization Process. The Tribe is currently considering both options.

Storage: While the existing 1.1 MG finished water storage tank has sufficient capacity to provide operational, emergency, and fire suppression storage to the Existing Facilities plus the Proposed Project, the Tribe is in the process of considering a second 1.1 MG tank which will become the primary tank for storing water for fire suppression. The existing 1.1 MG tank will be dedicated to providing operational and emergency storage, providing additional operational flexibility and redundancy for potable water storage.

7.1.2 Reduced Intensity Alternative

The recommended water supply, treatment, and storage facility improvements for the Reduced Intensity Alternative are the same as shown above for the Proposed Project.

7.2 Wastewater Facilities

7.2.1 Proposed Project

The recommended wastewater facility improvements for the Proposed Project are as follows:

Collection: Additional grease interceptors will be needed for new restaurants to protect the WWTP from excessive FOG load. The evaluation of these are outside of the scope of this study. The ILS has sufficient screening and pumping capacity to serve the additional Project wastewater flows without any modifications.

Treatment: The WWTP would require the following additional equipment for the Project:

- MBR – Expand the quantity of membranes in each MBR train such that each train has 3.5 – 4 fully populated cassettes.
- RAS Pumps – Replace RAS pumps and modify the recycle piping to provide additional operational control.
- Aeration System – Modify blower drives and controls to allow finer control of air feed and dissolved oxygen in the aeration basin, for improved biological treatment efficiency.
- Scour Air Blowers – Adjust belts and sheaves to higher air flow.
- Belt Press – Increase hours of operation to process additional solids.
- Disinfection – Supplement active contact basin capacity by restoring to active service an older contact basin that currently operates in a “flow-through” passive mode back into the disinfection system. Modify dosing system and controls.

7.2.2 Reduced Intensity Alternative

The recommended wastewater facility improvements for the Reduced Intensity Alternative are the same as shown above for the Proposed Project, with the following adjustments:

- MBR – A reduction in the quantity of additional membranes installed in each MBR train may be possible.
- Equipment – The size of modified/replaced equipment described above may be lower for the Reduced Intensity Alternative.
- Disinfection – The existing active contact basin capacity should be sufficient for peak flows. Perform an engineering evaluation to confirm this. If necessary, restore to active service an older contact basin that currently operates in a “flow-through” passive mode back into the disinfection system. Modify dosing system and controls.

7.3 Effluent Reuse and Disposal

Currently, approximately 134 ac-ft of recycled water seasonal storage is available between the WWTP reservoir and the golf course South Lake. The following reuse and disposal strategies for the WWTP effluent are available for the Proposed Project:

- Golf course irrigation
- Toilet/urinal flushing
- Leach fields

Based on the results from the water balances, there is adequate storage and disposal capacity for the Proposed Project or the Reduced Intensity Alternative, assuming continued golf course irrigation and toilet/urinal flushing, with leach fields on standby. Therefore, the existing disposal and storage facilities would require no expansion.

SECTION 8 – ACRONYMS AND ABBREVIATIONS

ac-ft	acre-feet
AES	Analytical Environmental Services
BMP	Best Management Practice
BOD	biochemical oxygen demand
CBC	California Building Code
CCB	chlorine contact basin
CCR	California Code of Regulations
CCDR	Cache Creek Destination Resort
CDPH	California Department of Public Health
CDF	California Division of Forestry
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CIP	Clean-In-Place
CT	product of chlorine residual and modal contact time measured at the same point
CTR	California Toxics Rule
DDW	Division of Drinking Water
DHS	Department of Health Services
DBPs	disinfection byproducts
EDR	Electrodialysis Removal
EPA	Environmental Protection Agency
FOG	Fats, oils, and grease
gal	gallons
gpd	gallons per day
gpm	gallons per minute

HAA5	five haloacetic acids
HDPE	high density polyethylene
I&I	inflow and infiltration
LT2ESWTR	Long Term 2 Enhanced SWTR
M&R Program	Monitoring and Reporting Program
MBR	membrane bioreactor
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
MDL	method detection limit
MF	microfiltration
MG	million gallons
mg/L	milligrams per liter
MGD	million gallons per day
mL	milliliter
MPN	most probable number
NF	nanofiltration
NPDES	National Pollutant Discharge Elimination System
NTNC	Non-Transient Non-Community Public
NTR	National Toxics Rule
NTU	nephelometric turbidity units
PLC	programmable logic controller
RAS	return activated sludge
RO	Reverse Osmosis
RWQCB	Regional Water Quality Control Board
SDWA	Safe Drinking Water Act
SIP	State Implementation Plan

Stage 1 Rule	Stage 1 Disinfectants and Disinfection Byproducts Rule Interim Enhanced Surface Water Treatment Rule
Stage 2 DBPR	Stage 2 Disinfectants and Disinfection Byproducts Rule
SWTR	Surface Water Treatment Rule
TCR	Total Coliform Rule
TDS	total dissolved solids
TEIR	Tribal Environmental Impact Report
TTHM	total trihalomethanes
TSS	total suspended solids
UF	ultrafiltration
µg/L	micrograms per liter
UIC	Federal Underground Injection Control Plan
UV	ultraviolet
µmhos/cm	micro-mhos per centimeter
VSEP	Vibratory Shear Enhanced Process
WDR	Waste Discharge Requirement
WDTF	Water Desalination Treatment Facility
WWTP	Wastewater Treatment Plant

SECTION 9 - REFERENCES

Environmental Protection Agency (20016). *Table of Regulated Drinking Water Contaminants*, <<https://www.epa.gov/ground-water-and-drinking-water/table-regulated-drinking-water-contaminants>>, July 15, 2016.

Environmental Protection Agency (2007). *Lead and Copper Rule*, <<http://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=60001N8P.txt>>, October 10, 2007.

Environmental Protection Agency (2007d), *Stage 2 DBP Rule Federal Register Notices and Fact Sheets*, <<https://www.epa.gov/dwreginfo/stage-1-and-stage-2-disinfectants-and-disinfection-byproducts-rules>>, August 16, 2007.

Environmental Protection Agency (2007e). *Total Coliform Rule Revisions*, <<http://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100K9MP.txt>>, September, 2013.

Regional Water Quality Control Board (RWQCB) (2007). *The Water Quality Control Plan (Basin Plan)*
For the California Regional Water Quality Control Board, Central Valley Region, Fourth Edition. Revised February 2007.

APPENDIX A

Yocha Dehe Wintun Nation
Water and Wastewater Feasibility Study
Monitoring and Compliance Report

Public Water System Monitoring Schedule

As of 12/08/15

090605107 Cache Creek Casino Resort

PWS Type: Non-Transient Non-Community (NTNC) serving 9999 people.

Last Sanitary Survey 6/20/2012 Next 6/30/2017

Requirements Contaminant Names	Last Result Received	Next Sampling Due Date	Following Sampling Due Date	Current Status Monitoring Frequency	Comments
Total Coliform Rule					
Total Coliform if Total Coliform positive, test for Fecal Coliform Then Repeat and Raw Source Sampling	11/18/2015	**Monthly**		10 samples due each month	Take samples according to approved Sample Siting Plan.

DS001 Cache Creek Casino Resort

Lead & Copper	20 samples required between June 1 and Sept 30. Samples outside this period will be invalid.				
Copper, Lead	7/10/2013	**09/30/2016**	9/30/2019	Maximum Reduction	Copper testing frequency at 2-yr interval to sync with lead - both due in 2013 and 2016.

DS001 Distribution for Cache Creek Casino Resort

Stage 2 Disinfection By-Products	Samples required within the month of August. Samples outside this period will be invalid.				
Five Haloacetic Acids (HAA5), Total Trihalomethanes (TTHMs)	8/5/2014	**08/31/2016** Was Due On 08/31/2015	8/31/2017	Annual Monitoring Every year	STAGE 2 DBPR REQUIRES ANNUAL SAMPLING AT SAME LOCATION AS IN STAGE 1; MUST COLLECT SAMPLE IN AUGUST.

DS001 PWS# 0605107 Distribution System

Asbestos					
Waiver Expires on: 12/31/2021					
Asbestos	11/17/2003	**12/31/2021**	12/31/2030	Waiver, recertify by date shown Every 9 years	renew waiver, no need to test, 2021..

EP001 Entry Point for wells 1 & 2

Nitrate/Nitrite					
Nitrate [reported as Nitrogen]	1/14/2015	**12/31/2016**	12/31/2017	Reduced Monitoring Every year	
Inorganics					
Fluoride		**12/31/2022**		Waiver, sample and recertify by date shown	monitor and renew waiver.
Waiver Expires on: 12/31/2022					
Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cyanide, Mercury, Selenium, Thallium	2/6/2013	**12/31/2022**	12/31/2031	Waiver, sample and recertify by date shown Every 9 years	monitor and renew waiver.

All laboratory results are due by the 10th day of the month following the month in which you receive results

Please contact Helen McKinley at (415) 972-3559 if you have any questions regarding monitoring requirements.

Public Water System Monitoring Schedule

As of 12/08/15

090605107 Cache Creek Casino Resort

PWS Type: Non-Transient Non-Community (NTNC) serving 9999 people.

Last Sanitary Survey 6/20/2012 Next 6/30/2017

Requirements Contaminant Names	Last Result Received	Next Sampling Due Date	Following Sampling Due Date	Current Status Monitoring Frequency	Comments
Pesticides and SOCs					
Waiver Expires on: 12/31/2018					
2,4,5-TP (Silvex), 2,4-D, Alachlor, Atrazine, Benzo(a)pyrene, Carbofuran, Dalapon, Di (2-ethylhexyl) adipate, Di (2-ethylhexyl) phthalate, Dibromochloropropane (DBCP), Dinoseb, Diquat, Endothall, Ethylene Dibromide, Glyphosate, Heptachlor, Hexachlorobenzene, Hexachlorocyclopentadiene, Oxamyl [Vydate], Pentachlorophenol, Picloram, Simazine	1/14/2004	**12/31/2018**	12/31/2021	Waiver, recertify by date shown Every 3 years	waiver renewed 12/9/15; renew again 2018.
Waiver Expires on: 12/31/2018					
Chlordane, Dioxin (2,3,7,8-TCDD), Endrin, Heptachlor epoxide, Lindane, Methoxychlor, PCBs [Polychlorinated biphenyls], Toxaphene	11/17/2004	**12/31/2018**	12/31/2021	Waiver, recertify by date shown Every 3 years	waiver renewed 12/9/15; renew again 2018.
VOCs					
Waiver Expires on: 12/31/2016					
1,1,1-Trichloroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethylene, 1,2,4-Trichlorobenzene, 1,2-Dichloroethane, 1,2-Dichloropropane, Benzene, Carbon Tetrachloride, Chlorobenzene, cis-1,2-Dichloroethylene, Dichloromethane, Ethylbenzene, o-Dichlorobenzene, p-Dichlorobenzene, Styrene, Tetrachloroethylene, Toluene, trans-1,2-Dichloroethylene, Trichloroethylene, Vinyl Chloride, Xylenes	1/13/2010	**12/31/2016**	12/31/2022	Waiver, sample and recertify by date shown Every 6 years	Monitor and submit results EARLY in 2016 and request EPA review for waiver renewal.

All laboratory results are due by the 10th day of the month following the month in which you receive results

Please contact Helen McKinley at (415) 972-3559 if you have any questions regarding monitoring requirements.

APPENDIX B

Yocha Dehe Wintun Nation
Water and Wastewater Feasibility Study
Primary and Secondary Water Quality Standards

National Primary Drinking Water Standards

Contaminant	MCL or TT[1] (mg/L)[2]
Microorganisms	
Cryptosporidium	TT [3]
Giardia lamblia	TT[3]
Heterotrophic plate count	TT[3]
Legionella	TT[3]
Total Coliforms (including fecal coliform and E. Coli)	5.0%[4]
Turbidity	TT[3]
Viruses (enteric)	TT[3]
Disinfection Byproducts	
Bromate	0.01
Chlorite	1
Haloacetic acids (HAA5)	0.06
Total Trihalomethanes (TTHMs)	0.080
Disinfectants	
Chloramines (as Cl_2)	MRDL=4.0[1]
Chlorine (as Cl_2)	MRDL=4.0[1]
Chlorine dioxide (as ClO_2)	MRDL=0.8[1]
Inorganic Chemicals	
Antimony	0.006
Arsenic	0.010
Asbestos (fiber >10 micrometers)	7 million fibers per Liter
Barium	2
Beryllium	0.004
Cadmium	0.005
Chromium (total)	0.1
Copper	TT[8]
Cyanide (as free cyanide)	0.2
Fluoride	4
Lead	TT[8]
Mercury (inorganic)	0.002
Nitrate (measured as Nitrogen)	10
Nitrite (measured as Nitrogen)	1
Selenium	0.05
Thallium	0.002
Organic Chemicals	
Acrylamide	TT[9]
Alachlor	0.002
Atrazine	0.003

Contaminant	MCL or TT[1] (mg/L)[2]
Benzene	0.005
Benzo(a)pyrene (PAHs)	0.0002
Carbofuran	0.04
Carbon tetrachloride	0.005
Chlordane	0.002
Chlorobenzene	0.1
2,4-D	0.07
Dalapon	0.2
1,2-Dibromo-3-chloropropane (DBCP)	0.0002
o-Dichlorobenzene	0.6
p-Dichlorobenzene	0.075
1,2-Dichloroethane	0.005
1,1-Dichloroethylene	0.007
cis-1,2-Dichloroethylene	0.07
trans-1,2-Dichloroethylene	0.1
Dichloromethane	0.005
1,2-Dichloropropane	0.005
Di(2-ethylhexyl) adipate	0.4
Di(2-ethylhexyl) phthalate	0.006
Dinoseb	0.007
Dioxin (2,3,7,8-TCDD)	3.00 E-08
Diquat	0.02
Endothall	0.1
Endrin	0.002
Epichlorohydrin	TT[9]
Ethylbenzene	0.7
Ethylene dibromide	0.00005
Glyphosate	0.7
Heptachlor	0.0004
Heptachlor epoxide	0.0002
Hexachlorobenzene	0.001
Hexachlorocyclopentadiene	0.05
Lindane	0.0002
Methoxychlor	0.04
Oxamyl (Vydate)	0.2
Polychlorinated biphenyls (PCBs)	0.0005
Pentachlorophenol	0.001
Picloram	0.5
Simazine	0.004
Styrene	0.1
Tetrachloroethylene	0.005

Contaminant	MCL or TT[1] (mg/L)[2]
Toluene	1
Toxaphene	0.003
2,4,5-TP (Silvex)	0.05
1,2,4-Trichlorobenzene	0.07
1,1,1-Trichloroethane	0.2
1,1,2-Trichloroethane	0.005
Trichloroethylene	0.005
Vinyl chloride	0.002
Xylenes (total)	10
Radionuclides	
Alpha/photon emitters	15 picocuries per Liter
Beta photon emitters	4 millirems per year
Radium 226 and Radium 228 (combined)	5 picocuries per Liter
Uranium	30 ug/L

[1] Definitions:

- Maximum Contaminant Level Goal (MCLG) - The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety and are non-enforceable public health goals.
- Maximum Contaminant Level (MCL) - The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to MCLGs as feasible using the best available treatment technology and taking cost into consideration. MCLs are enforceable standards.
- Maximum Residual Disinfectant Level Goal (MRDLG) - The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
- Treatment Technique (TT) - A required process intended to reduce the level of a contaminant in drinking water.
- Maximum Residual Disinfectant Level (MRDL) - The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

[2] Units are in milligrams per liter (mg/L) unless otherwise noted. Milligrams per liter are equivalent to parts per million.

[3] EPA's surface water treatment rules require systems using surface water or ground water under the direct influence of surface water to (1) disinfect their water, and (2) filter their water or meet criteria for avoiding filtration so that the following contaminants are controlled at the following levels:

- Cryptosporidium: Unfiltered systems are required to include Cryptosporidium in their existing watershed control provisions.
- Giardia lamblia: 99.9% removal/inactivation
- Viruses: 99.99% removal/inactivation
- Legionella: No limit, but EPA believes that if *Giardia* and viruses are removed/inactivated, according to the treatment techniques in the Surface Water Treatment Rule, *Legionella* will also be controlled.
- Turbidity: For systems that use conventional or direct filtration, at not time can turbidity (cloudiness of water) go higher than 1 nephelolometric turbidity unit NTU), and samples for turbidity must be less than or equal to 0.3 NTU in at least 95 pervent of the samples in any month. Systems that use filtration other than the conventional or direct filtration must follow state limits, which must include turbidity at no time exceeding 5 NTU.
- HPC: No more than 500 bacterial colonies per milliliter.
- Long Term 1 Enhanced Surface Water Treatment: Surface water systems or (GWUDI) systems serving fewer than 10,000 people must comply with the applicable Long Term 1

Enhanced Surface Water Treatment Rule provisions (e.g. turbidity standards, individual filter monitoring, *Cryptosporidium* removal requirements, updated watershed control requirements for unfiltered systems).

- Long Term 2 Enhanced Surface Water Treatment Rule This rule applies to all surface water systems or ground water systems under the direct influence of surface water. The rule targets additional Cryptosporidium treatment requirements for higher risk systems and includes provisions to reduce risks from uncovered finished water storage facilities and to ensure that the systems maintain microbial protection as they take steps to reduce the formation of disinfection byproducts.
- Filter Backwash Recycling; The Filter Backwash Recycling Rule requires systems that recycle to return specific recycle flows through all processes of the system's existing conventional or direct filtration system or at an alternate location approved by the state.

[4] No more than 5.0% samples total coliform-positive in a month. (For water systems that collect fewer than 40 routine samples per month, no more than one sample can be total coliform-positive per month.) Every sample that has total coliform must be analyzed for either fecal coliforms or E. coli if two consecutive TC-positive samples, and one is also positive for E.coli fecal coliforms, system has an acute MCL violation.

[5] Fecal coliform and E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Disease-causing microbes (pathogens) in these wastes can cause diarrhea, cramps, nausea, headaches, or other symptoms. These pathogens may pose a special health risk for infants, young children, and people with severely compromised immune systems.

[6] Although there is no collective MCLG for this contaminant group, there are individual MCLGs for some of the individual contaminants:

- Trihalomethanes: bromodichloromethane (zero); bromoform (zero); dibromochloromethane (0.06 mg/L): chloroform (0.07mg/L).
- Haloacetic acids: dichloroacetic acid (zero); trichloroacetic acid (0.02 mg/L); monochloroacetic acid (0.07 mg/L). Bromoacetic acid and dibromoacetic acid are regulated with this group but have no MCLGs.

[7] Lead and copper are regulated by a Treatment Technique that requires systems to control the corrosiveness of their water. If more than 10% percent of tap water samples exceed the action level, water systems must take additional steps. For copper, the action level is 1.3 mg/L, and for lead it is 0.015 mg/L.

[8] Each water system must certify, in writing, to the state (using third-party or manufacturer's certification) that when it uses acrylamide and epichlorohydrin are used to treat water, the combination (or product) of dose and monomer level does not exceed the levels specified, as follows:

- Acrylamide = 0.05% dosed at 1 mg/L (or equivalent)
- Epichlorohydrin = 0.01% dosed at 20 mg/L (or equivalent)

National Secondary Drinking Water Standards

Contaminant	Secondary Standard
Aluminum	0.05 to 0.2 mg/L
Chloride	250 mg/L
Color	15 (color units)
Copper	1.0 mg/L
Corrosivity	Noncorrosive
Fluoride	2.0 mg/L
Foaming Agents	0.5 mg/L
Iron	0.3 mg/L
Manganese	0.05 mg/L
Odor	3 threshold odor number
pH	6.5-8.5
Silver	0.10 mg/L
Sulfate	250 mg/L
Total Dissolved Solids	500 mg/L
Zinc	5 mg/L

National Secondary Drinking Water Regulations (NSDWRs or secondary standards) are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water. EPA recommends secondary standards to water systems but does not require systems to comply. However, states may choose to adopt them as enforceable standards.

APPENDIX C

Yocha Dehe Wintun Nation
Water and Wastewater Feasibility Study
WDR Order and MRP No. R5-2006-0121 and Resolution No. R5-2008-0130

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2006-0121

WASTE DISCHARGE REQUIREMENTS

FOR
THE RUMSEY BAND OF WINTUN INDIANS
CACHE CREEK GOLF CLUB WATER RECLAMATION PROJECT
YOLO COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Regional Water Board) finds that:

1. On 31 May 2005, the Rumsey Band of Wintun Indians submitted a Report of Waste Discharge (RWD) for a discharge of reclaimed water to irrigate the planned Cache Creek Golf Club golf course in western Yolo County. Additional information required to complete the RWD was submitted in September 2005, November 2005, January 2006, and March 2006. Various addenda and revisions to the RWD were also submitted in June and July 2006.

2. The Rumsey Band of Wintun Indians (hereafter, "Discharger") owns and operates a sanitary sewer system and wastewater treatment facility (WWTF) that serves the Cache Creek Casino Resort and Hotel, a fire station, and a small grocery store. The WWTF and its service area are on land held in trust for the Discharger by the United States Bureau of Indian Affairs, as shown on Attachment A, which is attached hereto and made part of this Order by reference. As such, the WWTF and discharges of waste to land held in trust for the Discharger ("trust land") are regulated by the United States Environmental Protection Agency (USEPA) and are not subject to regulation by the Regional Water Board. However, the Regional Water Board has the authority to enforce applicable laws, regulations, and policies related to degradation or pollution of surface water or groundwater insofar as such degradation or pollution is detectable outside the confines of trust land.

3. The Discharger is constructing a golf course, clubhouse, and ancillary facilities known as the Cache Creek Golf Club. Some of the golf course is on trust land, but the clubhouse, ancillary facilities, and portions of the golf course are on land owned in fee simple by the Discharger ("fee land"). This Order regulates only discharges of waste to the fee land portion of the golf club facility and potential degradation or pollution of surface water or groundwater that may occur outside of trust land as a result of the discharges to trust land.

4. The Discharger owns and operates the WWTF, the Cache Creek Casino Resort and Hotel (the "casino complex"), and the Cache Creek Golf Club, and is responsible for compliance with these Waste Discharge Requirements.

5. The Cache Creek Casino Resort and Hotel, the Cache Creek Golf Club, and the WWTF are at 14455 State Highway 16 near the town of Brooks, in an unsectioned area of T10N, R2W and R3W, MDB&M (Assessor's Parcel No. 048-040-10). The fee land portions of the golf club facility comprise Assessor's Parcel Nos. 048-020-18, 048-040-12, 048-040-14, and 048-040-15. The locations of the WWTF and resort are shown on Attachment B, which is attached hereto and made

part of this Order by reference. The golf course plan is shown on Attachment C, which is attached hereto and made part of this Order by reference.

Existing WWTF

6. Sewage from the casino complex and ancillary facilities flows by gravity sewer to a wet well lift station on trust land. Two 350-gallon per minute (gpm) pumps are used to pump the wastewater through a force main to the WWTF headworks.

7. Between January 2005 and January 2006, average daily influent flows ranged from 179,000 to 234,000 gallons per day (gpd), with a mean of 200,000 gpd. The higher flows were during the months of April through August, and the RWD states that weekend flows tend to be higher than weekday flows. The WWTF design flow is 225,000 gpd as an average daily flow; 350,000 gpd as a peak weekend daily flow; and 475,000 gpd as a peak holiday daily flow.

8. The RWD characterized influent wastewater quality as follows.

Constituent	Average Influent Concentration (mg/L)
BOD	430
Total Suspended Solids	250
Total Kjeldahl Nitrogen	70

9. Influent wastewater is screened prior to discharge to a microfiltration membrane bioreactor (MBR) system, which provides tertiary treatment. Treatment starts in either of two 39,000-gallon anoxic basins, which also receive recirculated mixed liquor from the aeration basin in the MBR and waste activated sludge. These streams are mixed without aeration to promote denitrification and alkalinity recovery. Effluent from the anoxic basin is then conveyed to the aeration/membrane basin system.

10. Four microfiltration cassettes are installed in each of two 104,000-gallon aeration basins. Permeate pumps draw wastewater through microfiltration fibers contained in the cassettes, and scour air is supplied beneath the cassettes to remove solids from between the microfiltration fibers. Additional air is supplied through fine bubble diffusers in the aeration basin to support aerobic biodegradation. Two permeate pumps are typically in operation, and there is one standby pump. Likewise, two blowers are typically run for the scour and process air systems, and there is one backup blower.

11. The microfiltration membranes are automatically backflushed periodically, and sodium hypochlorite is injected into the back wash flow to remove biological growth from the filters.

12. Tertiary treated wastewater (permeate) from the MBR system is currently disinfected by ultraviolet (UV) light and is then stored or transferred to pump stations for recycling or land disposal. A 64,000-gallon steel Recycled Water Storage Tank provides reclaimed water for toilet flushing at the casino.

13. A 57-acre-foot (18.6 million gallons) storage reservoir (Recycled Water Reservoir No. 1) has historically been used to store treated wastewater prior to discharge to a 90,000-gpd leachfield system and spray fields on trust land. One spray field is west of the WWTF, and two spray fields totaling 49 acres occupy part of the golf course site. These features are depicted on Attachment D, which is attached hereto and made part of the Order by reference. Recycled Water Reservoir No. 1 (which is double lined with a leak detection system) and the Recycled Water Storage Tank are also on trust land. The two lower spray fields will be regraded to form part of the golf course. The RWD did not specify whether use of the upper spray field would continue.

14. Turbidity is monitored continuously with on-line instrumentation and periodically confirmed with on-site laboratory testing. The turbidity meter is on the discharge side of the permeate pumps, and the permeate pumps will automatically shut down if effluent turbidity exceeds 0.5 NTU. In such circumstances, the treated wastewater would be diverted to one of the existing emergency storage structures described below.

15. Based on effluent monitoring data for January 2005 through January 2006, and supplemental monitoring completed in early 2006, the RWD characterized the WWTF effluent as follows.

	Effluent Concentration		Applicable Water Quality Limit [1]
Constituent	Monthly Average	Daily Maximum	
BOD (mg/L)	<1 to <5	1.6	None
Total Suspended Solids (mg/L)	<1	1.6	None
pH	7.6 to 7.8	--	6.5 to 8.4
Total Dissolved Solids (mg/L) [2]	1,230 [3]	1,400	450
Chloride (mg/L) [2]	440 [3]	510	106
Nitrate as NO_3 (mg/L)	2.8 to 9.2	--	45
Ammonia (mg/L)	0.01 to 0.36	--	1.5
Turbidity (NTU)	0.08 to 0.12	0.98	None
Total Coliform Organisms	--	<2 [4, 5]	2.2

[1] Water quality limit to apply narrative water quality objectives specified in the Basin Plan for protection of the beneficial uses of groundwater.

[2] Based on analysis of 29 samples obtained between 23 January and 5 April 2006.

[3] Arithmetic mean of all results.

[4] Based on samples obtained from the recycled water storage tank prior to supply to the casino.

[5] Value listed is a typical result. The October 2005 daily maximum was 240, and the December 2005 daily maximum was <1,600. The RWD states that the latter value is due to laboratory error.

-- Data not provided.

NA Not analyzed.

16. In May 2006, the Discharger analyzed a single sample of treated effluent for additional analytes, as summarized below.

Constituent	Effluent Concentration	Applicable Water Quality Limit [1]
Total Hardness (mg/L)	348	None
Total Alkalinity (mg/L)	310	None
Electrical Conductivity (mg/L)	2,200	700
Total Dissolved Solids (mg/L)	1,300	450
pH	7.9	6.5 to 8.4
Calcium (mg/L)	90	None
Iron (ug/L)	<100	300
Magnesium (mg/L)	30	None
Manganese (ug/L)	<20	50
Potassium (mg/L)	19	None
Sodium (mg/L)	320	69
Chloride (mg/L)	430	106
Fluoride (ug/L)	<100	1,000
Nitrate nitrogen (mg/L)	1.6	10
Sulfate (mg/L)	170	250

[1] Water quality limit to apply narrative water quality objectives specified in the Basin Plan for protection of the beneficial uses of groundwater.

These data indicate that the treated effluent greatly exceeds applicable water quality limits for electrical conductivity, total dissolved solids, sodium, and chloride. According to the Discharger's consultant, the high salinity is likely due to use of an ion exchange water softening system for the casino complex water supply. The Discharger implemented some source reduction measures in early 2006, and the results above represent data obtained after full implementation of those measures.

17. Biosolids undergo aerobic digestion and dewatering, and supernatant is returned to the MBR system. Screenings and dewatered biosolids are disposed of off-site.

18. The WWTF is equipped with a supervisory control and data acquisition (SCADA) system, backup power supply, automated control valves, and an alarm system. If turbidity, which is monitored continuously, exceeds standards for tertiary effluent, the WWTF will trigger the alarm, automatically shut down, and cut off the supply of effluent to the recycling system. Once the system is operational again, any inadequately treated effluent would be rerouted to the plant headworks.

19. The WWTF itself can hold up to 234,000 gallons of wastewater and provides the following backup storage features to prevent system bypass and discharge of partially treated wastewater:
    a. A 234,000-gallon emergency storage basin downstream of the influent screen;
    b. An 83,000-gallon overflow basin at the inlet to the MBR system, which can overflow to the emergency storage basin.

20. The chief wastewater treatment operator holds at least a Grade 3 license. Supervising operators and shift supervisors hold at least a Grade 2 license. Actual operators have Grade 1 licenses or Operator-in-Training certificates. All WWTF system monitoring reports are submitted to the US EPA.

Proposed Changes to the WWTF

21. The Discharger proposes to modify the disinfection system so that disinfection will be achieved solely by the use of sodium hypochlorite. A flow-paced chlorine dosing system will be installed upstream of a new 35,000-gallon chlorine contact basin.

22. The chlorine flow rate will be controlled by a chlorine residual analyzer (CRA) at the basin inlet. The inlet CRA will be set to maintain a residual concentration of 7.0 mg/L. If the inlet residual chlorine concentration drops to 1.0 mg/L below the set point, an alarm will be triggered. If the chlorine residual remains low for more than five minutes, the permeate pumps will automatically shut off.

23. There will also be a chlorine residual analyzer at the outlet end of the chlorine contact basin. The outlet CRA will trigger an alarm if the exiting chlorine residual concentration is below 4.5 mg/L. This level was selected based on the design hydraulic residence time of 106 minutes and a peak design flow of 0.475 mgd.

24. The existing standby generators will be used to ensure a continuous power supply to the disinfection system. If the standby power were to fail, flows to the disinfection system would be automatically diverted to the emergency storage basin.

25. Other system reliability features include alarms to indicate failure of chemical feed equipment; a backup hypochlorite metering pump; and storage for a 20- to 30-day supply of sodium hypochlorite.

26. The system is designed to provide the required CT (the product of contact time and residual chlorine concentration) of 450 mg•min/mL and 90-minute modal contact time within the chlorine contact basin. The California Department of Health Services (DHS) requires that a tracer study be completed to demonstrate that adequate CT and modal contact time will be maintained at all times.

Proposed Reclaimed Water Discharge

27. The Discharger proposes to reclaim treated effluent to irrigate the golf course at the Cache Creek Golf Club, which is approximately 3,000 feet east of the casino complex. The southern portion of the golf course (approximately 79 acres), and irrigation storage pond (South Lake) are on trust land. The

northern portion of the golf course, the driving range, and a large decorative pond (North Lake) are on approximately 111 acres of fee land. The remainder (119 acres) of fee land will not be used for reclamation (see Attachment C). As stated above, this Order regulates only discharges of waste to the fee land portion of the golf club facility and potential degradation or pollution of surface water or groundwater that may occur outside of trust land as a result of the discharges to trust land.

28. Ancillary facilities include a clubhouse, golf cart barn, comfort station, and turf maintenance facility (on fee land).

29. North Lake is a large man-made pond on the fee land part of the golf course. It is lined with 30-mil polyvinyl chloride capped with concrete to minimize water losses due to percolation. It will be filled only with fresh water pumped from Cache Creek via either of two pump stations (one pre-existing and one new), and will have water recirculation and aeration systems to maintain its aesthetic quality. A 1,600-foot long man-made stream (North Stream) lined with 60-mil high-density polyethylene will meander from a smaller pond (Five Pond) west of the fifth green to the northern edge of the lake, and will be supplied with fresh water recirculated from the North Lake.

30. South Lake is a 16.1-acre pond on the trust land part of the golf course. It is lined with a 30-mil polyvinyl chloride capped with concrete. Its capacity is 154 acre-feet at the normal water surface elevation of 270 feet MSL, and it can overflow only if the water level exceeds 282.7 feet MSL (or 438 acre feet). Consequently, the water level in South Lake will be lowered to approximately 265 feet MSL in the late fall to provide storage for reclaimed water and precipitation runoff during the rainy season. A 700-foot long man-made stream lined with 60-mil high-density polyethylene will meander from a pond at the clubhouse to the southern edge of the lake, and will be supplied with reclaimed water recirculated from the South Lake. South Lake will also have water recirculation and aeration systems.

31. South Lake will function as the irrigation reservoir for the golf course. It will receive reclaimed water from the WWTF and fresh water from Cache Creek as needed to provide supplemental irrigation water for the golf course driving range, and water for the stream feature. Fresh water for irrigation will be supplied from North Lake, which can receive water from the creek by either of two supply pumps that discharge to Five Pond. The water flows from Five Pond through the North Stream to North Lake. Fresh water is pumped directly from North Lake via a low-head pipeline to either a return line to Five Pond or to a distribution box that can divert the flow by gravity either to South Lake or to the irrigation pump station wet well at the north end of South Lake.

32. The water level in North Lake will be maintained at an elevation of 274 feet MSL, four feet higher than the normal high water level in South Lake. An automated pump station near the comfort station will be used to divert fresh water from North Lake to the irrigation pump station wet well or to South Lake as needed.

33. To prevent backflow from South Lake to North Lake or to Cache Creek, the pipeline from the pumping facility at the comfort station enters the distribution box at an invert elevation of 287.4 feet

MSL, which is two feet above the 282.7 feet MSL overflow elevation for the South Lake watershed area. It is also 11.2 feet above the two pipes that exit the distribution box and extend to South Lake.

34. South Lake will not be fenced, but swimming, boating, and body contact will not be allowed. Signs notifying the public of these restrictions will be posted at South Lake.

35. Reclaimed water will be applied to the golf course and associated landscaped areas by spray irrigation using a computerized system that receives evapotranspiration data from an onsite weather station. Precipitation information from the weather station will also be used by the computer irrigation control system to prevent irrigation during periods of precipitation or high wind.

36. A central computer system will control several satellite irrigation controllers (one or two per golf course hole) to operate approximately 2,025 adjustable-angle sprinkler heads. The central computer system will also monitor and control flow rates in each irrigation pipe segment to optimize irrigation efficiency and minimize runoff. The sprinkler heads have adjustable spray angles to allow control of drift.

37. Typically, irrigation will be at night when the golf course is closed; any daytime irrigation will be done manually or by sprinkler (with extra precautions to prevent human contact). There will no eating areas, food preparation areas, or drinking fountains within the irrigated areas, and a 50-foot setback will be maintained between the irrigated area and the Cache Creek channel. Anticipated irrigation schedules are summarized below.

Time of Year	Irrigation Frequency	Irrigation Duration
Spring	Every other day	6 minutes
Summer	Every day	15 to 20 minutes
Fall	Every other day	8 minutes
Winter	Once per week	5 minutes

38. The RWD estimates that reclaimed water will supply approximately 44 percent of the total golf course irrigation demand. Monthly irrigation and effluent disposal demand for a typical year is estimated as follows.

Month	Estimated Monthly Volume (MG)			
	Total Irrigation Demand	Total Effluent Generated	Supplemental Irrigation Demand	Leachfield Disposal
November	0	7.50	0	1.5
December	0	7.75	0	1.55
January	0	7.75	0	1.55
February	0	7.00	0	1.4

Month	Estimated Monthly Volume (MG)			
	Total Irrigation Demand	Total Effluent Generated	Supplemental Irrigation Demand	Leachfield Disposal
March	0	7.75	0	1.55
April	15.2	7.5	0	0
May	26.8	7.75	0	0
June	37.1	7.5	29.4	0
July	46.8	7.75	43.0	0
August	46.7	7.75	42.5	0
September	36.8	7.5	31.9	0
October	24.7	7.75	18.3	0
Total	234.2	91.3 [1]	165.0	7.6

[1] Excludes net evaporative losses during treatment and storage.

39. Irrigation runoff, if any, will be collected by a drainage system and conveyed to a runoff detention basin near South Lake and pumped back to South Lake for reuse. There is also a small runoff retention basin near Hole 14 in the northeast corner of the golf course, which is designed to allow runoff to infiltrate into the underlying soil.

40. On days when precipitation or other weather conditions preclude irrigation, treated effluent will either be stored in either of the two storage reservoirs or discharged to the leachfield on trust land, which has a design capacity of 90,000 gpd. Additionally, some of the disinfected effluent is used for toilet flushing at the casino.

41. Storm water runoff from most of the golf course is collected by the drainage piping system and conveyed to the runoff detention basin on trust land. The fate of storm water runoff from specific areas is summarized below.

Area	Conveyance	Detention Feature
North Lake area and Hillside west of Holes 11 and 12	Pipeline	North Lake (overflows to runoff detention basin)
Fairways around South Lake	Sheet flow to drain pipe inlets	South Lake
East and south of South Lake	Sheet flow to drain pipe inlets	Runoff detention basin
West of holes 10 and 18	Pipeline	Runoff detention basin

Area	Conveyance	Detention Feature
Driving range, turf maintenance facility, and west of club house	Sheet flow	Shallow swales (infiltration)
Hole 14 fairway	Sheet flow	Small infiltration basin

The runoff detention basin near South Lake has a culvert at the property line at the southeast corner of the golf course. When the water level reaches the culvert invert, excess storm water runoff will flow through the culvert to an off-site drainage ditch.

42. Based on an irrigated area of 130 acres and 44 percent of the irrigation demand being supplied by reclaimed water, the estimated total nitrogen loading from wastewater would be approximately 13 pounds per acre per year.

43. The RWD included a water balance to demonstrate adequate wastewater storage and disposal capacity. The water balance model indicates that the WWTF's Recycled Water Reservoir No. 1 will normally be empty by late fall each year, and that the WWTF and South Lake will have sufficient capacity to contain the design wastewater flow and seasonal precipitation during a normal rainfall year. The model assumes the following:

    a. The average daily influent flow will be 250,000 gpd year round;

    b. An average of 50,000 gpd of effluent will be discharged to the leachfield system from 1 November through 30 March each year;

    c. The volume in Recycled Water Reservoir No. 1 will be minimal by 30 October each year; and

    d. The water depth in South Lake will be reduced to 265 feet MSL (approximately seven feet deep) by 30 October each year.

Site-Specific Conditions

44. The Cache Creek Golf Club facility is adjacent to the western bank of Cache Creek. Most of the site is on an overbank terrace at an approximate elevation of 255 to 275 feet above mean sea level (MSL) that slopes gently away from the creek. Slopes increase along the western side of the golf course, creating an escarpment that rises to approximately 320 feet MSL (see attachment A). The casino complex is immediately southwest of the golf club on a northwest to southeast trending ridge that separates the southern end of the Capay Valley from Cache Creek at an elevation of approximately 400 feet MSL.

45. Surface soils across the golf course site are primarily Tehama loam and Yolo silt loam. The Tehama loam (primarily on the north portion of the golf course) is characterized by low permeability, slight erosion potential, with 8 to 10 inches of water holding capacity. The Yolo silt loam (primarily in the south portion of the golf course) exhibits moderate permeability, slight erosion potential, and 9 to 11 inches of water holding capacity.

46. Annual precipitation in the vicinity averages approximately 17.9 inches and the 100-year total annual precipitation is 42.3 inches. The estimated evapotranspiration rate for turf grass is approximately 51.5 inches per year.

47. Land uses in the vicinity of the casino complex and country club are primarily agricultural. The golf course site was historically a private ranch and was used for cattle grazing, hog farming, and growing alfalfa and hay.

48. Based on FEMA Flood Insurance rate maps, the majority of the golf course is within the 100-year floodplain. The 19 June 2006 RWD Addendum included a revised Hydrologic Analysis Report using the HEC-RAS model developed by the US Army Corps of Engineers. The calibrated model for the original golf course grading plan indicates the following:

    a. Hole 14 (mostly on fee land) will be flooded during a five-year event (which corresponds to a creek discharge rate of approximately 25,500 cubic feet per second, or cfs).

    b. Portions of the golf course along the western hill line (both fee and trust land) will become a temporary flood channel during a 50-year event (which corresponds to a creek discharge rate of approximately 52,190 cfs).

    c. The 100-year floodplain elevation (approximately 61,725 cfs) for most of the site ranges from approximately 281.6 feet MSL at the north end of the golf course to 279.2 feet MSL at the south end. The predicted floodplain elevation at South Lake is 280.7 feet MSL. Peak flows would tend to quickly recede.

    The grading design around South Lake includes an earthen barrier at least 30 feet wide with a minimum crest elevation of 282.7 feet MSL to prevent inundation of South Lake during the 100-year flood event. If South Lake is inundated by a flood event that exceeds the 100-year event, the Discharger will use the existing leachfields and/or other storage/disposal areas on trust land to prevent discharges of wastewater to surface water until South Lake can be brought back into service.

49. The Discharger performed limited water quality monitoring in Cache Creek upstream of the golf course in early 2006 to support the RWD. Analytical data from these monitoring events are summarized below.

	Analytical Result	
Constituent	May 2006	June 2006
Total Hardness (mg/L)	234	165
Total Alkalinity (mg/L)	220	160
Electrical Conductivity (mg/L)	550	380
Total Dissolved Solids (mg/L)	320	210
pH	8.3	8.3
Calcium (mg/L)	34	27

	Analytical Result	
Constituent	May 2006	June 2006
Iron (ug/L)	360	950
Magnesium (mg/L)	36	24
Manganese (ug/L)	<20	37
Potassium (mg/L)	1.7	1.9
Sodium (mg/L)	30	20
Chloride (mg/L)	32	19
Fluoride (ug/L)	<100	11
Nitrate nitrogen (mg/L)	0.35	<0.20
Sulfate (mg/L)	46	21

With the exception of iron, these data indicate that Cache Creek is a high quality water source during and shortly after the rainy season. The data provided were not sufficient to assess seasonal water quality variations.

Groundwater Considerations

50. According to the RWD, there are several domestic, irrigation, and stock watering wells within one mile of the golf course, as well as the Discharger's municipal supply well. The RWD states that most are perforated somewhere between 20 and 200 feet below ground surface. Based on local topography, the golf course location, and its proximity to Cache Creek, most of these wells appear to be upgradient or cross gradient of the golf course. One well (the Guzman well) appears to be downgradient of the golf course, and is apparently used for domestic supply. The Guzman well is reportedly perforated at intervals between 17 and 117 feet below ground surface, and is more than 50 feet away from the golf course.

51. Three groundwater monitoring wells (MW-3, MW-4, and MW-5) were installed to monitor groundwater beneath the former spray fields on the trust land portion of the golf course, as shown on Attachment D. Based on six groundwater monitoring events between June 2003 and June 2005, groundwater elevations at the golf course ranged from 256 to 258 feet above MSL (or approximately 21 feet below the surrounding grade) with little seasonal variability. The groundwater flow direction at the golf course site was generally eastward towards Cache Creek.

52. Groundwater quality data for the golf course monitoring wells is summarized below. The terms cross gradient and downgradient relate to well locations with respect to the former wastewater spray fields shown on Attachment D.

Constituent/Parameter	Concentration Range			Applicable Water Quality Limit [2]
	Cross gradient Wells		Downgradient Well	
	MW-3	MW-5	MW-4	
pH	7.3 to 7.5	7.6 to 8.1	7.4 to 8.1	6.5 to 8.4
Total alkalinity, mg/L	300 to 400	340 to 380	310 to 410	None
Total hardness, mg/L	750 to 890	290 to 400	270 to 420	None
Electrical conductivity, umhos/cm	1,700 to 2,400	760 to 880	710 to 920	700
Total dissolved solids, mg/L	1,400 to 1,600	550 to 640	450 to 750	450
Calcium, mg/L	170 to 200	47 to 85	48 to 71	None
Chloride, mg/L	160 to 240	9 to 52	44 to 140	106
Fluoride, mg/L	0.31 to 0.49	0.61 to 0.91	0.24 to 0.39	1.0
Sodium, mg/L	130 to 230	30 to 140	76 to 130	69
Potassium, mg/L	1.6 to 2.4	<1.0 to 7.5	1.3 to 2.5	None
Nitrate as NO_3, mg/L	5.3 to 18	9 to 21	9 to 33	45
Sulfate, mg/L	470 to 680	13 to 95	49 to 89	250
Total trihalomethanes, ug/L	ND to 114.5 [1]	ND to 236 [1]	ND to 265 [1]	80
Coliform organisms, MPN/100 mL	<2 to 4	<2 to 4	<2	2.2

[1] All detections were in January 2004.

[2] Water quality limit to apply narrative water quality objectives specified in the Basin Plan for protection of the beneficial uses of groundwater.

These data indicate that upgradient groundwater quality beneath the trust portion of the golf course exceeds applicable water quality limits for electrical conductivity, total dissolved solids, chloride, sodium, and sulfate. The difference between results for MW-3 and the other two wells appears to be due primarily to the high sulfate, bicarbonate alkalinity, hardness, sodium, and chloride. The RWD did not provide any information as to whether these differences are naturally occurring or the result of past land use.

With the exception of nitrate, the available data indicate that the former spray fields did not degrade groundwater quality. Although downgradient nitrate concentrations are elevated with respect to background, it does not appear that pollution has occurred. Part of this finding may be due to the influence of fresh water infiltrating the shallow zone from Cache Creek.

Trihalomethanes were detected in all three wells during one sampling event only (January 2004). However, the wells had been improperly disinfected just prior to sampling. Trihalomethanes were not detected in subsequent monitoring events.

53. Six additional monitoring wells (MW-7, MW-8, MW-9, MW-11, MW-12, and MW-13) were constructed on trust land near the casino complex to monitor groundwater quality beneath the former spray field and three existing leach fields (Attachment D). Limited groundwater elevation data provided for these wells indicates that shallow groundwater at this part of the site is significantly higher than that at the golf course site, and that the flow direction is also different. Groundwater elevations ranged from 289 feet MSL at MW-8 to 428 feet MSL at MW-11 (approximately 100 feet and 94 feet below ground surface, respectively), and the flow direction appears to be towards the northwest (away from the creek). Based on the number of domestic and agricultural supply wells near the casino area, shallow groundwater in this area appears to be influenced by local drawdown in and around the Capay Valley west and northwest of the casino complex.

54. Water quality data was provided only for wells MW-7, MW-8, and MW-9. These data are limited to three events, and groundwater elevations corresponding to the sampling events were not included in the RWD. MW-9 appears to be primarily upgradient of the existing leachfield, but may also be downgradient of the WWTF. MW-8 appears to be downgradient of the leach fields, and MW-7 appears to be primarily cross gradient of the leach fields. The following table summarizes monitoring data provided in the RWD for these three wells.

Constituent/Parameter	Concentration Range (mg/L except as noted)			Applicable Water Quality Limit [1]
	Upgradient	Downgradient	Cross gradient	
	MW-9	MW-8	MW-7	
pH	7.4 to 7.9	7.5 to 7.6	7.6 to 7.7	6.5 to 8.4
Total alkalinity, mg/L	350 to 360	210 to 240	180 to 190	None
Total hardness, mg/L	370 to 380	240 to 360	250 to 260	None
Electrical conductivity, umhos/cm	700 to 790	450 to 720	500 to 520	700
Total dissolved solids, mg/L	470 to 500	360 to 450	320 to 370	450
Calcium, mg/L	59 to 61	63 to 97	66 to 68	None
Chloride, mg/L	65 to 66	31 to 76	44 to 50	106
Fluoride, mg/L	0.31 to 0.37	0.26 to 0.31	0.31 to 0.32	1.0
Sodium, mg/L	48 to 49	23 to 33	18	69
Potassium, mg/L	2	3.5 to 4.5	<1	None
Nitrate as NO_3, mg/L	18 to 29	36 to 43	33 to 36	45
Sulfate, mg/L	5.8 to 6.1	10 to 20	5.9 to 6.2	250
Coliform organisms, MPN/100	<2	<2	<2	2.2

[1] Water quality limit to apply narrative water quality objectives specified in the Basin Plan for protection of the beneficial uses of groundwater.

These data indicate that shallow groundwater beneath the trust parcel that includes the casino complex is similar to that found in MW-4 and MW-5. Concentrations of total dissolved solids, other

salinity constituents, and electrical conductivity were typically less than the applicable water quality limits. The data also indicate that the leach fields have caused increases in nitrate concentrations, but these increases do not appear to constitute pollution.

55. Based on the high salinity of the treated effluent (1,300 mg/L TDS) relative to underlying groundwater (approximately 600 mg/L TDS), the proposed discharge poses a threat to groundwater quality. Therefore, it is appropriate to impose interim effluent limits for dissolved solids, chloride, and sodium that will ensure that the current levels of salinity in the effluent do not increase above current concentrations. It is also appropriate to require groundwater monitoring for the golf course and a formal determination of background groundwater quality and the potential for groundwater degradation. Monitoring wells MW-3 and MW-4 were abandoned during construction of the golf course, and will need to be replaced.

Groundwater Degradation

56. State Water Resources Control Board (State Water Board) Resolution No. 68-16 (hereafter Resolution No. 68-16 or the "Antidegradation Policy") requires the Regional Water Board in regulating the discharge of waste to maintain high quality waters of the state (i.e., background water quality) until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in the Regional Water Board's policies (e.g., quality that exceeds water quality objectives).

57. The Regional Water Board finds that some degradation of groundwater beneath the golf course is consistent with Resolution No. 68-16 provided that:

    a. The degradation is confined within a specified boundary;

    b. The Discharger minimizes the degradation by fully implementing, regularly maintaining, and optimally operating best practicable treatment and control (BPTC) measures;

    c. The degradation is limited to waste constituents typically encountered in municipal wastewater as specified in the groundwater limitations in this Order; and

    d. The degradation does not result in water quality less than that prescribed in the Basin Plan.

58. Some degradation of groundwater by some of the typical waste constituents released with discharge from a municipal wastewater utility after effective source control, treatment, and control is consistent with maximum benefit to the people of California. The technology, energy, water recycling, and waste management advantages of municipal utility service far exceed any benefits derived from a community otherwise reliant on numerous concentrated individual wastewater systems, and the impact on water quality will be substantially less. Degradation of groundwater by constituents (e.g., toxic chemicals) other than those specified in the groundwater limitations in this Order, and by constituents that can be effectively removed by conventional treatment (e.g., total coliform bacteria) is prohibited. When allowed, the degree of degradation permitted depends upon many factors (i.e., background water quality, the waste constituent, the beneficial uses and most stringent water quality objective, source control measures, waste constituent treatability).

59. Economic prosperity of local communities and associated industry is of maximum benefit to the people of California, and therefore sufficient reason exists to accommodate growth and groundwater degradation around the facility, provided that the terms of the Basin Plan are met.

Treatment and Control Practices

60. The Discharger will provide treatment and control of the discharge that incorporates:
    a. Metal, concrete and/or plastic treatment structures that provide complete containment during wastewater treatment and storage;
    b. Alarm and automatic flow diversion systems to prevent system bypass or overflow;
    c. Effluent storage pond liner systems;
    d. Tertiary treatment;
    e. Denitrification;
    f. Disinfection of treated effluent;
    g. Recycling of wastewater using agronomic application rates;
    h. Appropriate biosolids storage and disposal practices; and
    i. Certified operators to assure proper operation and maintenance.

61. Although the WWTF design and effluent recycling program incorporate several BPTC measures, it is possible that the Discharger's current effort may not constitute full BPTC as intended in Resolution No. 68-16. Specifically, concentrations of dissolved solids, chloride, and sodium greatly exceed apparent background groundwater quality and the applicable water quality limits for groundwater. The excess TDS, chloride, and sodium are the result of controllable factors (i.e., the use of an ion exchange water softening system). Therefore, this Order establishes a schedule for tasks to:
    a. Formally determine background groundwater concentrations for selected constituents; and
    b. Evaluate and implement additional measures to reduce the salinity of the discharge as needed to ensure compliance with Resolution No. 68-16.

    Completion of these tasks and implementation of the approved strategies developed from that work will ensure that BPTC and the highest water quality consistent with the maximum benefit to the people of the State will be achieved.

62. This Order establishes interim groundwater limitations for the golf course that will not unreasonably threaten present and anticipated beneficial uses or result in groundwater quality that exceeds water quality objectives set forth in the Basin Plan. Accordingly, the discharge is consistent with the antidegradation provisions of Resolution No. 68-16. Based on the results of the scheduled tasks, the Regional Water Board may reopen this Order to reconsider groundwater limitations and other requirements to comply with Resolution No. 68-16.

Water Recycling

63. State Water Board Resolution No. 77-1, *Policy with Respect to Water Reclamation in California*, encourages recycling projects that replace or supplement the use of fresh water, and *The Water Recycling Law* (CWC sections 13500-13529.4) declares that utilization of recycled water is of primary interest to people of the State in meeting future water needs.

64. A 1996 Memorandum of Understanding between DHS and State Water Board on the use of recycled water establishes basic principles relative to the two agencies and the regional boards. The Memorandum allocates primary areas of responsibility and authority between the agencies and provides for methods and mechanisms necessary to assure ongoing, continuous future coordination of activities relative to use of recycled water.

65. DHS has established statewide water recycling criteria in Title 22, CCR, Section 60301 et. seq. (hereafter Title 22). DHS revised the water recycling criteria contained in Title 22 on 2 December 2000. The Discharger will treat to tertiary standards and disinfect the tertiary effluent per Title 22 requirements because of the potential for human contact with the reclaimed wastewater when it is used to irrigate the golf course.

66. DHS requires that the American Water Works Association (AWWA) *Guidelines for Distribution of Non-Potable Water* and *Guidelines for the On-site Retrofit of Facilities Using Disinfected Tertiary Recycled Water* be implemented in design and construction of recycling equipment. The guidelines require installation of purple pipe, adequate signs, etc. Adequate separation between the recycled water lines and domestic water lines and sewer lines is also required. The Discharger proposes to fully comply with these requirements.

67. Section 60323(a) of Title 22 states that no person shall produce or supply reclaimed water for direct reuse from a proposed water reclamation plant unless an engineering report is submitted for review and approval by DHS and the Regional Water Board. Irrigation of golf courses and other landscaping is considered a beneficial reuse. A Title 22 Engineering Report was originally submitted to DHS in May 2005, and revised on 30 March 2006. DHS provided final comments on the revised Title 22 Report on 1 May 2006, and those comments are addressed in these WDRs. DHS granted conditional approval of the proposed water recycling program, but requires that a tracer study be completed to ensure that reclaimed water consistently meets the Title 22 requirement for modal contact time prior to first use of reclaimed water at the golf course. DHS approved the Discharger's tracer study protocol on 7 August 2006. The Discharger expects to complete construction of the new disinfection system in early October 2006, but it is unlikely that the tracer study will be completed and approved by DHS before this Order is in effect. Therefore, it is appropriate to prohibit any discharge of reclaimed effluent to the golf course unless and until DHS approves the Discharger's tracer study report.

Basin Plan, Beneficial Uses, and Regulatory Considerations

68. The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition*, (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Water Board. These requirements implement the Basin Plan.

69. Surface water drainage is to Cache Creek. The beneficial uses of Cache Creek are municipal and domestic supply; agricultural irrigation and stock watering supply; process and service industrial supply; contact recreation, other noncontact recreation; warm and cold freshwater habitat; warm and cold water spawning; and wildlife habitat.

70. The beneficial uses of the underlying groundwater are municipal and domestic supply, agricultural supply, industrial service supply, and industrial process supply.

71. The Basin Plan encourages water recycling.

72. The Basin Plan establishes numerical and narrative water quality objectives for surface water and groundwater within the basin. Numerical and narrative water quality objectives are maximum limits directly applicable to the protection of designated beneficial uses of the water unless higher levels are the result of factors that cannot be reasonably controlled or are not subject to the authority of the State and Regional Water Boards. The Basin Plan requires that the Regional Water Board, on a case-by-case basis, follow specified procedures to determine maximum numerical limitations that apply the narrative objectives when it adopts waste discharge requirements.

73. The Basin Plan specifies a numerical water quality objective for ground waters for bacteria that states, in part, the following:

> *"The following objectives apply to all ground waters of the Sacramento and San Joaquin River Basins, as the objectives are relevant to the protection of designated beneficial uses."*
>
> ***"Bacteria***
>
> *In ground waters used for domestic or municipal supply (MUN), the most probable number of coliform organisms over any seven-day period shall be less than 2.2/100mL."*

Groundwater, as described in the Basin Plan (page I-1.00), includes all subsurface waters that occur in fully saturated zones and fractures within soils and other geologic formations.

74. The Regional Water Board applies the bacteria objective to all groundwater designated as municipal or domestic supply (MUN), not just those waters currently used for MUN. This interpretation is consistent with the California Water Code (CWC) and the Basin Plan. The Regional Water Board has consistently interpreted the objective to apply to groundwater designated for MUN. The Regional Water Board has a long-standing pattern and practice of adopting Wars that reflect this interpretation. The following excerpts from the Basin Plan clearly support the plain meaning of the Basin Plan as well as the Regional Water Board's established pattern and practice:

a. The introductory paragraph on Water Quality Objectives for Ground Waters (page III-9.00 of the Basin Plan) states: *"The following objectives apply to all ground waters of the Sacramento and San Joaquin River Basins, as the objectives are relevant to the protection of designated beneficial uses."*

b. The Policy for Application of Water Quality Objectives (page IV-16.00) states: *"Water quality objectives apply to all waters within a surface water or ground water resource for which beneficial uses have been designated, rather than at intake, wellhead, or other point of consumption."* Consistent with the CWC and the Basin Plan, the Regional Water Board applies the bacteria objective to all groundwater designated as municipal or domestic supply (MUN), not just those waters currently used for MUN.

c. State Board Resolution No. 88-63 (Adoption of Policy Entitled "Sources of Drinking Water") defines all groundwater of the State to be suitable or potentially suitable for MUN uses, and states that they should be designated as MUN in Basin Plans unless at least one the following three criteria are satisfied:

- ♦ The total dissolved solids concentration of the resource exceeds 3,000 mg/L (5,000 umhos/cm, electrical conductivity) and it is not reasonably expected by the Regional Water Board to supply a public water system, or
- ♦ There is contamination, either by natural processes or human activity (unrelated to a specific pollution incident), that cannot reasonably be treated for domestic use using either Best Management Practices or best economically achievable treatment practices, or
- ♦ The water source does not provide sufficient water to supply a single well capable of producing an average sustained yield of 200 gallons per day.

Accordingly, the Regional Water Board designated all groundwater of the basins as suitable or potentially suitable for MUN in the Basin Plan (pages II-2.00 and -3.00). The Regional Water Board can only "de-designate" beneficial uses of a particular water resource through amendment of the Basin Plan.

75. State Board Order No. WQO-2003-0014 upheld the Regional Water Board's interpretation of the Basin Plan with respect to implementation of the bacteria objective, stating: *"The Basin Plan contains a water quality objective for bacteria that applies to groundwater that states: 'In groundwater used for domestic or municipal supply (MUN) the most probable number of coliform organisms over any seven-day period shall be less than 2.2/100 mL.' Since the groundwater is designated for municipal or domestic supply, a groundwater limitation for coliform of less than 2.2 MPN/100 mL is appropriate."*

76. The Basin Plan identifies numerical water quality objectives for waters designated as municipal supply. These are the maximum contaminant levels (MCLs) specified in the following provisions of Title 22, California Code of Regulations: Tables 64431-A (Inorganic Chemicals) and 64431-B (Fluoride) of Section 64431, Table 64444-A (Organic Chemicals) of Section 64444, and Table 64449-A (Secondary Maximum Contaminant Levels-Consumer Acceptance Limits) of Section 64449. The Basin Plan's incorporation of these provisions by reference is prospective, and includes

future changes to the incorporated provisions as the changes take effect. The Basin Plan recognizes that the Regional Water Board may apply limits more stringent than MCLs to ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses.

77. The Basin Plan contains narrative water quality objectives for Chemical Constituents, Tastes and Odors, and Toxicity. The Toxicity objective, in summary, requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life associated with designated beneficial uses. The Chemical Constituents objective requires that groundwater "shall not contain chemical constituents in concentrations that adversely affect beneficial uses." The Tastes and Odors objective requires that groundwater "shall not contain taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses." Chapter IV, Implementation, of the Basin Plan contains the "Policy for Application of Water Quality Objectives." This Policy specifies, in part, that compliance with narrative water quality objectives may be evaluated considering numerical criteria and guidelines developed and/or published by other agencies and organizations.

78. Under the "Antidegradation" section, the attached Information Sheet lists the various waste constituents identified thus far as fitting the restriction of Finding Nos. 76 and 77, along with limits of each constituent necessary to maintain beneficial uses known to be adversely affected at certain concentrations of the waste constituent in groundwater. The listing identifies the constituent, the beneficial use and its associated limit, as well as the technical reference for the limit. Some limits become less restrictive when the water supply is limited to certain applications of a beneficial use, but that requires additional factual information. Interim groundwater limitations for each constituent reflect the most restrictive listed limit for the waste constituent, except if natural background quality is greater, in which case background becomes the interim limitation.

79. The State Water Board adopted Order No. 97-03-DWQ (General Permit No. CAS000001) specifying waste discharge requirements for discharges of storm water associated with industrial activities, and requiring submittal of a Notice of Intent by all affected industrial dischargers. Because the WWTF is on trust land, the Discharger is not required to obtain coverage under General Permit No. CAS000001.

80. In October 2002, the Discharger and the County of Yolo entered into a Memorandum of Understanding regarding mitigation of off-reservation impacts of the casino expansion and country club project.

81. On 3 May 2005, in accordance with the California Environmental Quality Act (CCR, Title 14, Section 15261 et. seq.), the Yolo County Planning and Public Works Department certified a Final Environmental Impact Report (EIR) for the Capay Hills Country Club. The Final EIR identified potentially significant non-point source groundwater quality impacts from irrigation of the golf course with reclaimed water (Impact No. 4.8.5). Mitigation Measure 4.8.5 specifies that the Discharger is required to monitor WWTF effluent quality to ensure compliance with Title 22 standards for tertiary treatment and take corrective action as required by the Regional Water Board to bring the discharge back into compliance. This mitigation measure is not sufficient to protect

groundwater quality because Title 22 imposes standards only for turbidity and coliform organisms. Additional requirements are needed to protect against unreasonable degradation from nitrate and other salinity species, and such requirements are incorporated into this Order.

The Final EIR also identified potential surface water impacts due to erosion and sedimentation associated with construction of the golf course and associated facilities (Impact No. 4.8.6) and to surface water and/or groundwater due to polluted runoff from the golf course (Impact No. 4.8.7). Mitigation Measures 4.8.6a, 4.8.6b, 4.8.7a, and 4.8.7b provide adequate mitigation for these potential impacts, and some of these measures are incorporated in this Order.

Compliance with this Order implements certain mitigation measures designed to minimize or prevent water quality impacts. However, compliance with this Order does not necessarily mean that all applicable mitigation measures have been implemented. Yolo County, as the lead agency, is responsible for ensuring compliance with all mitigation measures.

82. Section 13267(b) of the California Water Code provides that: "In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of discharging, or who proposes to discharge within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of discharging, or who proposes to discharge waste outside of its region that could affect the quality of the waters of the state within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the board requires. The burden, including costs of these reports, shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports." The monitoring and reporting program required by this Order and the attached Monitoring and Reporting Program No. R5-2006-0121 are necessary to assure compliance with these waste discharge requirements. The Discharger operates the facility that discharges the waste subject to this Order.

83. State regulations that prescribe procedures for detecting and characterizing the impact of waste constituents from waste management units on groundwater are found in Title 27. While the WWTF is exempt from Title 27, the data analysis methods of Title 27 are appropriate for determining whether the golf course discharge complies with the terms for protection of groundwater specified in this Order.

84. The discharge to fee land authorized herein is exempt from the requirements of Title 27, California Code of Regulations (CCR), Section 20380 et seq. (hereafter Title 27). The exemption, pursuant to Title 27 CCR Section 20090(a), is based on the following:

    a. The waste consists primarily of domestic sewage and treated effluent; and

    b. The waste discharge requirements are consistent with water quality objectives.

85. Pursuant to California Water Code Section 13263(g), discharge is a privilege, not a right, and adoption of this Order does not create a vested right to continue the discharge.

Public Notice

86. The Regional Water Board considered all the above and the supplemental information and details in the attached Information Sheet, which is incorporated by reference herein, in establishing the following conditions of discharge.

87. The Regional Water Board consulted with the State Department of Health Services and has considered their recommendations regarding the public health aspects of water recycling.

88. The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge, and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

89. The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that the Rumsey Band of Wintun Indians, and its agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted hereunder, shall comply with the following with respect to discharges of waste to land held in fee simple by the Discharger and degradation of water quality outside of trust land associated with any discharge of waste:

[Note: Other prohibitions, conditions, definitions, and some methods of determining compliance are contained in the attached "Standard Provisions and Reporting Requirements for Waste Discharge Requirements" dated 1 March 1991.]

A. Discharge Prohibitions

1. The use of reclaimed water for irrigation is prohibited unless and until all disinfection system improvements described in Finding Nos. 21 though 26, inclusive, are completed and DHS approves the required tracer study report.

2. Discharge of wastes to surface waters or surface water drainage courses is prohibited.

3. Bypass or overflow of untreated or partially treated waste is prohibited.

4. Discharge of treated wastewater other than at the designated golf course irrigation areas is prohibited.

5. Discharge of waste classified as 'hazardous' under Section 2521, Chapter 15 of Title 23 or 'designated', as defined in Section 13173 of California Water Code is prohibited.

6. Application of recycled water in a manner other than that described in Finding Nos. 27 through 43, inclusive, is prohibited.

7. The use of reclaimed wastewater for purposes other than irrigation and filling of decorative water features is prohibited.

B. Discharge Specifications

1. The use of recycled water shall not cause pollution or a nuisance as defined by Section 13050 of the California Water Code (CWC).

2. No waste constituent shall be released or discharged, or placed where it will be released or discharged, in a concentration or in a mass that causes violation of the Groundwater Limitations.

3. Objectionable odors originating at the facility shall not be perceivable beyond the limits of the property owned by the Discharger.

4. As a means of discerning compliance with Discharge Specification B.3, the dissolved oxygen content in the upper one foot of any pond containing reclaimed water shall not be less than 1.0 mg/l.

5. The Discharger shall operate all systems and equipment to maximize treatment of wastewater and optimize the quality of the discharge.

6. The Discharger shall treat the wastewater such that it complies with Title 22 CCR, Section 60301.230 ("Disinfected Tertiary Recycled Water").

7. All reclaimed water storage structures/facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency. Portions of the golf course that are within the 100-year flood plain shall not be irrigated with recycled effluent during periods of flooding or imminent flooding.

8. All ponds and water features that contain reclaimed water shall be managed to prevent breeding of mosquitoes. In particular,

   a. An erosion control program shall be implemented to ensure that small coves and irregularities are not created around the perimeter of the water surface.

   b. Weeds shall be minimized through control of water depth, harvesting, or herbicides.

   c. Dead algae, vegetation, and debris shall not accumulate on the water surface.

9. Freeboard in any pond containing reclaimed wastewater shall never be less than two feet as measured from the water surface to the lowest point of overflow.

10. The Discharger shall provide sufficient effluent storage capacity to accommodate actual wastewater flow, all infiltration and inflow, agronomic use of reclaimed water, and design seasonal precipitation to ensure complete containment of the waste at all times. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.

11. On or about **15 October** of each year, available effluent storage capacity shall at least equal to the volume necessary to comply with Discharge Specification B.10.

C. Effluent Limitations

1. Reclaimed water discharged to the golf course irrigation system shall not exceed the following effluent limits:

Constituent	Effluent Concentration Limit 30-Day Average	Daily Average
BOD_5 (mg/L) [1]	10	20
Settleable Solids (ml/L)	0.1	0.2
Total Nitrogen (mg/L) [2]	10	20

[1] 5-day biochemical oxygen demand.
[2] Sum of Total Kjeldahl Nitrogen and nitrate nitrogen

2. **Effective immediately**, reclaimed water discharged to the golf course irrigation system shall not exceed the following interim effluent limits for salinity:

Constituent	Effluent Concentration Limit (30-Day Flow-weighted Average)
Total dissolved solids (mg/L)	1,300
Chloride (mg/L)	450
Sodium (mg/L)	350

3. **Effective 30 June 2008**, the combination of fresh water and reclaimed water discharged to the golf course irrigation system shall not exceed the following effluent limits for salinity or the background groundwater concentration (whichever is higher) unless the Discharge demonstrates that higher limits will ensure compliance with Resolution No. 68-16:

Constituent	Effluent Concentration Limit (30-Day Flow-weighted Average)
Total dissolved solids (mg/L)	650
Chloride (mg/L)	106
Sodium (mg/L)	69

4. Reclaimed water discharged to the golf course irrigation system shall comply with the following limits for total coliform organisms:

a. The median concentration of total coliform bacteria shall not exceed an MPN of 2.2 per 100 milliliters utilizing the bacteriological results of the last seven days for which analyses have been completed.

b. The number of total coliform bacteria shall not exceed an MPN of 23 per 100 milliliters in more than one sample in any 30-day period.

c. The number of total coliform bacteria shall never exceed an MPN of 240 total coliform bacteria per 100 milliliters.

5. The turbidity of the WWTF filter effluent shall not exceed 2.0 NTU as a daily average; shall not exceed 5 NTU more than 5 percent of the time during a 24 hour period; and shall never exceed 10 NTU.

6. No reclaimed water discharged to the golf course irrigation system shall have a pH less than 6.5 or greater than 8.5.

E. Water Recycling Specifications

1. Recycled wastewater used for irrigation shall meet the criteria contained in Title 22, CCR.

2. Public contact with recycled wastewater at the golf course shall be controlled through use of fences and cautionary signs, and/or other appropriate means. Perimeter warning signs indicating that recycled water is in use shall be posted at adequate intervals along the property boundary and at each access road entrance to the irrigation area, including golf cart paths. The size and contents of these signs shall be as described in Section 60310 of Title 22.

3. There shall be a minimum setback distance of 50 feet between the edge of the irrigated area to any domestic well.

4. Recycled water controllers, valves, and similar appurtenances shall be affixed with recycled water warning signs, and shall be equipped with removable handles or locking mechanisms to prevent public access or tampering. The contents of the signs shall conform to Section 60310 of Title 22, and the DHS District Engineer's requirements. Each sign shall be in English and Spanish languages.

5. Quick couplers and sprinkler heads, if used, shall be of a type, or secured in a manner, that permits operation only by authorized personnel. Hose bibs and other unlocked valves shall not be accessible to the public.

6. Any connection between the recycled water conveyance system and any potable water conveyance system, groundwater supply well, or surface water supply source for the purpose of supplementing recycled water shall be equipped with a DHS-approved backflow prevention device.

7. Direct or windblown spray of recycled water shall be confined to the designated land application area and shall be prevented from entering outdoor eating areas, dwellings, drinking water facilities, food handling facilities, and other locations where the public may be present. In addition, direct or windblown spray of recycled water shall not enter surface watercourses.

8. Spray irrigation with recycled water is prohibited when wind velocities exceed 30 mph.

9. Recycled water shall be used in compliance with Title 22, Article 3 ("Uses of Recycled Water").

10. The Discharger shall fully implement the Golf Course Irrigation and Runoff Management Plan submitted with the RWD and any approved revisions thereto.

11. Irrigation runoff from the golf course shall be completely contained within the designated golf course irrigation area, and shall not be discharged to any surface water.

12. Irrigation with recycled water shall not be performed within 24 hours of a forecasted storm, during or within 24 hours after any precipitation event, nor when the ground is saturated.

13. Application rates for recycled water shall not exceed agronomic rates considering the turf type, soil, climate, and irrigation management system in accordance with the Golf Course Irrigation and Runoff Management Plan.

14. The golf course recycling area shall be managed to prevent breeding of mosquitoes. In particular:

    a. There shall be no standing water 12 hours after irrigation;

    b. Tailwater ditches must be maintained essentially free of emergent, marginal, and floating vegetation, and;

    c. Low-pressure and unpressurized pipelines and ditches accessible to mosquitoes shall not be used to store effluent.

F. Groundwater Limitations

1. Release of waste constituents from the golf course shall not cause groundwater under and beyond that area, as determined by an approved well monitoring network, to:

    a. Contain any of the following constituents in concentrations greater than those listed below or greater than ambient background groundwater quality, whichever is greater:

Constituent	Units	Limitation
Arsenic	ug/L	0.004
Cadmium	ug/L	0.07
Chloride	mg/L	106
Chromium	ug/L	50
Copper	ug/L	170
Iron	ug/L	300
Lead	ug/L	2

Constituent	Units	Limitation
Manganese	ug/L	0.5
Mercury	ug/L	1.2
Nickel	ug/L	12
Silver	ug/L	85
Sodium	mg/L	69
Zinc	mg/L	2
Total trihalomethanes	ug/L	80
Bromoform	ug/L	4
Bromodichloromethane	ug/L	0.27
Chloroform	ug/L	1.1
Dibromochloromethane	ug/L	0.37
Total Coliform Organisms	MPN/100 mL	<2.2 over any 7-day period
Total Dissolved Solids [1]	mg/L	450

[1] A cumulative impact limit that accounts for several dissolved constituents in addition to those listed here separately [e.g., alkalinity (carbonate and bicarbonate), calcium, hardness, phosphate, and potassium].

b. Exhibit a pH of less than 6.5 or greater than 8.4 pH units.

c. Impart taste, odor, toxicity, or color that creates nuisance or impairs any beneficial use.

G. Provisions

1. All of the following reports shall be submitted pursuant to Section 13267 of the California Water Code and shall be prepared as described in Provision G.3.

   a. At least **60 days prior** to any planned use of reclaimed water for golf course irrigation, the Discharger shall submit a *Tracer Study Report* documenting complete compliance with any and all DHS requirements for disinfection system performance verification to both DHS and the Regional Water Board.

   b. By **28 February 2007**, the Discharger shall submit a *Monitoring Well Installation Workplan.* The workplan shall describe the proposed installation of groundwater monitoring wells sufficient to characterize groundwater gradient and groundwater quality upgradient and down gradient of the golf course. Monitoring wells shall be constructed to yield representative samples from the uppermost layer of the uppermost aquifer and to comply with applicable well standards. The workplan shall be consistent with, and include the items listed in, the first section of Attachment E, which is attached hereto and made part of this Order by reference.

c. By **30 March 2007**, the Discharger shall submit an Irrigation System Inspection Plan detailing the procedures and schedule for regular inspections designed to ensure that sprinkler heads and other system elements are functioning properly to minimize incidental runoff during irrigation, prevent direct spray into water features containing fresh water, and prevent potential surface water discharges of treated effluent via the irrigation system. The plan shall include as-built irrigation system plans that highlight sprinkler heads located along property boundaries, areas adjacent to surface watercourses, and areas adjacent to features containing fresh water. It shall include specific procedures for inspections and system adjustments or modifications to be made immediately upon discovery of any malfunction that threatens to cause a violation of this Order.

d. By **30 June 2007**, the Discharger shall submit a *Monitoring Well Installation Report* that describes the installation of groundwater monitoring wells and contains the items found in the second and third sections of Attachment E.

e. By **30 June 2009**, the Discharger shall submit a *Background Groundwater Quality Repor*t. For each groundwater monitoring parameter/constituent identified in the MRP, the report shall present a summary of all monitoring data (including data obtained prior to adoption of this Order) and calculation of the concentration in background monitoring well(s). This determination of background groundwater quality shall be made using the methods described in Title 27, Section 20415(e)(10), and shall be based on data from at least 8 consecutive groundwater monitoring events. For each monitoring parameter/constituent, the report shall compare the measured concentration in each compliance monitoring well with the proposed background concentration.

2. If the results of the *Background Groundwater Quality Repor*t, or any subsequent technical or monitoring report, shows that the discharge of reclaimed water has caused, or is likely to cause, exceedance of any applicable water quality limit outside the boundary of trust land, the Discharger shall submit an *Antidegradation Policy Compliance Report* within **120 days** of the Executive Officer's request. The report shall propose a detailed plan and schedule for achieving full compliance with the Antidegradation Policy.

3. In accordance with California Business and Professions Code Sections 6735, 7835, and 7835.1, engineering and geologic evaluations and judgments shall be performed by or under the direction of registered professionals competent and proficient in the fields pertinent to the required activities. All technical reports specified herein that contain workplans for investigations and studies, that describe the conduct of investigations and studies, or that contain technical conclusions and recommendations concerning engineering and geology shall be prepared by or under the direction of appropriately qualified professional(s), even if not explicitly stated. Each technical report submitted by the Discharger shall contain a statement of qualifications of the responsible licensed professional(s) as well as the professional's signature and/or stamp of the seal.

4. The Discharger shall comply with the Monitoring and Reporting Program No. R5-2006-0121, which is part of this Order, and any revisions thereto as ordered by the Executive Officer.

5. The Discharger shall comply with the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements", dated 1 March 1991, which are attached hereto and made part of this Order by reference. This attachment and its individual paragraphs are commonly referenced as "Standard Provision(s)."

6. The Discharger shall use the best practicable cost-effective control technique(s) including proper operation and maintenance, to comply with discharge limits specified in this order.

7. As described in the Standard Provisions, the Discharger shall report promptly to the Regional Water Board any material change or proposed change in the character, location, or volume of the discharge.

8. The Discharger shall submit to the Regional Water Board on or before each compliance report due date, the specified document or, if appropriate, a written report detailing compliance or noncompliance with the specific schedule date and task. If noncompliance is being reported, then the Discharge shall state the reasons for such noncompliance and provide an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Water Board in writing when it returns to compliance with the time schedule.

9. In the event of any change in control or ownership of the facility or land application areas, the Discharger must notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to this office. To assume operation as Discharger under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Regional Water Board, and a statement. The statement shall comply with the signatory paragraph of Standard Provision B.3 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer shall be approved or disapproved by the Executive Officer.

10. At least **90 days** prior to termination or expiration of any lease, contract, or agreement involving disposal or recycling areas or off-site reuse of effluent, used to justify the capacity authorized herein and assure compliance with this Order, the Discharger shall notify the Regional Water Board in writing of the situation and of what measures have been taken or are being taken to assure full compliance with this Order.

11. The Discharger must comply with all conditions of this Order, including timely submittal of technical and monitoring reports as directed by the Executive Officer. Violations may result in enforcement action, including Regional Water Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or recession of this Order.

12. A copy of this Order shall be kept at the discharge facility for reference by operating personnel. Key operating personnel shall be familiar with its contents.

13. The Regional Water Board will review this Order periodically and will revise requirements when necessary.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 26 October 2006.

_____
PAMELA C. CREEDON, Executive Officer

ALO:10/27/06

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2006-0121
FOR
THE RUMSEY BAND OF WINTUN INDIANS
CACHE CREEK GOLF CLUB WATER RECLAMATION PROJECT
YOLO COUNTY

This Monitoring and Reporting Program (MRP) describes requirements for monitoring domestic wastewater treatment, reclaimed water, supplemental irrigation supply water, and groundwater. This MRP is issued pursuant to Water Code Section 13267. The Discharger shall not implement any changes to this MRP unless and until a revised MRP is issued by the Executive Officer.

Specific sample station locations shall be approved by Regional Water Board staff prior to implementation of sampling activities. All samples shall be representative of the volume and nature of the discharge or matrix of material sampled. The time, date, and location of each sample shall be recorded on the sample chain of custody form.

Field test instruments (such as those used to test pH and electrical conductivity) may be used provided that:

1. The user is trained in proper use and maintenance of the instruments;
2. The instruments are field calibrated prior to monitoring events at the frequency recommended by the manufacturer;
3. Instruments are serviced and/or calibrated by the manufacturer at the recommended frequency; and
4. Field calibration reports are submitted as described in the "Reporting" section of this MRP.

TERTIARY EFFLUENT MONITORING

The Discharger shall monitor tertiary effluent in accordance with the following. Tertiary effluent samples shall be taken downstream of the chlorine contact basin at the chlorine residual analyzer (except for the purpose of turbidity monitoring). Except as specifically noted below, grab samples will be considered representative of tertiary effluent. Tertiary effluent monitoring shall include, at a minimum, the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Flow	gpd	Continuous	Daily	Monthly
Turbidity [1]	NTU	Continuous	Daily	Monthly [1]
Total Chlorine Residual	mg/L	Continuous	Daily	Monthly
Total Coliform Organisms [2]	MPN/100 ml	Grab	Daily	Monthly
PH	pH units	Grab	Weekly	Monthly
Total Dissolved Solids	mg/L	Grab	Weekly	Monthly

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Sodium	mg/L	Grab	Weekly	Monthly
Chloride	mg/L	Grab	Weekly	Monthly
Nitrate nitrogen	mg/L	Grab	Monthly	Monthly
Total Kjeldahl nitrogen	mg/L	Grab	Monthly	Monthly

[1] For each day, report the minimum and maximum recorded turbidity, the total amount of time that turbidity exceeded 5 NTU, and the total amount of time that turbidity exceeded 10 NTU.

[2] Using a minimum of 15 tubes or three dilutions.

SUPPLEMENTAL WATER SUPPLY MONITORING

The Discharger shall monitor supplementary irrigation water used at the golf course in accordance with the following. Samples shall be taken from the fresh water supply pipeline that was in use at, or just prior to, the sampling date. Grab samples will be considered representative. Supplemental water supply monitoring shall include, at a minimum, the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
pH	pH units	Grab	Weekly	Monthly
Total Dissolved Solids	mg/L	Grab	Weekly	Monthly
Sodium	mg/L	Grab	Weekly	Monthly
Chloride	mg/L	Grab	Weekly	Monthly

RECLAIMED WATER STORAGE LAKE MONITORING

The Discharger shall monitor South Lake in accordance with the following. Samples shall be collected from one or more permanent monitoring locations that will provide representative samples. Freeboard shall be measured vertically from the water surface to the lowest possible point of overflow (or spillway/overflow pipe invert), and shall be measured to the nearest 0.10 feet. Pond monitoring shall include, at a minimum, the following:

Constituent/Parameter	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Freeboard [1]	0.1 feet	Measurement	Weekly	Monthly
Dissolved Oxygen [2]	mg/L	Grab	Weekly	Monthly
Odors	---	observation	Daily	Monthly

[1] Report date(s) and estimated volume of overflows to fee land and/or surface water, if any.
[2] Samples shall be collected opposite the pond inlet at a depth of one foot between 0700 and 0900 hours.

GOLF COURSE RECLAMATION MONITORING

The Discharger shall monitor reclamation activities at the golf course in accordance with the following. Reclamation monitoring shall be performed daily and the results shall be included in the monthly monitoring report. Erosion, ground saturation, tailwater runoff, reclaimed water storage lake overflows, and nuisance conditions shall be noted in the report. Reclaimed water shall also be monitored to determine loading rates at the golf courses. Reclamation monitoring shall include the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Flow from Cache Creek to Five Pond	gpd	Continuous	Daily	Monthly
Flow from South Lake to irrigation areas	gpd	Continuous	Daily	Monthly
Rainfall	inches	Measurement	Daily	Monthly
Acreage Applied [1]	acres	Calculated	Daily	Monthly
Water Application Rate:				
Reclaimed water	gal/acre/day	Calculated	Daily	Monthly
Fresh water	gal/acre/day	Calculated	Daily	Monthly
Nitrogen Loading Rate [2]	lbs/ac/month	Calculated	Monthly	Monthly
Dissolved Solids Loading Rate	lbs/ac/month	Calculated	Monthly	Monthly

[1] Specific irrigation areas shall be identified.
[2] Including chemical fertilizers.

GROUNDWATER MONITORING

Upon completion of monitoring well installation, and **no later than the second quarter of 2007**, the Discharger shall establish a quarterly sampling schedule for groundwater monitoring, with samples obtained approximately every three months.

This monitoring program applies to all monitoring wells designated to monitor groundwater up gradient and downgradient of the golf course. Prior to construction of any groundwater monitoring wells, the Discharger shall submit plans and specifications to the Regional Water Board for review and approval. Once installed, all new monitoring wells shall be added to the MRP, and shall be sampled and analyzed according to the schedule below. Monitoring wells used to monitor the golf course shall

not be disinfected except as expressly approved pursuant to submittal of an appropriate disinfection protocol.

Prior to well purging, groundwater elevations shall be measured. Depth to groundwater shall be measured to the nearest 0.01 feet. Water table elevations shall be calculated and used to determine groundwater gradient and direction of flow. The monitoring wells shall be purged of at least three well volumes or until temperature, pH, and electrical conductivity have stabilized. Samples shall be collected and analyzed using approved EPA methods. Groundwater monitoring shall include, at a minimum, the following:

Constituent	Units	Type of Sample	Sampling and Reporting Frequency
Depth to groundwater	0.01 feet	Measurement	Quarterly
Groundwater elevation [1]	0.01 feet	Calculated	Quarterly
Gradient	feet/feet	Calculated	Quarterly
Gradient direction	degrees	Calculated	Quarterly
pH	pH units	Grab	Quarterly
Total Dissolved Solids	mg/L	Grab	Quarterly
Nitrate nitrogen	mg/L	Grab	Quarterly
Ammonia nitrogen	mg/L	Grab	Quarterly
Total Coliform Organisms [2]	MPN/100 ml	Grab	Quarterly
Standard minerals [3]	mg/L	Grab	Quarterly
Metals [4]	ug/L	Grab	Quarterly
Total Trihalomethanes [5]	ug/L	Grab	Quarterly

[1] Groundwater elevations shall be determined based on depth-to-water measurements using a surveyed measuring point elevation on the well and a surveyed reference elevation.

[2] Using a minimum of 15 tubes or three dilutions

[3] Standard Minerals shall include, at a minimum, the following elements/compounds: boron, bromide, calcium, chloride, fluoride, magnesium, phosphate, potassium, sodium, sulfate, total alkalinity (including alkalinity series), and hardness as $CaCO_3$.

[4] At a minimum, the following metals shall be included: aluminum, arsenic, cadmium, copper, lead, iron, manganese, nickel, and zinc. Analytical methods shall be selected to provide reporting limits below the Water Quality Limit for each constituent.

[5] Using US EPA Method 8260B or approved equivalent. Individual trihalomethane constituent concentrations shall be reported.

REPORTING

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type (e.g., effluent, pond, etc.), and reported analytical result for each sample are readily discernible. The data shall be summarized in such a manner to clearly illustrate compliance with waste

discharge requirements and spatial or temporal trends, as applicable. The results of any monitoring done more frequently than required at the locations specified in the Monitoring and Reporting Program shall be reported to the Regional Water Board.

As required by the California Business and Professions Code Sections 6735, 7835, and 7835.1, all Groundwater Monitoring Reports shall be prepared under the direct supervision of a registered Professional Engineer or Geologist and signed by the registered professional.

A. Monthly Monitoring Reports

Monthly reports shall be submitted to the Regional Water Board on the **1st day of the second month following sampling** (i.e. the January Report is due by 1 March). At a minimum, the monthly monitoring reports shall include:

1. Results of the following monitoring:
    a. Tertiary effluent monitoring;
    b. Supplemental water supply monitoring;
    c. Reclaimed water storage lake monitoring; and
    d. Golf course reclamation monitoring.

2. Calculation of the 30-day flow-weighted average concentrations of total dissolved solids, sodium, and chloride for the reclaimed water and the combination of reclaimed and fresh water.

3. A comparison of monitoring data to the discharge specifications and an explanation of any violation of those requirements. Data shall be presented in tabular format.

4. If requested by staff, copies of laboratory analytical report(s).

B. Quarterly Monitoring Reports

Beginning with the second quarter of 2007, the Discharger shall submit quarterly monitoring reports to the Regional Water Board by the **1st day of the second month after the quarter** (i.e. the January-March quarter is due by May 1st) each year. The Quarterly Monitoring Report shall include the following:

1. Results of groundwater monitoring;

2. A narrative description of all preparatory, monitoring, sampling, and analytical testing activities for the groundwater monitoring. The narrative shall be sufficiently detailed to verify compliance with the WDRs, this MRP, and the Standard Provisions and Reporting Requirements. The narrative shall be supported by field logs for each well documenting depth to groundwater; parameters measured before, during, and after purging; method of purging; calculation of casing volume; and total volume of water purged;

3. Calculation of groundwater elevations, an assessment of groundwater flow direction and gradient on the date of measurement, comparison of previous flow direction and gradient data, and discussion of seasonal trends, if any;

4. A narrative discussion of the analytical results for all groundwater locations monitored including spatial and temporal tends, with reference to summary data tables, graphs, and appended analytical reports (as applicable);

5. A comparison of monitoring data to the groundwater limitations and an explanation of any violation of those requirements;

6. Summary data tables of historical and current water table elevations and analytical results;

7. A scaled map showing relevant structures and features of the facility, the locations of monitoring wells and any other sampling stations, and groundwater elevation contours referenced to mean sea level datum;

8. Copies of laboratory analytical report(s) for groundwater monitoring.

C. Annual Report

An Annual Report shall be prepared as the fourth quarter monitoring report. The Annual Report shall include all monitoring data required in the monthly/quarterly schedule. The Annual Report shall be submitted to the Regional Water Board by **1 February** each year. In addition to the data normally presented, the Annual Report shall include the following:

1. The contents of the regular quarterly monitoring report for the last quarter of the year.

2. Analytical results for all annual monitoring.

3. If requested by staff, tabular and graphical summaries of all data collected during the year;

4. An evaluation of the performance of the WWTF which demonstrates the facility's ability to consistently meet treatment standards for recycled water use on a public golf course specified in Title 22, Division 4, CCR (Section 60301, et seq.), as well as a forecast of the flows anticipated in the next year;

5. An evaluation of the groundwater quality beneath the golf course;

6. A discussion of compliance and the corrective action taken, as well as any planned or proposed actions needed to bring the discharge into full compliance with the waste discharge requirements;

7. A discussion of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program;

A letter transmitting the self-monitoring reports shall accompany each report. The letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. The transmittal letter shall contain the penalty of perjury statement by the Discharger, or the Discharger's authorized agents, as described in the Standard Provisions General Reporting Requirements Section B.3.

The Discharger shall implement the above monitoring program as of the date of this Order.

Ordered by: _____
PAMELA C. CREEDON, Executive Officer

26 October 2006
(Date)

ALO:10/27/06

INFORMATION SHEET

ORDER NO. R5-2006-0121
THE RUMSEY BAND OF WINTUN INDIANS
CACHE CREEK GOLF CLUB WATER RECLAMATION PROJECT
YOLO COUNTY

Background

The Rumsey Band of Wintun Indians owns and operates a wastewater treatment facility (WWTF) that serves the Cache Creek Casino Resort and Hotel near the town of Brooks in western Yolo County. The Discharger is constructing a golf course, clubhouse, and ancillary facilities known as the Cache Creek Golf Club, and plans to use reclaimed tertiary disinfected wastewater to irrigate the golf course.

The WWTF and part of the golf course are on land held in trust for the Discharger by the United States Bureau of Indian Affairs ("trust land"), but the clubhouse, ancillary facilities, and portions of the golf course are on land owned in fee simple by the Discharger ("fee land"). The WWTF and discharges of waste to trust land are regulated by the United States Environmental Protection Agency (USEPA) and are not subject to regulation by the Regional Water Board. However, the Regional Water Board has the authority to enforce applicable laws, regulations, and policies with respect to discharges that occur outside of trust land, and with respect to water quality degradation or pollution that may originate on trust land, but is detectable outside the confines of trust land. Therefore, this Order regulates discharges of waste to the fee land portion of the golf club facility and potential degradation or pollution of surface water or groundwater that may occur outside of trust land as a result of the discharge.

The WWTF design flow is 225,000 gallons per day (gpd) as an average daily flow; 350,000 gpd as a peak weekend daily flow; and 475,000 gpd as a peak holiday daily flow. A microfiltration membrane bioreactor (MBR) system provides tertiary treatment. Tertiary treated wastewater from the MBR system is currently disinfected by ultraviolet light and is then stored or transferred for recycling or land disposal on trust land. The Discharger proposes to modify the disinfection system so that disinfection will be achieved solely by the use of sodium hypochlorite.

Tertiary disinfected effluent will be reclaimed to irrigate the golf course, which is approximately 3,000 feet east of the casino complex along the western bank of Cache Creek. The southern portion of the golf course and the irrigation storage pond (South Lake) are on trust land. The northern portion of the golf course, the driving range, and a large decorative pond (North Lake) are on fee land. A clubhouse and a golf cart barn will also be on fee land.

Reclaimed water will supply approximately 44 percent of the total golf course irrigation demand. During the rainy season, treated effluent will be stored at the WWTF or discharged to a leachfield system on trust land. Additionally, some of the disinfected effluent is used for toilet flushing at the casino.

The treated effluent greatly exceeds applicable water quality limits for electrical conductivity, total dissolved solids, sodium, and chloride due to use of an ion exchange water softening system for the casino complex water supply. Despite the dilution with fresh water for irrigation, based on the high salinity of the treated effluent relative to underlying groundwater, the proposed discharge poses a threat to groundwater quality.

The derivation of selected terms and conditions of the proposed Order is discussed below.

Proposed Order Terms and Conditions

The antidegradation directives of Section 13000 of the California Water Code require that waters of the State that are better in quality than established water quality objectives be maintained "consistent with the maximum benefit to the people of the State." Waters can be of high quality for some constituents or beneficial uses and not others. Policies and procedures for complying with this directive are set forth in the Basin Plan (including by reference State Water Board Resolution No. 68-16, "Statement of Policy With Respect to Maintaining High Quality Waters in California," or "Antidegradation" Policy).

Resolution 68-16 is applied on a case-by-case, constituent-by-constituent basis in determining whether a certain degree of degradation can be justified. It is incumbent upon the Discharger to provide technical information for the Regional Water Board to evaluate that fully characterizes:

- All waste constituents to be discharged;
- The background quality of the uppermost layer of the uppermost aquifer;
- The background quality of other waters that may be affected;
- The underlying hydrogeologic conditions;
- Waste treatment and control measures;
- How treatment and control measures are justified as best practicable treatment and control;
- The extent the discharge will impact the quality of each aquifer; and
- The expected degree of degradation.

In allowing a discharge, the Regional Water Board must comply with CWC section 13263 in setting appropriate conditions. The Regional Water Board is required to implement the Basin Plan and consider the beneficial uses to be protected along with the water quality objectives essential for that purpose. The Regional Water Board need not authorize the full utilization of the waste assimilation capacity of the groundwater (CWC 13263(b)) and must consider other waste discharges and factors that affect that capacity.

Some degradation of the groundwater for certain constituents is consistent with maximum benefit to the people of California because the technology, energy, and waste management advantages of advanced treatment and water recycling outweigh the environmental impact of a facility that would otherwise rely on percolation for effluent disposal. Economic prosperity of local communities is of maximum benefit to the people of California, and there is therefore sufficient reason to accommodate this wastewater discharge, provided terms of reasonable degradation are defined and met. The proposed Order authorizes some degradation consistent with the maximum benefit to the people of the State.

Groundwater Limitations

The limited groundwater quality information provided in the RWD is not sufficient to determine final groundwater limitations. The interim groundwater limitations of the proposed Order are limited to those constituents known to be present in the waste, except for trihalomethanes, which are expected to be present in the waste because of chlorine disinfection. An interim groundwater limitation for each constituent was selected in accordance with the most stringent limits set forth in the Basin Plan. The values tabulated below reflect water quality objectives that must be met to maintain specific beneficial uses of groundwater. The most stringent value applies unless it has been demonstrated that background groundwater quality exceeds that value or the beneficial use that is it designed to protect could not exist. For instance, the most stringent limit for TDS (450 mg/L) is based on protection of irrigation supply for the most salt-sensitive crops. If it can be shown that salt-sensitive crops will not be grown due to local climate and/or soil conditions, then the next highest limit applies. In general, the burden of making such a demonstration falls on the discharger.

Constituent	Units	Value	Beneficial Use	Criteria or Justification
Arsenic	ug/L	0.004	MUN [1]	California Public Health Goal [10]
Cadmium	ug/L	0.07	MUN [1]	California Public Health Goal [10]
Chloride	mg/L	106	AGR [2]	Chloride sensitivity on certain crops irrigated via sprinklers [3]
		142	AGR [2]	Chloride sensitivity on certain crops [3]
		250	MUN [1]	Recommended Secondary MCL [4]
		500	MUN [1]	Upper Secondary MCL [4]
Chromium, total	ug/L	50	MUN [1]	Primary MCL [5]
Copper	ug/L	170	MUN [1]	California Public Health Goal [10]
Iron	ug/L	0.3	MUN [1]	Secondary MCL [5]
Lead	ug/L	2	MUN [1]	California Public Health Goal [10]
Manganese	ug/L	0.05	MUN [1]	Secondary MCL [5]
Mercury	ug/L	1.2	MUN [1]	California Public Health Goal [10]
Nickel	ug/L	12	MUN [1]	California Public Health Goal [10]
Sodium	mg/L	69	AGR [2]	Sodium sensitivity on certain crops [3]
Zinc	ug/L	2,000	AGR [2]	Irrigation of crops [3]
		2,100	MUN [1]	USEPA Cancer Risk Estimate [6]
Total Dissolved Solids	mg/L	450[8]	AGR [2]	Salt sensitivity for certain crops [3]
		500	MUN [1]	Recommended Secondary MCL [4]
		1,000	MUN [1]	Upper Secondary MCL [4]
Total Coliform Organisms	MPN/100 ml	Less than 2.2	MUN [1]	Basin Plan

Constituent	Units	Value	Beneficial Use	Criteria or Justification
Trihalomethanes	ug/L	80	MUN [1]	Federal MCL [9]
Bromoform	ug/L	4	MUN [1]	USEPA Cancer Risk Estimate [6]
Bromodichloromethane	ug/L	0.27	MUN [1]	Cal/EPA Cancer Potency Factor [7]
Chloroform	ug/L	1.1	MUN [1]	Cal/EPA Cancer Potency Factor [7]
Dibromochloromethane	ug/L	0.37	MUN [1]	Cal/EPA Cancer Potency Factor [7]
pH	pH Units	6.5 to 8.5	MUN [1]	USEPA Secondary MCL [8]
		6.5 to 8.4	AGR [2]	Irrigation of crops [3]

1 Municipal and domestic supply.

2 Agricultural supply.

3 Ayers, R. S. and D. W. Westcot, Water Quality for Agriculture, Food and Agriculture Organization of the United Nations – Irrigation and Drainage Paper No. 29, Rev. 1, Rome (1985).

4 Title 22, California Code of Regulations (CCR), Section 64449, Table 64449-B.

5 Title 22, CCR, Section 64449, Table 64449-A.

6 USEPA Integrated Risk Information System.

7 Cal/EPA Toxicity Criteria Database (OEHHA).

8 40 Code of Federal Regulations, 143.3.

9 40 Code of Federal Regulations, 141.64.

10 Negligible cancer risk level for drinking water (OEHHA).

Groundwater upgradient of the golf course may be of high quality relative to the mixture of fresh water and treated effluent to be used for golf course irrigation. Therefore, groundwater monitoring is required. If determination of background concentrations supports this empirical observation, then the most stringent limits cited in the table above will be the final groundwater limitation for those constituents. Otherwise, the statistically determined background groundwater concentration will be the final groundwater limitation for those constituents (and any others whose background groundwater concentrations exceed applicable water quality limits).

Discharge Prohibition A.1 and Provision G.1.a

Although the California Department of Health Services (DHS) has approved the Discharger's Title 22 Engineering Report and related design submittals, the Discharger has not yet completed a tracer study to demonstrate that the new effluent disinfection systems meets DHS' reliability requirements. Therefore, Discharge Prohibition A.1 prohibits irrigation with recycled water until DHS approves the tracer study report, and Provision G.1.a specifies the required contents and time schedule for submittal of the report.

Effluent Limitations

The effluent limitations for BOD, settleable solids, and total nitrogen are technology-based, and the discharger should be able to consistently comply with these limits if influent flows do not exceed the design criteria and the WWTF is well operated and maintained.

Because of the high salinity of the effluent and the potential for groundwater pollution due to salinity, it is appropriate to limit the salinity of the discharge unless it can be shown that effluent limits are not needed to ensure full compliance with the Groundwater Limitations and State Board Resolution No. 68-16. The proposed effluent limitations for salinity constituents are structured as follows:

1. The interim effluent salinity limitations, which are effective upon adoption of this Order, are intended only to ensure that the salinity of the treated effluent does not increase above current levels.

2. The final effluent salinity limitations, which become effective on 30 June 2008, require that the Discharger significantly reduce TDS, sodium, and chloride concentrations to ensure that reclamation will not cause unreasonable degradation of groundwater quality.

Interim Effluent Salinity Limitations: The interim effluent limitations for total dissolved solids and chloride were established based on analytical results for 29 effluent samples obtained between 23 January and 5 April 2006. The samples were analyzed for TDS and chloride only. Because the data exhibited significant temporal variability during that period, it is not practical to impose meaningful effluent limitations based on a 30-day average and/or a monthly maximum concentration. Therefore, interim effluent limitations were established for the flow-weighted mean concentration using the available data. A flow-weighted mean is appropriate because it allows for temporal variability (which the Discharger may not be able to readily control) while ensuring that the variability does not cause excess overall salinity loading rates to the reclamation area.

For TDS, the arithmetic mean of the 29-sample data set was rounded up to the nearest 100 mg/L to establish the limit for the 30-day flow weighted average concentration. For chloride, the arithmetic mean of the 29-sample data set was rounded up to the nearest 10 mg/L to establish the limit for the 30-day flow weighted average concentration. Because sodium was not routinely analyzed, the effluent limitation for sodium was established based on the results for a single effluent sample. However, the corresponding chloride result for that sample was similar to the average chloride concentration of the other 29 samples, so the single sodium result was assumed to be representative of the effluent. The single sodium result was also rounded up to the nearest 10 mg/L to establish the limit for the 30-day flow weighted average concentration.

Final Effluent Salinity Limitations: Reclaimed water will be approximately 44 percent of the total water supply for the golf course, and the remainder will be supplied from Cache Creek. Therefore, the salinity of the reclaimed water will be diluted, and it is reasonable for the final effluent salinity limitations to consider the effects of dilution. However, the true extent of the dilution is not known because the RWD did not provide sufficient salinity monitoring data for the Cache Creek water supply, so it is not possible to determine protective limits based on effluent quality alone. Therefore, the final salinity effluent limitations were established for the flow-weighted mean concentration of the blended irrigation water (reclaimed water plus Cache Creek water) as follows.

For TDS, a 330 mg/L domestic use allowance was added to the highest reported TDS result for the casino water supply (320 mg/L) to establish the limit for the 30-day flow weighted average

concentration of 650 mg/L. Based on the limited data available, the TDS concentration in groundwater underlying the golf course is no lower than 600 mg/L on average, so this limit should be protective. For chloride and sodium, the applicable water quality limits for protection of the beneficial uses of groundwater were assigned as limits for the 30-day flow weighted average concentration.

If the results of the *Background Groundwater Quality Repor*t, or any subsequent technical or monitoring report, show that the discharge of reclaimed water has caused, or is likely to cause, exceedance of any applicable water quality limit outside the boundary of trust land, Provision G.2 requires that Discharger submit an *Antidegradation Policy Compliance Report* at the request of the Executive Officer. The *Antidegradation Policy Compliance Report* must propose a detailed plan and schedule for achieving full compliance with the Antidegradation Policy.

The effluent limitations for turbidity and total coliform organisms are consistent with the Title 22 regulations for disinfected tertiary effluent recycled for use at golf courses.

Other Discharge Specifications

Most of the Discharge Prohibitions and Discharge Specifications are identical, or at least similar to, those prescribed for similar Publicly Owned Treatment Works (POTWs). However, because of the Discharger's special status as a Native American tribe operating a WWTF on land held in trust for the tribe, prohibitions and specifications that are typically included in WDRs to regulate the design, operation, and maintenance of the WWTF are not applicable to the Discharger. Therefore, the Prohibitions and Specifications of this Order are generally limited to performance standards that must be met outside of tribal lands (i.e., on the fee portions of the golf course and waters of the State outside of trust land).

Monitoring Requirements

Section 13267 of the CWC authorizes the Regional Water Board to require monitoring and technical reports as necessary to investigate the impact of a waste discharge on waters of the state. The proposed Order requires monitoring of tertiary effluent, the reclaimed water storage lake on the golf course, golf course reclamation areas, the golf course's fresh water supply, and groundwater. In order to adequately characterize its wastewater effluent, the Discharger is required to monitor for settleable solids, BOD, coliform, TDS, nitrogen, sodium, and chloride. Monitoring of additional minerals is required on an annual basis. To ensure that the reclaimed water storage ponds do not create nuisance conditions, the Discharger is required to monitor freeboard available and dissolved oxygen content weekly.

Title 27 regulations pertaining to groundwater monitoring and the detection and characterization of waste constituents in groundwater have been successfully implemented for several years. No regulation currently specifies similar criteria for discharges of non-designated waste to land. However, because of the character of the reclaimed water and the shallow depth to groundwater, it is appropriate that the Title 27 groundwater monitoring and evaluation procedures be applied to this discharge.

The Discharger must monitor groundwater for constituents present in the discharge and capable of reaching groundwater and violating groundwater limitations. The Discharger's existing network of

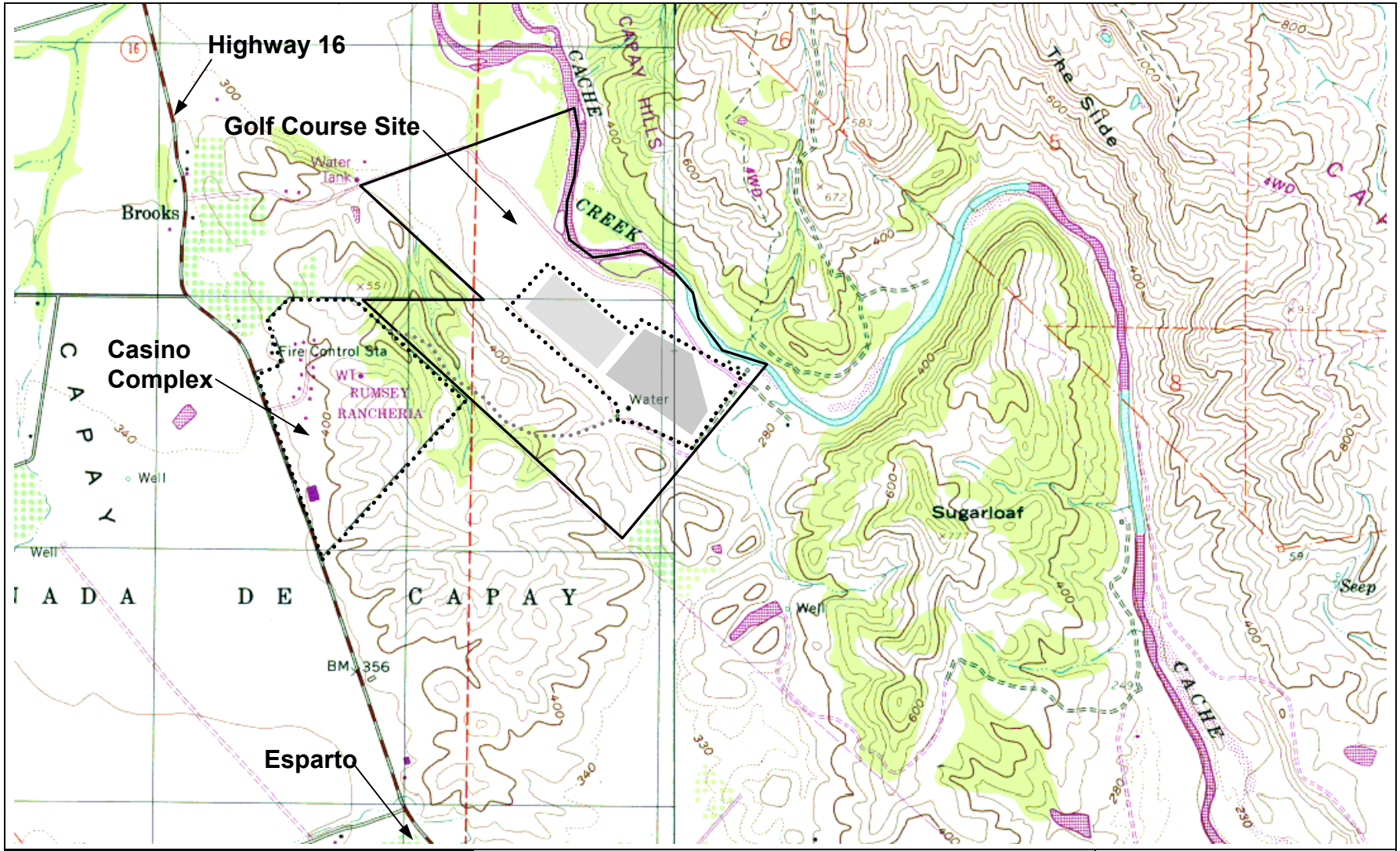
groundwater monitoring wells is not adequate to fully characterize background water quality and potential groundwater impacts beyond the boundaries of trust land for the wastewater treatment facility and reclamation areas.

Reopener

The conditions of discharge in the proposed Order were developed based on currently available technical information and applicable water quality laws, regulations, policies, and plans, and are intended to assure conformance with them. However, information is presently insufficient to develop final groundwater limitations, so the proposed Order contains interim limitations. Additional information must be developed and documented by the Discharger as required by the Monitoring and Reporting Program of the proposed Order. As this additional information is obtained, decisions will be made concerning the best means of assuring the highest water quality possible and that could involve substantial cost. It may be appropriate to reopen the Order if applicable laws and regulations change, but the mere possibility that such laws and regulations may change is not sufficient basis for reopening the Order. The CWC requires that waste discharge requirements implement all applicable requirements.

ALO:11/06/06

ATTACHMENT A



Drawing Reference: USGS 7.5 minute quad, Brooks, CA

LEGEND

- Trust Land Boundary
- Trust Land Roadway
- Fee Land Boundary
- Former Spray Fields

All locations approximate

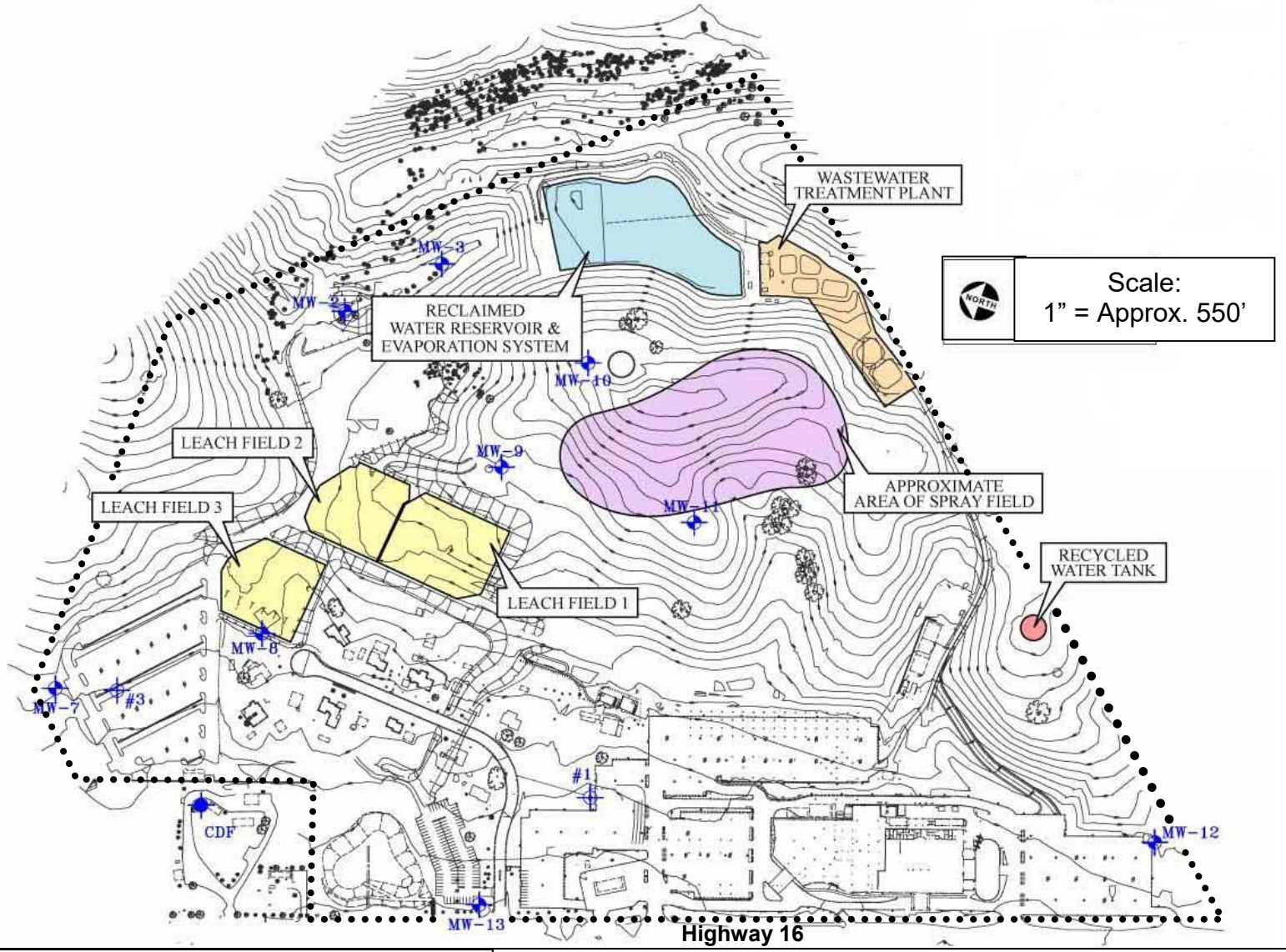
VICINITY MAP
THE RUMSEY BAND OF WINTUN INDIANS
CACHE CREEK GOLF CLUB
WATER RECLAMATION PROJECT
YOLO COUNTY

ORDER NO. R5-2006-0121

N

Scale:
1" = Approx. 2,300'

ATTACHMENT B



Drawing Reference: Cache Creek Water and Wastewater Monitoring Plan, Analytical Environmental Services, 2002

LEGEND

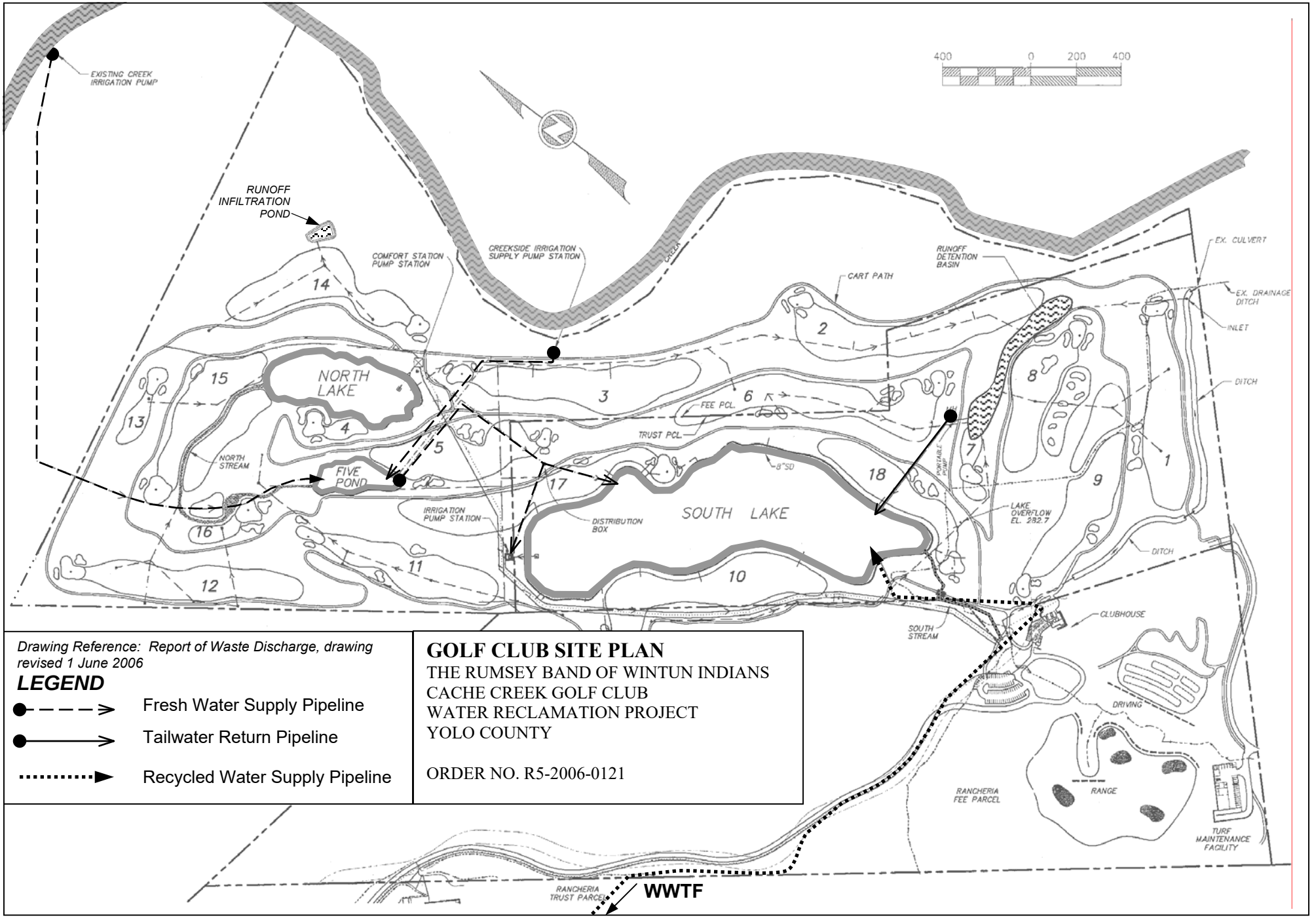
- Trust Land Boundary
- Monitoring Well
- Supply Well

All locations approximate

CACHE CREEK RESORT AND WWTF SITE PLAN
THE RUMSEY BAND OF WINTUN INDIANS
CACHE CREEK GOLF CLUB
WATER RECLAMATION PROJECT
YOLO COUNTY

ORDER NO. R5-2006-0121

ATTACHMENT C



Drawing Reference: Report of Waste Discharge, drawing revised 1 June 2006

LEGEND

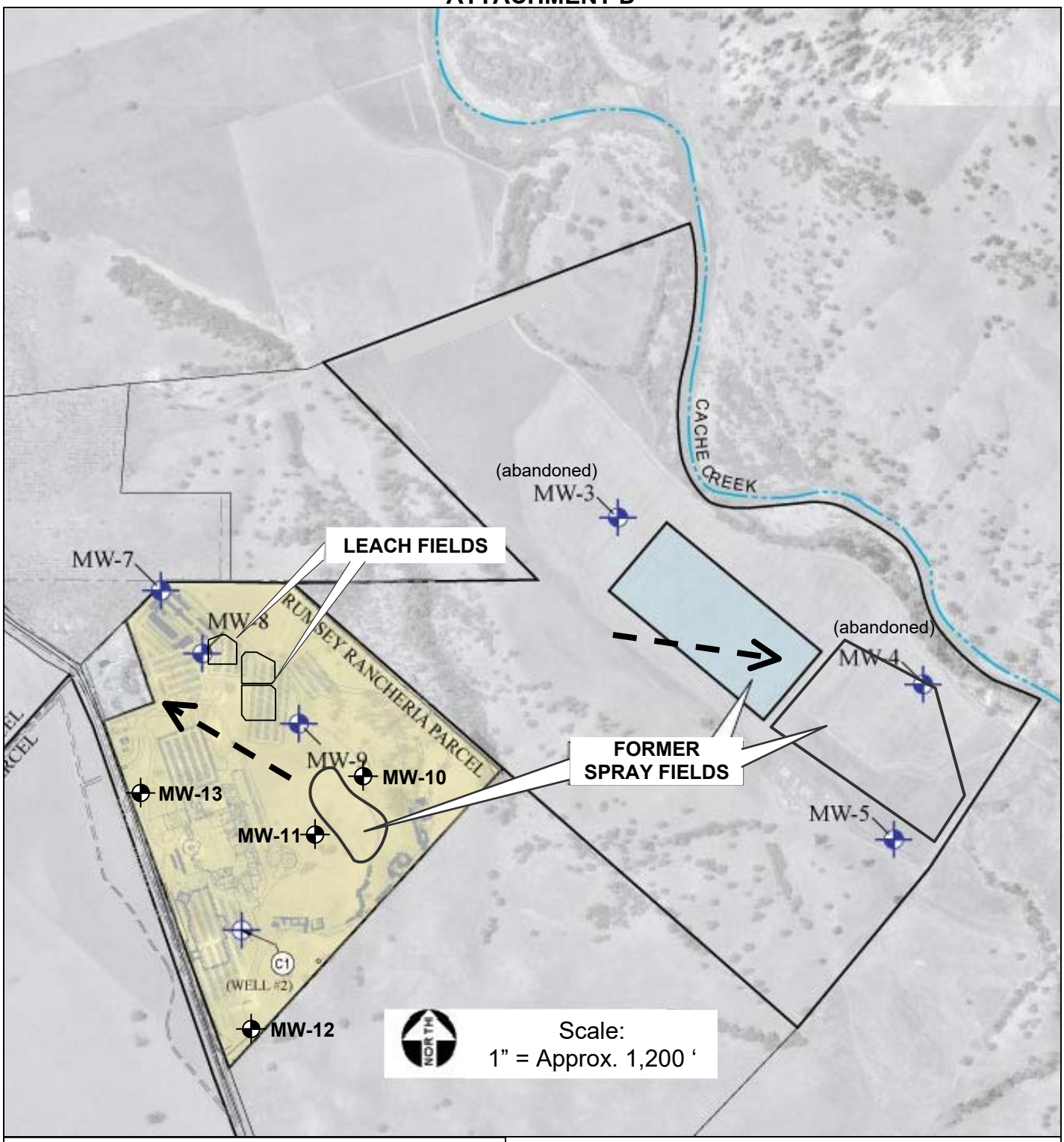
- Fresh Water Supply Pipeline
- Tailwater Return Pipeline
- Recycled Water Supply Pipeline

GOLF CLUB SITE PLAN

THE RUMSEY BAND OF WINTUN INDIANS
CACHE CREEK GOLF CLUB
WATER RECLAMATION PROJECT
YOLO COUNTY

ORDER NO. R5-2006-0121

ATTACHMENT D



Drawing Reference: Report of Waste Discharge

LEGEND

MW-12 Monitoring Well

General Groundwater Flow Direction

All locations approximate

MONITORING WELL MAP
THE RUMSEY BAND OF WINTUN INDIANS
CACHE CREEK GOLF CLUB
WATER RECLAMATION PROJECT
YOLO COUNTY

ORDER NO. R5-2006-0121

ATTACHMENT E

ORDER NO. R5-2006-0121
REQUIREMENTS FOR MONITORING WELL INSTALLATION WORKPLANS AND MONITORING WELL INSTALLATION REPORTS
THE RUMSEY BAND OF WINTUN INDIANS
CACHE CREEK GOLF CLUB WATER RECLAMATION PROJECT
YOLO COUNTY

Prior to installation of groundwater monitoring wells, the Discharger shall submit a workplan containing, at a minimum, the information listed in Section 1 below. Wells may be installed after staff approves the workplan. Upon installation of the monitoring wells, the Discharger shall submit a well installation report that includes the information contained in Section 2 below. All workplans and reports must be prepared under the direction of, and signed by, a registered geologist or civil engineer licensed by the State of California.

SECTION 1 - Monitoring Well Installation Workplan and Groundwater Sampling and Analysis Plan

The monitoring well installation workplan shall contain the following minimum information:

A. General Information:
   Purpose of the well installation project
   Brief description of local geologic and hydrogeologic conditions
   Proposed monitoring well locations and rationale for well locations
   Topographic map showing facility location, roads, and surface water bodies
   Large scaled site map showing all existing on-site wells, proposed wells, surface drainage courses, surface water bodies, buildings, waste handling facilities, utilities, and major physical and man-made features

B. Drilling Details:
   On-site supervision of drilling and well installation activities
   Description of drilling equipment and techniques
   Equipment decontamination procedures
   Soil sampling intervals (if appropriate) and logging methods

C. Monitoring Well Design (in narrative and/or graphic form):
   Diagram of proposed well construction details
   - Borehole diameter
   - Casing and screen material, diameter, and centralizer spacing (if needed)
   - Type of well caps (bottom cap either screw on or secured with stainless steel screws)
   - Anticipated depth of well, length of well casing, and length and position of perforated interval
   - Thickness, position and composition of surface seal, sanitary seal, and sand pack
   - Anticipated screen slot size and filter pack

D. Well Development (not to be performed until at least 48 hours after sanitary seal placement):
   Method of development to be used (i.e., surge, bail, pump, etc.)
   Parameters to be monitored during development and record keeping technique

Method of determining when development is complete
Disposal of development water

E. Well Survey (precision of vertical survey data shall be at least 0.01 foot):
Identify the Licensed Land Surveyor or Civil Engineer that will perform the survey
Datum for survey measurements
List well features to be surveyed (i.e. top of casing, horizontal and vertical coordinates, etc.)

F. Schedule for Completion of Work

G. **Appendix: Groundwater Sampling and Analysis Plan (SAP)**
The Groundwater SAP shall be included as an appendix to the workplan, and shall be utilized as a guidance document that is referred to by individuals responsible for conducting groundwater monitoring and sampling activities.

Provide a detailed written description of standard operating procedures for the following:

- Equipment to be used during sampling
- Equipment decontamination procedures
- Water level measurement procedures
- Well purging (include a discussion of procedures to follow if three casing volumes cannot be purged)
- Monitoring and record keeping during water level measurement and well purging (include copies of record keeping logs to be used)
- Purge water disposal
- Analytical methods and required reporting limits
- Sample containers and preservatives
- Sampling
  - General sampling techniques
  - Record keeping during sampling (include copies of record keeping logs to be used)
  - QA/QC samples
- Chain of Custody
- Sample handling and transport

SECTION 2 - Monitoring Well Installation Report

The monitoring well installation report must provide the information listed below. In addition, the report must also clearly identify, describe, and justify any deviations from the approved workplan.

A. General Information:
Purpose of the well installation project
Brief description of local geologic and hydrogeologic conditions encountered during installation of the wells
Number of monitoring wells installed and copies of County Well Construction Permits
Topographic map showing facility location, roads, surface water bodies
Scaled site map showing all previously existing wells, newly installed wells, surface water bodies, buildings, waste handling facilities, utilities, and other major physical and man-made features.

B. Drilling Details (in narrative and/or graphic form):
On-site supervision of drilling and well installation activities
Drilling contractor and driller's name
Description of drilling equipment and techniques
Equipment decontamination procedures
Soil sampling intervals and logging methods
Well boring log
- Well boring number and date drilled
- Borehole diameter and total depth
- Total depth of open hole (same as total depth drilled if no caving or back-grouting occurs)
- Depth to first encountered groundwater and stabilized groundwater depth
- Detailed description of soils encountered, using the Unified Soil Classification System

C. Well Construction Details (in narrative and/or graphic form):
Well construction diagram, including:
- Monitoring well number and date constructed
- Casing and screen material, diameter, and centralizer spacing (if needed)
- Length of well casing, and length and position of perforated interval
- Thickness, position and composition of surface seal, sanitary seal, and sand pack
- Type of well caps (bottom cap either screw on or secured with stainless steel screws)

E. Well Development:
Date(s) and method of development
How well development completion was determined
Volume of water purged from well and method of development water disposal
Field notes from well development should be included in report

F. Well Survey (survey the top rim of the well casing with the cap removed):
Identify the coordinate system and datum for survey measurements
Describe the measuring points (i.e. ground surface, top of casing, etc.)
Present the well survey report data in a table
Include the Registered Engineer or Licensed Surveyor's report and field notes in appendix

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

RESOLUTION NO. R5-2008-0130

AMENDING WASTE DISCHARGE REQUIREMENTS ORDER NO. R5-2006-0121
FOR
THE RUMSEY BAND OF WINTUN INDIANS
YOCHA DE HE GOLF CLUB WATER RECLAMATION PROJECT
YOLO COUNTY

The California Regional Water Quality Control Board, Central Valley Region (hereafter Regional Water Board), finds:

1. On 26 October 2006, the Regional Water Board adopted Waste Discharge Requirements (WDRs) Order No. R5-2006-0121, prescribing requirements for the Yocha De He Golf Club Water Reclamation Project in Yolo County.

2. The Rumsey Band of Wintun Indians (hereafter "Discharger") owns and operates a wastewater treatment facility (WWTF) that serves the Cache Creek Casino Resort in western Yolo County. The resort includes a golf course, clubhouse, and ancillary facilities known as the Yocha De He Golf Club, and the Discharger uses reclaimed tertiary disinfected wastewater to irrigate the golf course.

3. The WWTF and part of the golf course are on land held in trust for the Discharger by the United States Bureau of Indian Affairs ("trust land"), but the clubhouse, ancillary facilities, and portions of the golf course are on land owned in fee simple by the Discharger ("fee land"). The WWTF and discharges of waste to trust land are regulated by the United States Environmental Protection Agency (USEPA) and are not subject to regulation by the Regional Water Board. However, the Regional Water Board has the authority to enforce applicable laws, regulations, and policies with respect to discharges that occur outside of trust land, and with respect to water quality degradation or pollution that may originate on trust land, but is detectable outside the confines of trust land.

4. The WWTF design flow is 225,000 gallons per day (gpd) as an average daily flow. A microfiltration membrane bioreactor (MBR) system provides tertiary treatment, and the effluent is disinfected with sodium hypochlorite and then stored or transferred for land disposal on trust land and recycling at the casino complex and the golf course.

5. The golf course is along the western bank of Cache Creek. The southern portion of the golf course and a geomembrane-lined irrigation storage pond are on trust land. The northern portion of the golf course and the driving range are on fee land.

6. The RWD estimated that reclaimed water would supply approximately 44 percent of the total golf course irrigation demand, and supplemental irrigation water is pumped from Cache Creek when available. Limited salinity data for the Cache Creek water supply from the RWD are tabulated below.

Supplemental Irrigation Water

Constituent	Analytical Result	
	May 2006	June 2006
Total Hardness (mg/L)	234	165
Electrical Conductivity (mg/L)	550	380
Total Dissolved Solids (mg/L)	320	210
Sodium (mg/L)	30	20
Chloride (mg/L)	32	19

7. The potable water supply for the casino complex is groundwater. This water supply was not characterized for the RWD, but the RWD states that the water is very hard. The Discharger uses an ion exchange water softening system for the casino complex water supply. Consequently, the WWTF effluent has high concentrations of electrical conductivity, total dissolved solids, sodium, and chloride. Effluent salinity data provided in the RWD are tabulated below:

Treated Effluent (as of 2006)

Constituent	Number of Samples	Average Result
Electrical conductivity (umhos/cm)	1	2,200
Total Dissolved Solids (mg/L)	29	1,230
Sodium (mg/L)	1	430
Chloride (mg/L)	29	440

8. Three groundwater monitoring wells were installed to monitor groundwater beneath the former spray fields that were on the trust land portion of the golf course. Groundwater at the golf course is about 21 feet below the surrounding grade with little seasonal variability in elevation. The groundwater flow direction at the golf course site is generally eastward towards Cache Creek. Pre-discharge groundwater salinity data presented in the RWD are summarized below. The terms cross gradient and downgradient relate to well locations with respect to wastewater spray disposal areas that were on the golf course site prior to 2005, not the golf course.

	Concentration Range		
	Cross Gradient Wells		Downgradient Well
Constituent/Parameter	MW-3	MW-5	MW-4
Total hardness, mg/L	750 to 890	290 to 400	270 to 420
Electrical conductivity, umhos/cm	1,700 to 2,400	760 to 880	710 to 920
Total dissolved solids, mg/L	1,400 to 1,600	550 to 640	450 to 750
Sodium, mg/L	130 to 230	30 to 140	76 to 130
Chloride, mg/L	160 to 240	9 to 52	44 to 140

These data indicate that pre-discharge groundwater quality beneath the golf course may have exceeded applicable water quality limits for electrical conductivity, total dissolved solids, chloride, and sodium. The difference between EC and TDS results for MW-3 and the other two wells appears to be due primarily to the high sulfate, bicarbonate alkalinity, hardness, sodium, and chloride. With the exception of nitrate, the data presented in the RWD indicate that the former spray fields did not degrade groundwater quality. This may be partly due to the influence of fresh water infiltrating the shallow groundwater zone from Cache Creek during high creek flows.

9. Despite the dilution with Cache Creek water, the discharge of recycled water to the golf course poses a threat to groundwater quality based on the high salinity of the treated effluent relative to underlying groundwater.

10. The limited groundwater quality information included in the RWD was not sufficient to determine final groundwater limitations for Order No R5-2006-0121. Therefore, the WDRs include interim groundwater limitations for typical domestic wastewater constituents. The interim groundwater limitation for each constituent was selected in accordance with the most stringent interpretation of the narrative limits set forth in the Basin Plan. The groundwater limitations state, in part:

F. Groundwater Limitations

1. Release of waste constituents from the golf course shall not cause groundwater under and beyond that area, as determined by an approved well monitoring network, to:

a. Contain any of the following constituents in concentrations greater than those listed below or greater than ambient background groundwater quality, whichever is greater:

Constituent	*Units*	*Limitation*
Chloride	*mg/L*	*106*
Sodium	*mg/L*	*69*
Total Dissolved Solids	*mg/L*	*450*

11. The WDRs require groundwater monitoring and a statistical determination of background groundwater quality by 30 June 2009. If the statistically determined background groundwater concentration for any waste constituent is greater than its corresponding interim groundwater limit, the final groundwater limit will be the background concentration.

12. Because of the high salinity of the effluent and the potential for groundwater pollution due to salinity, the WDRs also limit the salinity of the discharge. The interim effluent salinity limitations were intended only to ensure that the salinity of the treated effluent did not increase above then-current levels. The final effluent limitations were intended to protect all beneficial uses of groundwater. At the time the WDRs were adopted, both the Discharger and Regional Water Board staff believed that the Discharger would be able to comply with the final effluent limitations through implementation of best practicable treatment and control and blending of the effluent with water from Cache Creek. The effluent limitations state, in part:

C. Effluent Limitations

2. Effective immediately, reclaimed water discharged to the golf course irrigation system shall not exceed the following interim effluent limits for salinity:

Constituent	*Effluent Concentration Limit (30-Day Flow-weighted Average)*
Total dissolved solids (mg/L)	*1,300*
Chloride (mg/L)	*450*
Sodium (mg/L)	*350*

3. Effective 30 June 2008, the combination of fresh water and reclaimed water discharged to the golf course irrigation system shall not exceed the following effluent limits for salinity or the background groundwater concentration (whichever is higher) unless the Discharge demonstrates that higher limits will ensure compliance with Resolution No. 68-16:

Constituent	*Effluent Concentration Limit (30-Day Flow-weighted Average)*
Total dissolved solids (mg/L)	*650*
Chloride (mg/L)	*106*
Sodium (mg/L)	*69*

13. Provision G.2 of the WDRs requires that Discharger submit an *Antidegradation Policy Compliance Report* at the request of the Executive Officer if the results of the *Background Groundwater Quality Repor*t, or any subsequent technical or monitoring report, show that the discharge of reclaimed water has caused, or is likely to cause, exceedance of any applicable water quality limit outside the boundary of trust land. The *Antidegradation Policy Compliance Report* must propose a detailed plan and schedule for achieving full

compliance with the Antidegradation Policy. However, as noted above, the *Background Groundwater Quality Repor*t is not due until June 2009.

14. On 20 March 2008, the Discharger requested that the final effluent salinity limits be relaxed for the following reasons:

    a. In order to comply with the interim effluent salinity limits, the Discharger has been transporting backwash brine from the water softening system to the East Bay Municipal Utility District's Oakland WWTF since shortly after adoption of the WDRs. This practice has reduced the effluent sodium and chloride concentrations to approximately 315 mg/L and 300 mg/L, respectively.

    b. The Discharger has determined that the discharge could not comply with the final effluent salinity limits without significant blending with Cache Creek water. However, blending has been unreliable due to periodic high sodium concentrations in the creek.

    c. As discussed in detail below, the Discharger plans improvements that will significantly reduce the salinity of the effluent. However, those improvements cannot be completed in time to comply with the 30 June 2008 deadline.

15. In order to further control salinity in the discharge, the Discharger has committed to switch from the ion exchange water softening system to a new system that combines electrodialysis reversal (EDR) and vibratory shear enhanced process (VSEP) reverse osmosis. All brine from the new system will be transported off-site for disposal. The system's capital cost is approximately $9 million, and the Discharger expects that it will be operational by October 2008. The following table summarizes the projected effluent salinity after implementation of the new water softening system.

	Effluent Concentration			Final Effluent Limit [1]
Constituent	Pre-WDRs (2006)	Current (2008)	Projected Post-EDR	(6/30/2008)
Total Dissolved Solids (mg/L)	1,230	1,180	510	650
Sodium (mg/L)	430	315	140	106
Chloride (mg/L)	440	300	85	69

[1] Applies to the blend of effluent with supplemental water from Cache Creek.

16. As illustrated above, the Discharger may not be able to comply with the final effluent salinity limits after completion of the EDR/VSEP water softening system. Although the EDR/VSEP system is expected to be fully operational by October 2008, it may take several months to optimize system performance and assess the level of salinity reduction that it can consistently achieve. Furthermore, it is appropriate to consider background groundwater quality in establishing final effluent limits, but there is currently not sufficient data to complete an appropriate statistical determination of background ground water quality.

17. Therefore it is appropriate to amend WDRs Order, No. R5-2006-0121 to allow additional time to comply with the effluent limits for salinity, and to provide a mechanism to allow relaxation of those limits if appropriate based on the performance of the new water treatment system and background groundwater quality.

18. The action to amend WDRs Order No. R5-2006-0121 is exempt from the provisions of Chapter 3 of the California Environmental Quality Act (CEQA) (Public Resources Code section 21000, et seq.) because it involves no expansion of the project (14 California Code of Regulations (CCR) section 15301); it is an action taken by a regulatory agency to assure the protection of the environment; and the regulatory process involves procedures for protection of the environment (14 CCR section 15308).

19. The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to amend waste discharge requirements for this discharge and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

20. The Regional Water Board, in a public meeting, heard, and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that Order No. R5-2006-0121 is amended solely to change the Effluent Limitations and Provision G.13. Pursuant to Sections 13263 and 13267 of the California Water Code, the Rumsey Band of Wintun Indians, its agents, successors and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted there under, shall comply with amended Order No. R5-2006-0037 as follows:

1. The Effluent Limitations of WDRs Order No. R5-2006-0121 shall be amended as follows:

   C. Effluent Limitations

   3. Effective 30 July 2010, the combination of fresh water and reclaimed water discharged to the golf course irrigation system shall not exceed the following effluent limits for salinity or the background groundwater concentration (whichever is higher) unless the Discharge demonstrates that higher limits will ensure compliance with Resolution No. 68-16:

Constituent	*Effluent Concentration Limit (30-Day Flow-weighted Average)*
Total dissolved solids (mg/L)	*650*
Chloride (mg/L)	*106*
Sodium (mg/L)	*69*

2. The Provisions of WDRs Order No. R5-2006-0121 shall be amended as follows:

G. Provisions

13. Following approval of the Background Groundwater Quality Report required pursuant to Provision G.1.e, the Regional Water Board will review this Order to establish appropriate site-specific effluent limits for salinity.

This Order is effective as of the date of adoption.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 31 July 2008.

_____
PAMELA C. CREEDON, Executive Officer

ALO: 8/7/08

Linda S. Adams
Secretary for Environmental Protection

California Regional Water Quality Control Board
Central Valley Region

Katherine Hart, Chair

11020 Sun Center Drive #200, Rancho Cordova, California 95670-6114
Phone (916) 464-3291 • FAX (916) 464-4645
http://www.waterboards.ca.gov/centralvalley

Arnold Schwarzenegger
Governor

19 July 2010

Randy Takemoto
Rumsey Band of Wintun Indians
14455 State Highway 16
Brooks, CA 95606

EFFLUENT SALINITY LIMIT COMPLIANCE AND REQUEST FOR REVISED BACKGROUND GROUNDWATER QUALITY DETERMINATION, YOCHA DE HE GOLF CLUB, YOLO COUNTY

The use of recycled water to irrigate the Yocha De He Golf Course is regulated by Waste Discharge Requirements (WDRs) Order R5-2006-0121, which was adopted by the Central Valley Water Board on 26 October 2006 and amended by Resolution R5-2008-0130 on 7 August 2008. The amended WDRs prescribe interim and final effluent limits for the recycled water used to irrigate the golf course.

Effluent Limitation C.3 of Order R5-2006-0121 states:

"Effective 30 July 2010, the combination of fresh water and reclaimed water discharged to the golf course irrigation system shall not exceed the following effluent limits for salinity or the background groundwater concentration (whichever is higher) unless the Discharger demonstrates that higher limits will ensure compliance with Resolution 68-16:"

Constituent	***Effluent Concentration Limit (30 day Flow weighted Average)***
Total Dissolved Solids (mg/l)	*650*
Chloride (mg/l)	*106*
Sodium (mg/l)	*69*

Additionally, Provision G.13 of Resolution R5-2006-0121 states:

"Following approval of the Background Groundwater Quality Report required Pursuant to provision G.1.e, the Regional Water Board will review this Order to establish appropriate site specific effluent limits for salinity."

In a 30 April 2010 letter, the Tribe requested that the Central Valley Water Board establish site-specific salinity limitations for the recycled water used to irrigate the golf course based on the current level of salinity reduction and the *Background Groundwater Quality Report* submitted in June of 2009.

On 11 May 2010, Central Valley Water Board staff met with representatives of the Tribe and their consultants to discuss the Tribe's concerns. At staff's request, Hydro Science Engineers, Inc. submitted a letter on 3 June 2010 summarizing the Tribe's efforts to reduce the salinity in the recycled water used to irrigate the golf course. Staff understand that, since 2009 when the Tribe ceased the use of ion exchange water softeners and began use of a water desalination facility for salinity removal, concentrations of total dissolved solids, sodium and chloride in the recycled water have been reduced by approximately 65 to 75 percent. The letter proposed that provisional salinity limits be considered until site-specific salinity limits can be adopted by the Central Valley Water Board.

Based on the 3 June 2010 letter and our meetings, we understand:

- That the Tribe cannot comply with the final effluent limits that become effective on 30 July 2010; and

- The Tribe believes that they are implementing Best Practicable Treatment and Control practices and that site-specific salinity limits are justified in lieu of the effluent limits that are effective on 30 July 2010. Therefore, the Tribe requests that the effluent limits that are scheduled to become effective on 30 July 2010 be relaxed.

Monthly monitoring reports show that the Tribe has made major improvements to reduce the salinity of the recycled water, but the Central Valley Water Board must make two important policy findings before Order R5-2006-0121 can be revised to relax the effluent limits:

1. That the Discharger has implemented Best Practicable Treatment and Control; and

2. That the discharge will not cause an exceedance of a water quality objective.

In order to make the second determination, our permitting section must be able to set site-specific water quality objectives. However, Central Valley Water Board staff has reviewed the *Background Groundwater Quality Report (*Report*)* and has determined that additional characterization of groundwater at the site is needed before site-specific salinity limitations can be developed.

Staff's comments on the Report are presented in the attached memorandum. In general, we believe that the existing monitoring well network should be evaluated and a hydrogeologic investigation should be performed to further correlate and characterize shallow background groundwater quality, and evaluate the source of the spatial variability in the groundwater chemistry across the golf course recycling site. Once the additional characterization work has been completed, a *Revised Background Groundwater Quality Report* must be submitted to support the development of site-specific salinity limits. Therefore, we are requesting that the Tribe comply with the following schedule:

1. By **31 October 2010**, submit a *Monitoring Well Network Evaluation/Monitoring Well Installation and Hydrogeologic Workplan.* The workplan shall be consistent with, and include the items listed in Attachment A.

2. By **31 January 2011**, submit a *Monitoring Well Installation Report.* The report shall be consistent with, and include items listed in the second section of Attachment B.

3. By **1 December 2011**, submit a *Revised Background Groundwater Quality Report.*

Central Valley Water Board staff recognizes that additional time is needed to perform the revised groundwater characterization and prepare a *Revised Background Groundwater Quality Report.* Therefore, in the interim, we agree to forego enforcement of the salinity effluent limits that become effective on 30 July 2010, as long as the Tribe maintains compliance with WDRs Order R5-2006-0121(except for Effluent Limitation C.3) and does not exceed the Proposed Provisional Salinity Limits proposed by the Tribe in the 3 June 2010 letter. These proposed Provisional Limits are as follows:

Compliance Point	**Total Dissolved Solids**	**Sodium**	**Chloride**
Golf Course Irrigation Water	855 mg/l	202 mg/l	200 mg/l

If you have any questions regarding this letter please contact Anne Olson at (916) 464-4740, or Brendan Kenny at (916) 464-4635.

Wendy Wyels

WENDY WYELS, Supervisor
Compliance and Enforcement Section

Enclosures: Background Groundwater Quality Study Review
Attachment A, Requirements for Monitoring Well Evaluation and a Hydrogeologic Investigation
Attachment B, Requirements for Monitoring Well Installation Workplans

cc: Rob Willis, Rumsey Band of Wintun Indians
Gilbert Pasqua, USEPA Region 9, San Francisco
Bruce Sarazin, Yolo County Environmental Health Department, Woodland
David Zweig, Analytical Environmental Services, Sacramento
Bill Slenter, HydroScience Operations, Inc., Sacramento

Linda S. Adams
Secretary for Environmental Protection

California Regional Water Quality Control Board
Central Valley Region

Katherine Hart, Chair

11020 Sun Center Drive #200, Rancho Cordova, California 95670-6114
Phone (916) 464-3291 • FAX (916) 464-4645
http://www.waterboards.ca.gov/centralvalley

Arnold Schwarzenegger
Governor

Attachment A

Requirements for Monitoring Well Evaluation/Well Installation and Hydrogeologic Investigation Workplan, Yocha De He Golf Club, Yolo County

At a minimum the Monitoring Well Network Evaluation/Well Installation and Hydrogeologic Investigation workplan for the Yocha De He Golf Club shall include the following:

- Discussion of the regional and local geology, geomorphology, and the historic/present land uses.

- Evaluation of the variability in water chemistry across the golf course recycling site based on previous field investigations including historic boring logs and water quality data from monitoring wells and field work.

- Evaluation of the influence of Cache Creek on groundwater in the vicinity of monitoring wells MW-11 and MW-12. The evaluation should include correlating the creek elevation and constituents with the water level elevation and groundwater constituents in monitoring wells MW-11 and MW-12.

- Evaluation of groundwater flow paths across the site. At a minimum supporting documentation should include; scaled maps with groundwater elevation contours, flow direction, and gradient for the last eight quarters of monitoring. Groundwater flow direction and gradient shall be calculated using all existing monitoring wells (MW-5, MW-10, MW-12, and MW-5, MW-11, MW-12).

- A proposal for replacement of monitoring well MW-5. According to our records, MW-5 was constructed with a six-foot sanitary seal. Therefore, MW-5 has the potential to act as a conduit to groundwater.

- A workplan for the installation of additional groundwater monitoring wells as needed. The workplan shall be consistent with, and include the items listed in the first section of Attachment B.

California Regional Water Quality Control Board
Central Valley Region
Karl E. Longley, ScD, P.E., Chair

Linda S. Adams
Secretary for Environmental Protection

Sacramento Main Office
11020 Sun Center Drive #200, Rancho Cordova, California 95670-6114
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http://www.waterboards.ca.gov/centralvalley

Arnold Schwarzenegger
Governor

REQUIREMENTS FOR MONITORING WELL INSTALLATION WORKPLANS AND MONITORING WELL INSTALLATION REPORTS

Prior to installation of groundwater monitoring wells, the Discharger shall submit a workplan containing, at a minimum, the information listed in Section 1, below. Wells may be installed after staff approve the workplan. Upon installation of the monitoring wells, the Discharger shall submit a well installation report which includes the information contained in Section 2, below. All workplans and reports must be prepared under the direction of, and signed by, a registered geologist or civil engineer licensed by the State of California.

SECTION 1 - Monitoring Well Installation Workplan and Groundwater Sampling and Analysis Plan

The monitoring well installation workplan shall contain the following minimum information:

A. General Information:
   Purpose of the well installation project
   Brief description of local geologic and hydrogeologic conditions
   Proposed monitoring well locations and rationale for well locations
   Topographic map showing facility location, roads, and surface water bodies
   Large scaled site map showing all existing on-site wells, proposed wells, surface drainage courses, surface water bodies, buildings, waste handling facilities, utilities, and major physical and man-made features

B. Drilling Details:
   On-site supervision of drilling and well installation activities
   Description of drilling equipment and techniques
   Equipment decontamination procedures
   Soil sampling intervals (if appropriate) and logging methods

C. Monitoring Well Design (in narrative and/or graphic form):
   Diagram of proposed well construction details
   - Borehole diameter
   - Casing and screen material, diameter, and centralizer spacing (if needed)
   - Type of well caps (bottom cap either screw on or secured with stainless steel screws)
   - Anticipated depth of well, length of well casing, and length and position of perforated interval
   - Thickness, position and composition of surface seal, sanitary seal, and sand pack
   - Anticipated screen slot size and filter pack

D. Well Development (not to be performed until at least 48 hours after sanitary seal placement):
Method of development to be used (i.e., surge, bail, pump, etc.)
Parameters to be monitored during development and record keeping technique
Method of determining when development is complete
Disposal of development water

E. Well Survey (precision of vertical survey data shall be at least 0.01 foot):
Identify the Licensed Land Surveyor or Civil Engineer that will perform the survey
Datum for survey measurements
List well features to be surveyed (i.e. top of casing, horizontal and vertical coordinates, etc.)

F. Schedule for Completion of Work

G. **Appendix: Groundwater Sampling and Analysis Plan (SAP)**
The Groundwater SAP shall be included as an appendix to the workplan, and shall be utilized as a guidance document that is referred to by individuals responsible for conducting groundwater monitoring and sampling activities.

Provide a detailed written description of standard operating procedures for the following:

- Equipment to be used during sampling
- Equipment decontamination procedures
- Water level measurement procedures
- Well purging (include a discussion of procedures to follow if three casing volumes cannot be purged)
- Monitoring and record keeping during water level measurement and well purging (include copies of record keeping logs to be used)
- Purge water disposal
- Analytical methods and required reporting limits
- Sample containers and preservatives
- Sampling
  - General sampling techniques
  - Record keeping during sampling (include copies of record keeping logs to be used)
  - QA/QC samples
- Chain of Custody
- Sample handling and transport

SECTION 2 - Monitoring Well Installation Report

The monitoring well installation report must provide the information listed below. In addition, the report must also clearly identify, describe, and justify any deviations from the approved workplan.

A. General Information:
   Purpose of the well installation project
   Brief description of local geologic and hydrogeologic conditions encountered during installation of the wells
   Number of monitoring wells installed and copies of County Well Construction Permits
   Topographic map showing facility location, roads, surface water bodies
   Scaled site map showing all previously existing wells, newly installed wells, surface water bodies, buildings, waste handling facilities, utilities, and other major physical and man-made features.

B. Drilling Details (in narrative and/or graphic form):
   On-site supervision of drilling and well installation activities
   Drilling contractor and driller's name
   Description of drilling equipment and techniques
   Equipment decontamination procedures
   Soil sampling intervals and logging methods
   Well boring log
   - Well boring number and date drilled
   - Borehole diameter and total depth
   - Total depth of open hole (same as total depth drilled if no caving or back-grouting occurs)
   - Depth to first encountered groundwater and stabilized groundwater depth
   - Detailed description of soils encountered, using the Unified Soil Classification System

C. Well Construction Details (in narrative and/or graphic form):
   Well construction diagram, including:
   - Monitoring well number and date constructed
   - Casing and screen material, diameter, and centralizer spacing (if needed)
   - Length of well casing, and length and position of perforated interval
   - Thickness, position and composition of surface seal, sanitary seal, and sand pack
   - Type of well caps (bottom cap either screw on or secured with stainless steel screws)

E. Well Development:
   Date(s) and method of development
   How well development completion was determined
   Volume of water purged from well and method of development water disposal
   Field notes from well development should be included in report

F. Well Survey (survey the top rim of the well casing with the cap removed):
   Identify the coordinate system and datum for survey measurements
   Describe the measuring points (i.e. ground surface, top of casing, etc.)
   Present the well survey report data in a table
   Include the Registered Engineer or Licensed Surveyor's report and field notes in appendix

Linda S. Adams
Secretary for Environmental Protection

California Regional Water Quality Control Board
Central Valley Region
Katherine Hart, Chair

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Arnold Schwarzenegger
Governor

TO: Anne Olson
Senior WRCE

FROM: Brendan Kenny

DATE: 19 July 2010

SIGNATURE: Brendan Kenny

SUBJECT: ***COMMENTS ON BACKGROUND GROUNDWATER QUALITY REPORT, YOCHA DE HE GOLF CLUB, YOLO COUNTY***

The Background Groundwater Quality Report, which is required by Waste Discharge Requirements Order R5-2006-0121 was submitted on time and utilizes methods that are generally appropriate for determining background groundwater quality. However, based on the data presented in the report, additional information is needed to further characterize and correlate the hydrogeology and identify the source of chemical variability in the groundwater across the golf course recycling site. Table 1 below shows the general concentration ranges for selected constituents between upgradient monitoring well MW-10 and downgradient wells MW-11 and MW-12:

Table 1: Constituent Concentration Ranges

Constituent	**MW-10 (upgradient)**	**MW-11 (downgradient)**	**MW-12 (downgradient)**
Total Dissolved Solids (mg/l)	1100 to 1300	400 to 650	600 to 900
Sulfate (mg/l)	400 to 550	40 to 100	40 to 80
Calcium (mg/l)	150 to 80	40 to 70	70 to 110
Chloride (mg/l)	90 to 130	50 to 120	90 to 140
Sodium (mg/l)	50 to 85	50 to 80	70 to 95

mg/l denotes milligrams per/liter

After review of the report, I have the following comments:

1. Based on the distance, elevation, depth of well completion, and elevated levels of total dissolved solids, sulfate, and calcium between proposed background groundwater monitoring well MW-10 and wells MW-5, MW-11, MW-12, monitoring well MW-10 may be monitoring a different hydrologic zone. Therefore, comparing water quality data from MW-10 to MW-11 and MW-12 may not be appropriate. Additionally, the use of MW-10 to calculate groundwater flow direction and gradient will not yield accurate results if MW-10 is not completed in the same hydrologic zone as the other wells used to calculate groundwater flow direction and gradient. Therefore, monitoring wells MW-11 and MW-12 may not be appropriate to use as downgradient wells with respect to MW-10 and the majority of the golf course. An assessment of the groundwater monitoring well network should be performed to determine if the wells are monitoring the same hydrologic zone.

2. The report states that a secondary flow direction and gradient exists at the southeast section of the site. However, the report identifies monitoring well MW-10 as a background well for the entire site. Based on the water chemistry differences between the monitoring wells at the site and the change in flow direction and gradient across the site, additional wells may be necessary to adequately characterize spatial variations in water quality, groundwater flow direction and gradient across the northern and southern sections of the site.

3. Water quality data from monitoring wells MW-11 and MW-12, which are located approximately 450 feet and 50 feet from Cache Creek, may not be representative of groundwater beneath the land application area due to the proximity and influence of Cache Creek. Therefore, an assessment of the creek's influence on monitoring wells MW-11 and MW-12 should be performed.

4. The Report does not include a discussion of historical water quality data from monitoring wells MW-3, MW-4, or MW-5. Historical water quality data from those wells may be useful in correlating water quality across the site. Therefore, an evaluation and comparison of the historical monitoring well data from MW-3, MW-4 and MW-5 with the monitoring well data from MW-10, MW-11, and MW-12 should be performed.

5. The report does not include a discussion as to the cause of variability in the groundwater chemistry across the site. A discussion of the regional and local geology's influence on groundwater quality across the site, as well as past and present land use and geomorphology of the site should be included with the report.

In summary:

The spatial variation in water chemistry across the site is not adequately discussed or evaluated in the Report. Additionally, because of the potential for Cache Creek to influence water quality in the vicinity of monitoring wells MW-11 and MW-12, and the lack of water quality data from monitoring well MW-5, additional information is needed to support the existing monitoring well network. Therefore, a *Monitoring Well Network Evaluation* and *Hydrogeologic Investigation* should be performed to evaluate the adequacy of the existing monitoring well network and further characterize the geology and hydrogeology of the site.

Depending on the outcome of the evaluation, additional monitoring wells (upgradient and downgradient) may be necessary. If so, data collected from the wells will need to be incorporated into a *Revised Background Groundwater Quality Report.*

With regard to monitoring well MW-5, a review of the boring log for MW-5 indicates that the well was constructed with a short (6 ft) sanitary seal. As such, the well has the potential to act as a conduit to groundwater and should be abandoned and replaced.

APPENDIX D

Yocha Dehe Wintun Nation
Water and Wastewater Feasibility Study
CCB Approval

State of California—Health and Human Services Agency
Department of Health Services

SANDRA SHEWRY
Director

ARNOLD SCHWARZENEGGER
Governor

May 9, 2007 RWS No: 5790003

Mr. Steve Ferry
HydroScience Engineers
221 Gateway Rd. West Ste. 403
Napa, CA 94558

Dear Mr. Ferry:

CACHE CREEK RESORT MODAL CONTACT TIME STUDY

The California Department of Health Services has reviewed the Cache Creek Resort Modal Contact Time Study submitted on April 11, 2007.

The subject study demonstrates that the contact basin is capable of achieving a 93 minute modal contact time at a flow rate of 346 GPM (a minimum 90 minute modal contact time was required). Cache Creek Resort is requesting approval for contact time (CT) at this flow rate, however such approval is issued by the Central Valley Regional Water Quality Control Board (CVRWQCB). The rated capacity of the membrane bioreactor facility is only 243 GPM (maximum) and any increased flow rate above this would require approval from the CVRWQCB.

If you have any questions, please contact me at 916-449-5668 or tmacaula@dhs.ca.gov.

Sincerely,

Terry Macaulay, P.E.
Sacramento District Engineer
Northern California Field Operations

cc: see next page

cc: Anne Olson
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive #200
Rancho Cordova, CA 95670-6114

Bruce Sarazin
Yolo County Environmental Health
20 Cottonwood Street
Woodland, CA 95695

APPENDIX E

Yocha Dehe Wintun Nation
Water and Wastewater Feasibility Study
NPDES Permit

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

NPDES PERMIT NO. CA0084292

In compliance with the provisions of the Clean Water Act ("CWA") (Public Law 92-500, as amended, 33 U.S.C. 1251 et seq.), the following discharger is authorized to discharge from the identified facility at the outfall location(s) specified below, in accordance with the effluent limits, monitoring requirements, and other conditions set forth in this permit:

Discharger Name	Rumsey Band of Wintun Indians
Discharger Address	P.O. Box 65, 14455 State Highway 16
	Brooks, CA 95606
Facility Name	Cache Creek Casino Resort
Facility Location Address	State Highway 16 and County Road 78A
	Brooks, CA 95606

Outfall Number	General Type of Waste Discharged	Outfall Latitude	Outfall Longitude	Receiving Water
001	Tertiary treated domestic wastewater	38° 44' 6" N	122° 07' 42" W	Unnamed Tributary to Cache Creek

This permit was issued on:	
This permit shall become effective on:	
This permit shall expire at midnight on:	
In accordance with 40 CFR 122.21(d), the discharger shall submit a new application for a permit at least 180 days before the expiration date of this permit, unless permission for a date no later than the permit expiration date has been granted by the Director.	

Signed this _____ day of _____, 2009, for the Regional Administrator.

_____
Alexis Strauss, Director
Water Division

I EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

A. Rumsey Band of Wintun Indians (Apermittee@) is authorized to discharge treated wastewater from Outfall 001 to a tributary of Cache Creek as specified below:

Table 1: Outfall 001 Effluent Limitations and Monitoring Requirements

Parameter	Maximum Allowable Discharge Limitations						Monitoring Requirements	
	Mass Limits			Concentration Limits				
	Average Monthly	Average Weekly	Daily Maximum	Average Monthly	Average Weekly	Daily Maximum		
Flow	----	----	---	(1)	----	(1)	Continuous	meter
Ammonia (Total, as N)	----	----	----	(2)	----	(2)	Once/week	24 hr Composite
Biochemical Oxygen Demand (5-Day) (3)	175 lbs/day	263 lbs/day	----	30 mg/L	45 mg/l	----	Once/week	24 hr Composite
Electrical Conductivity	-----	-----	----	(1)	-----	(1)	Once/week	Discrete
Total Coliform Bacteria	----	----	----	----	(4)	23 MPN/ 100 ml	Once/week	Discrete
Mercury (Total)	----	----	----	0.050 µg/l	----	----	Once/year	24 hr Composite
Nitrate (measured as N)	----	----	----	10 mg/L	----	----	Once/week	24 hr Composite
Oil and Grease	----	----	----	10 mg/L	----	15 mg/L	Once/week	Discrete
Settleable Solids	----	----	----	1 ml/L	----	2 ml/L	Once/week	Discrete
Total Suspended Solids (3)	175 lbs/day	263 lbs/day	----	30 mg/L	45 mg/l	----	Once/week	24 hr Composite
Total Dissolved Solids	-----	-----	----	(1)	-----	(1)	Once/week	24 hr Composite
Total Residual Chlorine	-----	-----	-----	0.01 mg/L	-----	0.02 mg/L	Once/week	Discrete
Whole Effluent Toxicity, Chronic	----	----	----	(1)	----	(1)	Once/ year	24 hr Composite
Priority Pollutants	----	----	----	(1)	----	(1)	Once/ year	24 hr Composite

pH	The pH shall be within the range of 6.5 to 8.5 at all times.	Once/day	Discrete

Footnotes to Table 1: (see Next Page)

Footnotes to Table 1:

(1) Monitoring and Reporting required. No limit set at this time.

(2) Ammonia effluent limitations are pH and temperature dependent and are contained in Appendix B and Appendix C.

(3) Both the influent and the effluent shall be monitored for Biochemical Oxygen Demand (5-day) and Suspended Solids by concentration. The arithmetic mean of effluent samples collected over a monthly period shall not exceed 15 percent of the arithmetic mean of the values for influent samples collected over the same time period. (i.e., Must demonstrate 85% removal of BOD and TSS).

(4) Total Coliform Bacteria shall not exceed 2.2 MPN/100 ml as a weekly median.

B. Additional Monitoring Requirements

1. The permittee shall conduct effluent monitoring for the following parameters annually.

Priority Toxics Pollutants. The permittee shall monitor for the full list of priority pollutants as listed in the Code of Federal Regulations (CFR) at 40 CFR Part 122 Appendix J, Table 2)

Hardness ($CaCO_3$). The permittee shall monitor for hardness in addition to priority pollutants.

Chronic Toxicity. The requirements for monitoring acute and chronic toxicity are specified in Part IV of this permit.

2. The permittee shall conduct weekly receiving water quality monitoring for pH, dissolved oxygen, turbidity and temperature at the following locations when discharging:

M001U - Outfall 001 Upstream: Cache Creek approximately 760' upstream of location where discharge enters Cache Creek.

M001D - Outfall 001 Downstream: Cache Creek approximately 100’ downstream of location where discharge enters Cache Creek.

C. Receiving Water Limitations

The discharge shall not cause the following in the receiving water:

1. Concentrations of dissolved oxygen to fall below 7.0 mg/l. The monthly median of the mean daily dissolved oxygen concentration shall not fall below 85 percent of saturation in the main water mass, and the 95th percentile concentration shall not fall below 75 percent

of saturation.

2. Oils, greases, waxes, or other materials to form a visible film or coating on the water surface or on the stream bottom.

3. Oils, greases, waxes, floating material (liquids, solids, foams, and scums) or suspended material to create a nuisance or adversely affect beneficial uses.

4. Esthetically undesirable discoloration.

5. Fungi, slimes, or other objectionable growths.

6. The turbidity to increase as follows:

a. More than 1 Nephelometric Turbidity Units (NTUs) where natural turbidity is between 0 and 5 NTUs.

b. More than 20 percent where natural turbidity is between 5 and 50 NTUs.

c. More than 10 NTUs where natural turbidity is between 50 and 100 NTUs.

d. More than 10 percent where natural turbidity is greater than 100 NTUs.

7. The ambient pH to fall below 6.5, exceed 8.5, or the 30-day average to change by more than 0.5 units.

8. The ambient temperature to increase more than 5°F.

9. Deposition of material that causes nuisance or adversely affects beneficial uses.

10. Radionuclides to be present in concentrations that exceed maximum contaminant levels specified in the California Code of Regulations, Title 22; that harm human, plant, animal or aquatic life; or that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.

11. Aquatic communities and populations, including vertebrate, invertebrate, and plant species, to be degraded.

12. Toxic pollutants to be present in the water column, sediments, or biota in concentrations that adversely affect beneficial uses; that produce detrimental response in human, plant, animal, or aquatic life; or that bioaccumulate in aquatic resources at levels which are harmful to human health.

13. Violation of any applicable water quality standard for receiving waters.

14. Taste or odor-producing substances to impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin or to cause nuisance or adversely affect beneficial uses.

15. The fecal coliform concentration in any 30-day period to exceed a geometric mean of 200 MPN/100 ml or cause more than 10 percent of total samples to exceed 400 MPN/100

ml.

Part II . SPECIAL CONDITIONS

A. Reporting of Capacity Attainment and Planning

The permittee shall file a written report with EPA within ninety (90) days after the average dry-weather waste flow for any month that either equals or exceeds 90 percent of the annual dry weather design capacity of the waste treatment and/or disposal facilities. The permittee=s senior administrative officer shall sign a letter which transmits that report and certifies that the policy-making body is adequately informed about it. The report shall include:

1. Average daily flow for the month, the date on which the instantaneous peak flow occurred, the rate of that peak flow, and the total flow for the day.

2. The permittee=s best estimate of when the average daily dry weather flow rate will equal or exceed the design capacity of the facilities.

3. The permittee=s intended schedule for the studies, design, and other steps needed to provide additional capacity for the waste treatment and/or disposal facilities before the waste flow rate equals the capacity of present facilities.

B. Reopener - This permit may be modified in accordance with the requirements set forth at 40 CFR Parts 122 and 124, to include appropriate conditions or limits to address demonstrated effluent toxicity based on newly available information, or to implement any EPA-approved new State or Tribal water quality standards.

Upon request from the discharger, monitoring requirements may be reduced to quarterly analysis after 24 months of sampling demonstrating no reasonable potential to cause or contribute to water quality standards. This may be applicable to the following parameters: ammonia, nitrate, oil and grease, and total dissolved solids.

Upon request from the discharger, receiving water quality monitoring may be reduced to monthly analysis after 24 months of sampling demonstrating no reasonable potential to cause or contribute to water quality standards.

Part III. MONITORING AND REPORTING

A. Sample locations - Samples taken in compliance with the monitoring requirements specified in Part I, Section A, above, shall be taken at the following location(s):

1. Influent samples shall be taken after the last addition to the collection system prior to treatment.

2. Effluent samples shall be taken downstream from the last treatment process prior to discharge into receiving waters.

B. Reporting of Monitoring Results

1. Monitoring results obtained during the month shall be submitted quarterly on forms to be supplied by the Regional Administrator, to the extent that the information reported may be entered on the forms. The results of all monitoring required by this permit shall be submitted in such a format as to allow direct comparison with the limitations and requirements of the permit. Unless otherwise specified, discharge flows shall be reported in terms of the average flow over each monthly period and the maximum daily flow over that monthly period. If there is no discharge during the month, the reporting form shall be marked ANo Discharge@ and submitted in accordance with this section. Each monthly report is due by the 28th of the following month, i.e. January report is due by February 28. Duplicate signed copies of these, and all other reports required herein, shall be submitted to EPA at the following address:

U.S. EPA Region IX
NPDES/DMR, WTR-1
75 Hawthorne Street
San Francisco, California 94105-3901

2. Where quarterly monitoring is required for a continuous discharge, samples shall be taken during the months of January, April, July and October. Where yearly monitoring is required, samples shall be taken during the month of January.

3. For effluent analyses, the permittee shall utilize an analytical method with the published Method Detection Limit (MDL, as defined in Appendix A. of this permit) that is lower than the effluent limitations (or lower than EPA=s nationally recommended water quality criteria). If all published MDLs are higher than effluent limitations or water quality criteria concentrations, the permittee shall utilize the EPA approved analytical method with the lowest published MDL. In accordance with 40 CFR 122.45(c), effluent analyses for metals shall measure Atotal recoverable metals@.

4. For the purposes of reporting, the permittee shall use the reporting threshold equivalent to the laboratory=s MDL[1]. As such the permittee or its laboratory must

[1] Because MLs and MDLs specified in or approved under 40 CFR 136 are generally determined by the EPA using reagent water, matrix interferences in some wastewaters may result in a permittee being unable to achieve a required ML. In other cases, inappropriate laboratory techniques and poor quality assurance/quality control (QA/QC) procedures will result in a permittee failing to achieve a required ML. To distinguish between cases where a ML (or MDL) is not achieved due to poor laboratory technique and when matrix interferences do, in fact, occur, and to document that a discharge-specific MDL and ML are warranted, a permittee attempting to overcome matrix interference problems shall follow guidelines provided in *Guidance on Evaluation, Resolution, and Documentation of Analytical Problems Associated with Compliance Monitoring* (EPA 821-B-93-001, June 1993). In such a case, the permittee shall submit a report to EPA documenting that a discharge-specific MDL is warranted. Upon approval of this report by EPA, the permittee shall follow procedures set forth in 40 CFR 136, Appendix B, to determine the discharge-specific MDL and ML, which are also subject to EPA evaluation and approval. Additional guidance on development and review of discharge-specific MDLs is available in EPA=s draft National Guidance for the Permitting, Monitoring, and Enforcement of Water Quality-Based Effluent Limitations Set Below Analytical Detection/Quantitative Levels, March 22, 1994, Appendix B.

utilize a standard calibration where the lowest standard point is equal to or less than, the minimum level (ML), as defined in Appendix A of this permit.

For analytical results ∃ the laboratory=s MDL and # ML, the permittee shall report No Discharge/No Data (Not Quantifiable) ["NODI(Q)"] on the DMR form. Analytical results below the laboratory's MDL shall be reported as No Discharge/No Data (Below Detection Level) ["NODI(B)"].

As an attachment to the first DMR form submitted following the effective date of this permit, and at any time thereafter that the following information should change, the permittee shall report for all parameters with monitoring requirements: the analytical result; the analytical method number or title, preparation and analytical procedure, and published MDL; the laboratory MDL, standard deviation (S) from the laboratory's MDL study (see 40 CFR Part 136, Appendix B), and the number of replicate analyses used to compute the laboratory's MDL (n); and ML.

When requested by EPA, the permittee or its laboratory shall participate in the NPDES DMR-QA performance study and shall submit their study results to EPA. The permittee must have a success rate of at least 80 percent. (%).

5. Quality Assurance (QA) Manual

Sample collection will be performed as stated in the Quality Assurance (QA) Manual/QA Plan.

The permittee shall develop a QA Manual/QA Plan for collection and analysis of samples. If the water samples are analyzed by an independent laboratory, the permittee shall ensure that the laboratory has a Quality Assurance (QA) Manual.

The purpose of the QA Manual is to assist in planning for the collection and analysis of samples and explaining data anomalies if they occur. As appropriate and applicable, the QA Manual shall include the details enumerated below. The QA Manual shall be retained on the permittee=s premises and be available for review by EPA upon request. The permittee or the independent laboratory as the case may be shall review its QA Manual annually and revise it when appropriate. Throughout all field sampling and laboratory analyses, the permittee or the laboratory shall use quality assurance/quality control (QA/QC) procedures as documented in their QA Manual.

(i) Project Management including roles and responsibilities of the participants; purpose of sample collection; matrix to be sampled; the analytes or compounds being measured; applicable technical, regulatory, or program-specific action criteria; personnel qualification requirements for collecting samples.

(ii) Sample collection procedures; equipment used; the type and number of samples to be collected including QA/QC samples (i.e., background

samples, duplicates, and equipment or field blanks); preservatives and holding times for the samples (see 40 CFR Part 136.3); and chain of custody procedures.

(iii) Identification of the laboratory to be used to analyse the samples; provisions for any proficiency demonstration that will be required by the laboratory before or after contract award such as passing a performance evaluation sample; analytical method to be used; method detection limit (MDL) and minimum level (ML) to be reported; required QC results to be reported (e.g., matrix spike recoveries, duplicate relative percent differences, blank contamination, laboratory control sample recoveries, surrogate spike recoveries, etc.) and acceptance criteria; and corrective actions to be taken by the permittee or the laboratory as a result of problems identified during QC checks.

(iv) Discussion of how the permittee will perform data review and requirements for reporting of results to EPA to include resolving of data quality issues and identifying limitations on the use of the data.

C. Monitoring and Records

In addition to the information requirements specified under 40 CFR 122.41(j)(3), records of monitoring information shall include: The laboratory(ies) which performed the analyses and any comment, case narrative, or summary of results produced by the laboratory. These should identify and discuss QA/QC analyses performed concurrently during sample analyses and whether project and 40 CFR 136 requirements were met. The summary of results must include information on initial and continuing calibration, surrogate analyses, blanks, duplicates, laboratory control samples, matrix spike and matrix spike duplicate results; and sample receipt condition, holding time, and preservation.

D. Twenty-Four Hour Reporting of Noncompliance

The permittee shall report any noncompliance which may endanger human health or the environment. This information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances to the following persons or their offices:

CWA Compliance Office Chief
USEPA
(415) 972-3577

If the permittee is unsuccessful in contacting the persons above, the permittee shall report by 9 a.m. on the first business day following the noncompliance. A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including dates and times, and, if the noncompliance has not been corrected, the time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

E. Intermittent Discharge Monitoring

If the discharge is intermittent rather than continuous, then on the first day of intermittent discharge, the permittee shall monitor and record data for all the characteristics listed in the monitoring requirements of Table 1 in Part I. A of this permit, after which the frequencies of analysis listed in the monitoring requirements shall apply for the duration of each such intermittent discharge. The permittee shall not be required to monitor more than the frequency required by the permit.

F. Monitoring Modification

Monitoring, analytical, and reporting requirements may be modified by the Regional Administrator upon due notice.

G. Operation

The facilities and/or systems shall be operated by an operator with training and/or certification equivalent to the requirements of the State of California, at the level appropriate to the facility and/or system.

Part IV. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

The permittee shall conduct annual toxicity tests on 24-hour composite effluent samples, the first test within the first 90 days of discharge. Samples shall be collected for each point of discharge at the designated NPDES sampling station for the effluent (i.e., downstream from the last treatment process where a representative effluent sample can be obtained).

A Species and Test Methods

Species and short-term test methods for estimating the chronic toxicity of NPDES effluents are found in the fourth edition of *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms* (EPA-821-R-02-013, October 2002; Table IA, 40 CFR Part 136). The permittee shall conduct static-renewal toxicity tests with the fathead minnow, *Pimephales promelas* (Larval

Survival and Growth Test Method 1000.01); the daphnid, *Ceriodaphnia dubia* (Survival and Reproduction Test Method 1002.0); and the green alga, *Selenastrum capricornutum*, (also named *Raphidocelis subcapitata)*. (Growth Test Method 1003.0).

B. Chronic Toxicity Monitoring Triggers

There are no chronic toxicity effluent limits for this discharge. For this discharge, the chronic toxicity monitoring triggers are any one test result greater than 1.6 TUc (during the monthly reporting period), or any one or more test results with a calculated median value greater than 1.0 TUc (during the monthly reporting period). Results shall be reported in TUc, where TUc = 100/NOEC. The No Observed Effect Concentration (NOEC) is the highest concentration of toxicant to which organisms are exposed in a short-term chronic test that causes no observable adverse effects on the test organisms (e.g., the highest concentration of toxicant in which the values for the observed responses are not statistically significantly different from the controls). This permit requires additional toxicity testing if a chronic toxicity monitoring trigger is exceeded.

C. Quality Assurance

1. Quality assurance measures, instructions, and other recommendations and requirements are found in the test methods manual previously referenced. Additional requirements are specified, below.

2. The chronic instream waste concentrations (IWCs) for this discharge are 100% effluent and 62.5% effluent. A series of at least five effluent dilutions and a control shall be tested. At minimum, the dilution series shall include the IWCs and three dilutions below the IWCs (e.g., 100%, 62.5%, 50%, 25% and 12.5%).

3. Dilution water and control water should be laboratory water, as described in the test methods manual. If the dilution water is different from test organism culture water, then a second control using culture water shall be used

4. If organisms are not cultured in-house, then concurrent testing with a reference toxicant shall be conducted. If organisms are cultured in-house, then monthly reference toxicant testing is sufficient. Reference toxicant tests and effluent toxicity tests shall be conducted using the same test conditions (e.g., same test duration, etc.).

5. If either the reference toxicant test or effluent toxicity test do not meet all test acceptability criteria in the test methods manual, then the permittee must resample and retest within 14 days.

6. Because this permit requires sublethal hypothesis testing endpoints from Methods 1000.0, 1002.0, and 1003.0, with-in test variability must be reviewed and variability criteria (upper and lower PMSD bounds) must be applied, as specified under Section 10.2.8 of the test methods manual. The calculated PMSDs for both reference toxicant test and effluent toxicity test results must meet the upper and lower PMSD bounds variability

criteria specified in Section 10 of the test methods manual, Table 6 - *Variability Criteria (Upper and Lower PMSD Bounds) for Sublethal Hypothesis Testing Endpoints Submitted Under NPDES Permits*.

7. If the discharged effluent is chlorinated, then chlorine shall not be removed from the effluent sample prior to toxicity testing without written approval by EPA.

8. Where total ammonia concentrations in the effluent are ≥5 mg/L, toxicity may be contributed by unionized ammonia. pH drift during the toxicity test may contribute to artifactual toxicity when ammonia or other pH-dependent toxicants (e.g., metals) are present. If sample toxicity is confirmed to be artifactual and due to pH drift (as determined through parallel testing described in Section 11.3.6.1 of the test methods manual), then, following written approval by EPA, the permittee may use procedures outlined in Section 11.3.6.2 of the test methods manual to control sample pH during the toxicity test.

D. Initial Investigation TRE Workplan

Within 90 days of the permit effective date, the permittee shall prepare and submit a copy of their Initial Investigation Toxicity Reduction Evaluation (TRE) Workplan (1-2 pages) to EPA for review. This plan shall include steps the permittee intends to follow if toxicity is measured above the chronic toxicity monitoring triggers and should include, at minimum:

1. A description of the investigation and evaluation techniques that would be used to identify potential causes and sources of toxicity, effluent variability, and treatment system efficiency.

2. A description of methods for maximizing in-house treatment system efficiency, good housekeeping practices, and a list of all chemicals used in operations at the facility.

3. If a Toxicity Identification Evaluation (TIE) is necessary, an indication of who would conduct the TIEs (i.e., an in-house expert or outside contractor).

E. Accelerated Toxicity Testing and TRE/TIE Process

1. If a chronic toxicity monitoring trigger is exceeded and the source of toxicity is known (e.g., a temporary plant upset), then the permittee shall conduct one additional toxicity test using the same species and test method. This test shall begin within 14 days of receipt of test results exceeding a chronic toxicity monitoring trigger. If the additional toxicity test does not exceed a chronic toxicity monitoring trigger, then the permittee may return to their regular testing frequency.

2. If a chronic toxicity monitoring trigger is exceeded and the source of toxicity is not known, then the permittee shall conduct four additional toxicity tests using the same species and test method, approximately every two weeks, over an eight week period. This testing shall begin within 14 days of receipt of test results exceeding a chronic toxicity monitoring trigger. If none of the additional toxicity tests exceed a chronic toxicity monitoring trigger, then the permittee may return to their regular testing frequency.

3. If one of the additional toxicity tests (in paragraphs a or b) exceeds a chronic toxicity monitoring trigger, then, within 14 days of receipt of this test result, the permittee shall initiate a TRE using the same species and test method and, as guidance, EPA manual *Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants* (EPA 833-B-99-002, August 1999). In conjunction, the permittee shall develop and implement a Detailed TRE Workplan which shall include: further actions undertaken by the permittee to investigate, identify, and correct the causes of toxicity; actions the permittee will take to mitigate the impact of the discharge and prevent the recurrence of toxicity; and a schedule for these actions.

4. The permittee may initiate a Toxicity Identification Evaluation (TIE) as part of a TRE to identify the causes of toxicity, using as guidance EPA manuals: *Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I* (EPA/600/6-91/005F, May 1992); *Methods for Aquatic Toxicity Identification Evaluations, Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity* (EPA/600/R-92/080, September 1993); and *Methods for Aquatic Toxicity Identification Evaluations, Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity* (EPA/600/R-92/081, September 1993).

F. Reporting of Chronic Toxicity Monitoring Results

1. A full laboratory report for all toxicity testing shall be submitted as an attachment to the DMR for the month in which the toxicity test was conducted and shall also include: the toxicity test results (in TUc, NOEC, and EC25 or IC25) reported according to the test methods manual chapter on Report Preparation and Test Review;

the dates of sample collection and initiation of each toxicity test; all results for effluent parameters monitored concurrently with the toxicity test(s); and progress reports on TRE/TIE investigations.

2. The permittee shall notify EPA in writing within 14 days of exceedance of a chronic toxicity monitoring trigger. This notification shall describe actions the permittee has taken or will take to investigate, identify, and correct the causes of toxicity; the status of actions required by this permit; and schedule for actions not yet completed; or reason(s) that no action has been taken.

Part V. BIOSOLIDS

A. Biosolids (Sludge) Requirements

1. All biosolids generated by the permittee shall be reused or disposed of in compliance with the applicable portions of:

   a) 40 CFR 503 for biosolids that are land applied, placed in surface disposal sites (dedicated land disposal sites or monofills), or incinerated.

   b) 40 CFR 258 for biosolids disposed of in Municipal Solid Waste landfills.

   c) 40 CFR 257 for all biosolids disposal practices not covered under 40 CFR 258 or 503.

   d) 40 CFR 503 Subpart B (land application) for biosolids placed on the land for the purpose of providing nutrients or conditioning the soil for crops or vegetation.

   e) 40 CFR 503 Subpart C (surface disposal) for biosolids placed on the land for the purpose of disposal.

2. The permittee is responsible for assuring that all biosolids produced at its facility are used or disposed of in accordance with 40 CFR 257, 258, and 503, whether the permittee reuses or disposes of the biosolids itself or transfers them to another party for further treatment, reuse, or disposal. The permittee is responsible for informing subsequent preparers, appliers, or disposers of the requirements they must meet under 40 CFR 257, 258, and 503.

3. Duty to mitigate: The permittee shall take all reasonable steps to prevent or minimize any biosolids use or disposal which has a likelihood of adversely affecting human health or the environment.

4. No biosolids shall be allowed to enter wetlands or other waters of the United States.

5. Biosolids treatment, storage, and use or disposal shall not contaminate

groundwater.

6. Biosolids treatment, storage, and use or disposal shall not create a nuisance such as objectionable odors or flies.

7. The permittee shall assure that haulers who transport biosolids off site for treatment, reuse, or disposal take all necessary measures to keep the biosolids contained.

8. If biosolids are stored for over two years from the time they are generated, the permittee must ensure compliance with all the requirements for surface disposal under 40 CFR 503 Subpart C, or must submit a written request to EPA with the information in 503.20 (b), requesting permission for longer temporary storage.

9. Biosolids containing more than 50 mg/kg PCB's shall be disposed of in accordance with 40 CFR 761.

10. Any biosolids treatment, disposal, or storage site shall have facilities adequate to divert surface runoff from the adjacent area, to protect the site boundaries from erosion, and to prevent any conditions that would cause drainage from the materials in the disposal site to escape from the site. Adequate protection is defined as protected from at least a 100-year storm and from the highest tidal stage that may occur.

11. Inspection and Entry: The permittee shall allow the Regional Administrator or an authorized representative thereof, upon the presentation of credentials, to:

a) enter upon all premises where biosolids produced/treated by the permittee are treated, stored, used, or disposed, either by the permittee or by another party to whom the permittee transfers the biosolids for treatment, use, or disposal,

b) have access to and copy any records that must be kept under the conditions of this permit or of 40 CFR 503, by the permittee or by another party to whom the permittee transfers the biosolids for further treatment, use, or disposal,

c) inspect any facilities, equipment (including monitoring and control equipment), practices, or operations used in the biosolids treatment, storage, use, or disposal by the permittee or by another party to whom the permittee transfers the biosolids for treatment, use, or disposal.

12. Monitoring shall be conducted as follows. Monitoring is not required for biosolids shipped to an off-site POTW to be re-used or disposed by the recipient POTW, except as required by the recipient POTW.

a) Biosolids shall be tested for the metals required in Section 503.16 (for land application) or 503.26 (for surface disposal), using the methods in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (SW-846), as required in 503.8(4), at the following minimum frequencies:

Volume (dry metric tons)	Frequency
0 - 290	once per year
290 - 1500	once per quarter
1500 - 15000	once per 60 days
> 15000	once per month

Sampling Plan - For accumulated, previously untested biosolids, the permittee shall develop a representative sampling plan, including number and location of sampling points, and collect representative samples. Test results shall be expressed in mg pollutant per kg biosolids on a 100% dry weight basis.

Sampling Requirements: Biosolids to be land applied shall be tested for TKN, ammonium-N, and nitrate-N at the frequencies required above.

b) Prior to land application, the permittee shall demonstrate that the biosolids meet Class A or Class B pathogen reduction levels by one of the methods listed in 503.32. Prior to disposal in a surface disposal site, the permittee shall demonstrate that the biosolids meet Class B levels or shall ensure that the site is covered at the end of each operating day.

c) For biosolids that are land applied or placed in a surface disposal site, the permittee shall track and keep records of the operational parameters used to achieve Vector Attraction Reduction requirements in 503.33(b).

d) Class 1 facilities (facilities with pretreatment programs or others designated as Class 1 by the Regional Administrator) and Federal facilities with > 5 MGD influent flow shall sample biosolids for pollutants listed under Section 307(a) of the Act (as required in the pretreatment section of the permit for POTW=s with pretreatment programs.) Class 1 facilities and Federal Facilities with > 5 MGD influent flow shall test dioxin/dibenzofurans using a detection limit of < 1 pg/g during their next sampling period if they have not done so within the past 5 years and once per 5 years thereafter.

e) The biosolids shall be tested annually using the Toxicity Characteristic Leaching Procedure, or more frequently if necessary to determine hazardousness.

f) If biosolids are placed in a surface disposal site (dedicated land disposal site or monofill), a qualified groundwater scientist shall develop a groundwater monitoring program for the site, or shall certify that the placement of biosolids on

the site will not contaminate an aquifer.

g) Biosolids placed in a municipal landfill shall be tested by the Paint Filter Test (method 9095) at the frequency in 12(a) above or more often if necessary to demonstrate that there are no free liquids.

13. The permittee shall comply with the following notification requirements:

a) At least 60 days prior to the use or disposal of any biosolids from this facility to a new or previously unreported site, the permittee shall submit a reuse/disposal plan to EPA. The plan shall include results of the analyses required under the Monitoring Section above, a description and topographic map of the proposed site(s) for reuse or disposal, names and addresses of the applier(s) and site owner(s), and a listing of any state or local permits which must be obtained. For land application sites, the plan shall include a description of the crops or vegetation to be grown, proposed loading rates and nitrogen loadings to be used for the crops, and a groundwater monitoring plan if one exists. If the biosolids do not meet 503.13 Table 3 metals concentration limits, the permittee must notify EPA of any previous applications of biosolids subject to cumulative loading limits to the site, the cumulative amounts of pollutants applied to date, and background concentrations if known.

b) For biosolids that are land applied, the permittee shall notify the applier in writing of the nitrogen content of the biosolids, and of the applier's requirements under 503, including the requirement that the applier certify that the management practices, site restrictions, and any applicable vector attraction reduction requirements required in 40 CFR 503 Subpart B have been met. The permittee shall require the applier to certify at the end of 38 months following application of Class B biosolids that those harvesting restrictions in effect for up to 38 months have been met.

c) If biosolids are shipped to another State or to Indian Lands, the permittee must send 60 days prior notice of the shipment to the permitting authorities in the receiving State or Indian Land (the EPA Regional Office for that area and the State/Indian authorities).

d) Notification of non-compliance: The permittee shall notify EPA Region 9 of any non-compliance within 24 hours if the non-compliance may seriously endanger health or the environment. For other instances of non-compliance, the permittee shall notify EPA Region 9 and the Board of the non-compliance in writing within 5 working days of becoming aware of the non-compliance.

14. The permittee shall submit an annual biosolids report to EPA and the Board by February 19 of each year for the period covering the previous calendar year. The report shall include:

a) the amount of biosolids generated that year, in dry metric tons, and the amount accumulated from previous years.

b) results of all pollutant monitoring required in the Monitoring Section above.

c) Descriptions of pathogen reduction methods, vector attraction reduction methods, site and harvesting restrictions, and management practices, and certifications of these, as required in 503.17 and 503.27.

d) Results of any groundwater monitoring or certification by groundwater scientist that the application/disposal will not contaminate an aquifer.

e) Names and addresses of land appliers and surface disposal site operators, location of sites (latitude and longitude and names of sites); volumes applied (dry metric tons) and loading rates (metric tons/ha), dates of applications, crops grown and dates of seeding and harvesting.

f) Names, mailing addresses, and street addresses of persons who received biosolids for storage, further treatment, disposal in a municipal waste landfill, or for other reuse/disposal methods not covered above, and volumes delivered to each. Reports shall be submitted to:

U.S. EPA, WTR-7
Regional Biosolids Coordinator
75 Hawthorne St.
San Francisco, CA 94105-3901

Appendix A: STANDARD DEFINITIONS

1. A Acomposite sample@ means, for flow rate measurements, the arithmetic mean of no fewer than eight (8) individual measurements taken at equal intervals for eight (8) hours or for the duration of discharge, whichever is shorter. For other than flow rate measurements, a composite sample means, a combination of either (8) individual portions obtained at equal time intervals for eight (8) hours or for the duration of the discharge, whichever is shorted. The volume of each individual portion shall be directly proportional to the discharge flow rate at the time of sampling. The sampling period shall coincide with the period of maximum discharge.

Sample collection, preservation and handling shall be performed as described in the most recent edition of 40 CFR 136.3 (Table II). Where collection, preservation and handling procedures are not outlined in 40 CFR 136.3, procedures outlined in the 20th edition of *Standard Methods for the Examination of Water and Wastewater* shall be used.

2. The Adaily maximum concentration limit@ means the measurement made on any single discrete sample or composite sample.

3. The Adaily maximum mass limit@ means the total discharge by mass during any calendar day.

4. A Adiscrete@ or Agrab@sample means an individual sample collected from a single location at a specific time, or over a period of time not exceeding 15 minutes. Sample collection, preservation and handling shall be performed as described in the most recent edition of 40 CFR 136.3 (Table II). Where collection, preservation and handling procedures are not outlined in 40 CFR 136.3, procedures outlined in the 20th edition of *Standard Methods for the Examination of Water and Wastewater* shall be used.

5. The AMethod Detection Limit (MDL)@ is the minimum concentration of an analyte that can be detected with 99 percent confidence that the analyte concentration is greater than zero, as defined by the specific laboratory method listed in 40 CFR part 136. The procedure for determination of a laboratory MDL is in 40 CFR Part 136, Appendix B.

6. The AMinimum Level (ML)@ is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all of the method-specified sample weights, volumes, and processing steps have been followed (as defined in EPA=s draft *National Guidance for the Permitting, Monitoring, and Enforcement of Water Quality-Based Effluent Limitations Set Below Analytical Detection/Quantitative Levels*, March 22, 1994). Promulgated method-specific MLs are contained in 40 CFR Part 136, Appendix A and must be utilized if available. If a promulgated method-specific ML is not available, then an interim ML shall be calculated. The interim ML is equal to 3.18 times the promulgated method-specific MDL rounded to the nearest multiple of 1, 2, 5, 10, 20, 50, etc.

When neither an ML nor an MDL are available under 40 CFR 136, an interim ML should be

calculated by multiplying the best estimate of detection by a factor of 3.18; when a range of detection is given, the lower end value of the range of detection should be used to calculate the ML. At this point in the calculation, a different procedure is used for metals than for non-metals.

a. For metals: due to laboratory calibration practices, calculated MLs for metals may be rounded to the nearest whole number.

b. For non-metals: because analytical instruments are generally calibrated using the ML as the lowest calibration standard, the calculated ML is then rounded to the nearest multiple of (1, 2, or 5) H 10^n, where *n* is zero or an integer. (For example: if an MDL is 2.5 Φg/L, then the calculated ML is 2.5 Φg/L H 3.18 = 7.95 Φg/L. The multiple of (1, 2, or 5) H 10^n nearest to 7.95 is 1 H 10^1 = 10 Φg/L, so the calculated ML (rounded to the nearest whole number) is 10 Φg/L.)

7. The Amonthly or weekly average concentration limit@, other than for fecal or total coliform bacteria, means the arithmetic mean of consecutive measurements made during calendar month or weekly period, respectively. The Amonthly or weekly average@ concentration for fecal or total coliform bacteria means the geometric mean of measurements made during a monthly or weekly period, respectively. The geometric mean is the *n*th root of the product of *n* numbers.

8. The Amonthly or weekly average mass limitation@ means the total discharge by mass during a calendar monthly or weekly period, respectively, divided by the number of days in the period that the facility was discharging. Where less than daily sampling is required by this permit, the monthly or weekly average value shall be determined by the summation of all the measured discharges by mass divided by the number of days during the monthly or weekly period when the measurements were made.

9. A A24-hour composite sample@ means either: (i) a time-proportioned mixture of not less than eight (8) discrete aliquots obtained at equal time intervals. The volume of each aliquot shall be directly proportional to the discharge flow rate at the time of sampling, but not less 100 ml; or (ii) a flow-proportional combination of individual samples obtained at regular intervals over a 24-hour sampling period. The volume of each sample shall be proportional to the flow rate during the 24-hour sampling period. Sample collection, preservation and handling shall be performed as described in the most recent edition of 40 CFR Part 136.3 (Table II). Where collection, preservation and handling procedures are not outlined in 40 CFR Part 136.3, procedures outlined in the 20th edition of *Standard Methods for the Examination of Water and Wastewater* shall be used.

APPENDIX F

Yocha Dehe Wintun Nation
Water and Wastewater Feasibility Study
Water Balances

Water Balance - Cache Creek Hotel Expansion Project

Scenario: Existing Facilities

June 23, 2016 By: Bill Slenter, HydroScience

WASTEWATER INFLUENT FLOW		***STORAGE DATA***		***OTHER INPUTS***		***RECYCLED WATER DISTRIBUTION AND DISPOSAL ALTERNATIVES***					
Daily Average Wastewater Influent Flow	238,000 gpd	WWTP Reservoir	51 ac-ft	100-YR Multiplier	2.35 unitless	RW Returned for Toilets	55,000 gpd	Golf Course Irrigation	135 acres	Leachfields	gpd
Peak Day Wastewater Influent Flow	333,000 gpd	South Lake	438 ac-ft	Pan Evap Coefficient	0.75 unitless	NPDES Discharge	0 gpd	Landscape Irrigation	0 acres	Spray Fields	0 gpd

		100-YEAR ANNUAL PRECIPITATION RETURN PERIOD													*AVERAGE ANNUAL PRECIPITATION RETURN PERIOD*											
No. Days		31	30	31	31	28	31	30	31	30	31	31	30		31	30	31	31	28	31	30	31	30	31	31	30	
	Units	October	November	December	January	February	March	April	May	June	July	August	September	Water Year	October	November	December	January	February	March	April	May	June	July	August	September	Water Year
CLIMATE INPUTS																											
Precipitation	in	2.35	3.91	8.64	7.60	8.17	5.37	3.06	1.60	0.40	0.09	0.02	0.26	41.48	1.00	1.66	3.67	3.23	3.47	2.28	1.30	0.68	0.17	0.04	0.01	0.11	17.62
Pan Evaporation	in	5.72	2.48	1.66	1.53	2.15	3.79	5.82	8.9	11.00	13.22	12.06	8.67	77.00	5.72	2.48	1.66	1.53	2.15	3.79	5.82	8.90	11.00	13.22	12.06	8.67	77.00
Effective Lake Evaporation	in	4.29	1.40	0.93	0.86	1.21	2.13	4.37	6.68	8.25	9.92	9.05	6.50	55.57	4.29	1.86	1.25	1.15	1.61	2.84	4.37	6.68	8.25	9.92	9.05	6.50	57.75
WASTEWATER GENERATION																											
Facility Wastewater Influent	MG	7.4	7.1	7.4	7.4	6.7	7.4	7.1	7.4	7.1	7.4	7.4	7.1	86.9	7.4	7.1	7.4	7.4	6.7	7.4	7.1	7.4	7.1	7.4	7.4	7.1	86.9
TOTAL Wastewater Influent	ac-ft	22.6	21.9	22.6	22.6	20.5	22.6	21.9	22.6	21.9	22.6	22.6	21.9	266.6	22.6	21.9	22.6	22.6	20.5	22.6	21.9	22.6	21.9	22.6	22.6	21.9	266.6
WWTP CONTRIBUTIONS																											
Site Run-off	ac-ft	0.1	0.1	0.3	0.3	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.0	1.5	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.6
Basin Precipitation (direct)	ac-ft	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Basin Evaporation	ac-ft	-0.1	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.8	-0.1	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.9
WATERSHED CONTRIBUTING AREAS																											
Run-off into WWTP Reservoir	ac-ft	0.3	0.4	1.0	0.8	0.9	0.6	0.3	0.2	0.0	0.0	0.0	0.0	4.6	0.1	0.2	0.4	0.4	0.4	0.3	0.1	0.1	0.0	0.0	0.0	0.0	1.9
Run-off into South Lake	ac-ft	0.9	1.5	3.4	3.0	3.2	2.1	1.2	0.6	0.2	0.0	0.0	0.1	16.1	0.4	0.6	1.4	1.3	1.3	0.9	0.5	0.3	0.1	0.0	0.0	0.0	6.8
STORAGE RESERVOIRS																											
WWTP Reservoir Volume	ac-ft	1	1	1	1	1	51	51	51	51	51	1	1		1	1	1	1	51	51	51	51	51	1	1	1	
WWTP Reservoir Depth	ft	18.6	18.6	18.6	18.6	18.6	45.8	45.8	45.8	45.8	45.8	18.6	18.6		18.6	18.6	18.6	18.6	45.8	45.8	45.8	45.8	45.8	18.6	18.6	18.6	
WWTP Res Surface Area	acre	0.7	0.7	0.7	0.7	0.7	2.8	2.8	2.8	2.8	2.8	0.7	0.7		0.7	0.7	0.7	0.7	2.8	2.8	2.8	2.8	2.8	0.7	0.7	0.7	
GC South Lake Volume	ac-ft	93.1	93.1	116.7	151.7	184.5	166.1	191.8	174.3	118.8	43.0	93.1	93.1		93.1	93.1	105.8	129.6	102.4	123.3	131.6	100.6	43.0	93.1	93.1	93.1	
GC South Lake Depth	ft	7.9	7.9	9.6	11.9	13.9	12.8	14.3	13.3	9.7	4.2	7.9	7.9		7.9	7.9	8.8	10.4	8.6	10.0	10.6	8.5	4.2	7.9	7.9	7.9	
GC South Lake Surface Area	acre	14.4	14.4	15.1	16.1	17.0	16.5	17.2	16.7	15.1	13.1	14.4	14.4		14.4	14.4	14.8	15.4	14.7	15.3	15.5	14.6	13.1	14.4	14.4	14.4	
GC South Lake Elevation (+/-)	ft-amsl	265.9	265.9	267.6	269.9	271.9	270.8	272.3	271.3	267.7	262.2	265.9	265.9		265.9	265.9	266.8	268.4	266.6	268.0	268.6	266.5	262.2	265.9	265.9	265.9	
Total Water Surface Area	acre	15.1	15.1	15.8	16.7	17.7	19.3	20.0	19.5	18.0	16.0	15.1	15.1		15.1	15.1	15.5	16.1	17.5	18.1	18.3	17.5	16.0	15.1	15.1	15.1	
Reservoir Precip (direct)	ac-ft	3.8	6.4	14.1	12.4	13.3	8.8	5.0	2.6	0.7	0.2	0.0	0.4	67.7	1.6	2.7	6.0	5.3	5.7	3.7	2.1	1.1	0.3	0.1	0.0	0.2	28.7
Reservoir Evaporation	ac-ft	-5.4	-1.8	-1.2	-1.2	-1.8	-3.4	-7.3	-10.9	-12.4	-13.2	-11.4	-8.2	-78.1	-5.4	-2.3	-1.6	-1.5	-2.4	-4.3	-6.7	-9.7	-11.0	-12.5	-11.4	-8.2	-77.0
Percolation	in	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
RECYCLED WATER DISTRIBUTION																											
Recycled Water To Casino	ac-ft	-5.2	-5.1	-5.2	-5.2	-4.7	-5.2	-5.1	-5.2	-5.1	-5.2	-5.2	-5.1	-61.6	-5.2	-5.1	-5.2	-5.2	-4.7	-5.2	-5.1	-5.2	-5.1	-5.2	-5.2	-5.1	-61.6
Leachfields	ac-ft	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Landscape Irrigation	ac-ft	0.0	0.0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Golf Course Irrigation	ac-ft	-28.5	0.0	0.0	0.0	0.0	0.0	-33.6	-65.5	-84.2	-94.2	-83.7	-63.6	-453.3	-36.4	-5.4	0.0	0.0	0.0	-9.8	-43.9	-70.9	-85.6	-94.5	-83.8	-64.5	-494.7
Spray (Crop) Field	ac-ft	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RAW WATER MAKE-UP																											
Blend Raw Water (Cache Creek)	ac-ft	11.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	89.9	77.8	54.5	236.8	22.3	0.0	0.0	0.0	0.0	0.0	0.0	4.1	79.4	89.7	77.9	55.7	329.1
MONTHLY STORAGE BALANCE																											
Beginning Storage Volume	ac-ft	94.1	94.1	117.7	152.7	185.5	217.2	242.9	225.4	169.9	94.1	94.1	94.1		94.1	94.1	106.8	130.6	153.5	174.4	182.7	151.7	94.1	94.1	94.1	94.1	
Change in Water Volume	ac-ft	0.0	23.6	35.0	32.8	31.7	25.7	-17.4	-55.5	-75.8	0.0	0.0	0.0	0.0	0.0	12.7	23.8	22.9	20.9	8.3	-30.9	-57.6	0.0	0.0	0.0	0.0	0.0
Final Storage Volume	ac-ft	94.1	117.7	152.7	185.5	217.2	242.9	225.4	169.9	94.1	94.1	94.1	94.1		94.1	106.8	130.6	153.5	174.4	182.7	151.7	94.1	94.1	94.1	94.1	94.1	

Maximum Seasonal Storage (ac-ft)	**148.8**	Maximum Seasonal Storage (ac-ft)	**88.6**
Maximum Elevation in South Lake (ft-amsl)	**272.3**	Maximum Elevation in South Lake (ft-amsl)	**268.6**

Water Balance - Cache Creek Hotel Expansion Project

Scenario: Existing Facilities + Proposed Project

June 23, 2016 By: Bill Slenter, HydroScience

WASTEWATER INFLUENT FLOW			*STORAGE DATA*			*OTHER INPUTS*			*RECYCLED WATER DISTRIBUTION AND DISPOSAL ALTERNATIVES*							
Daily Average Wastewater Influent Flow	366,000	gpd	WWTP Reservoir	51	ac-ft	100-YR Multiplier	2.35	unitless	RW Returned for Toilets	70,000	gpd	Golf Course Irrigation	135	acres	Leachfields	0 gpd
Peak Day Wastewater Influent Flow	512,000	gpd	South Lake	438	ac-ft	Pan Evap Coefficient	0.75	unitless	NPDES Discharge	0	gpd	Landscape Irrigation	0	acres	Spray Fields	0 gpd

		100-YEAR ANNUAL PRECIPITATION RETURN PERIOD												
	No. Days	31	30	31	31	28	31	30	31	30	31	31	30	
	Units	October	November	December	January	February	March	April	May	June	July	August	September	Water Year
CLIMATE INPUTS														
Precipitation	in	2.35	3.91	8.64	7.60	8.17	5.37	3.06	1.60	0.40	0.09	0.02	0.26	41.48
Pan Evaporation	in	5.72	2.48	1.66	1.53	2.15	3.79	5.82	8.9	11.00	13.22	12.06	8.67	77.00
Effective Lake Evaporation	in	4.29	1.40	0.93	0.86	1.21	2.13	4.37	6.68	8.25	9.92	9.05	6.50	55.57
WASTEWATER GENERATION														
Facility Wastewater Influent	MG	11.3	11.0	11.3	11.3	10.2	11.3	11.0	11.3	11.0	11.3	11.3	11.0	133.6
TOTAL Wastewater Influent	ac-ft	34.8	33.7	34.8	34.8	31.5	34.8	33.7	34.8	33.7	34.8	34.8	33.7	410.0
WWTP CONTRIBUTIONS														
Site Run-off	ac-ft	0.1	0.1	0.3	0.3	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.0	1.5
Basin Precipitation (direct)	ac-ft	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.6
Basin Evaporation	ac-ft	-0.1	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.8
WATERSHED CONTRIBUTING AREAS														
Run-off into WWTP Reservoir	ac-ft	0.3	0.4	1.0	0.8	0.9	0.6	0.3	0.2	0.0	0.0	0.0	0.0	4.6
Run-off into South Lake	ac-ft	0.9	1.5	3.4	3.0	3.2	2.1	1.2	0.6	0.2	0.0	0.0	0.1	16.1
STORAGE RESERVOIRS														
WWTP Reservoir Volume	ac-ft	1	1	1	1	1	51	51	51	51	51	1	1	
WWTP Reservoir Depth	ft	18.6	18.6	18.6	18.6	18.6	45.8	45.8	45.8	45.8	45.8	18.6	18.6	
WWTP Res Surface Area	acre	0.7	0.7	0.7	0.7	0.7	2.8	2.8	2.8	2.8	2.8	0.7	0.7	
GC South Lake Volume	ac-ft	78.9	81.1	115.2	160.9	204.4	195.7	232.0	228.1	184.4	115.0	84.5	78.9	
GC South Lake Depth	ft	6.9	7.1	9.5	12.5	15.0	14.5	16.5	16.3	13.9	9.5	7.3	6.9	
GC South Lake Surface Area	acre	14.1	14.1	15.0	16.3	17.6	17.3	18.3	18.2	17.0	15.0	14.2	14.1	
GC South Lake Elevation (+/-)	ft-amsl	264.9	265.1	267.5	270.5	273.0	272.5	274.5	274.3	271.9	267.5	265.3	264.9	
Total Water Surface Area	acre	14.7	14.8	15.7	17.0	18.2	20.2	21.2	21.1	19.8	17.9	14.9	14.7	
Reservoir Precip (direct)	ac-ft	3.8	6.4	14.1	12.4	13.3	8.8	5.0	2.6	0.7	0.2	0.0	0.4	67.7
Reservoir Evaporation	ac-ft	-5.3	-1.7	-1.2	-1.2	-1.8	-3.6	-7.7	-11.7	-13.6	-14.8	-11.2	-8.0	-81.9
Percolation	in	0	0	0	0	0	0	0	0	0	0	0	0	0.0
RECYCLED WATER DISTRIBUTION														
Recycled Water To Casino	ac-ft	-6.7	-6.4	-6.7	-6.7	-6.0	-6.7	-6.4	-6.7	-6.4	-6.7	-6.7	-6.4	-78.4
Leachfields	ac-ft	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Landscape Irrigation	ac-ft	0.0	0.0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Golf Course Irrigation	ac-ft	-25.7	0.0	0.0	0.0	0.0	0.0	-30.0	-63.6	-83.7	-94.1	-83.7	-63.3	-444.2
Spray (Crop) Field	ac-ft	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RAW WATER MAKE-UP														
Blend Raw Water (Cache Creek)	ac-ft	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	61.3	43.6	104.9
MONTHLY STORAGE BALANCE														
Beginning Storage Volume	ac-ft	79.9	82.1	116.2	161.9	205.4	246.8	283.1	279.2	235.5	166.1	85.5	79.9	
Change in Water Volume	ac-ft	2.2	34.0	45.8	43.5	41.4	36.3	-3.9	-43.8	-69.4	-80.6	-5.6	0.0	0.0
Final Storage Volume	ac-ft	82.1	116.2	161.9	205.4	246.8	283.1	279.2	235.5	166.1	85.5	79.9	79.9	
Maximum Seasonal Storage (ac-ft)														**203.2**
Maximum Elevation in South Lake (ft-amsl)														**274.5**

		AVERAGE ANNUAL PRECIPITATION RETURN PERIOD												
	No. Days	31	30	31	31	28	31	30	31	30	31	31	30	
	Units	October	November	December	January	February	March	April	May	June	July	August	September	Water Year
CLIMATE INPUTS														
Precipitation	in	1.00	1.66	3.67	3.23	3.47	2.28	1.30	0.68	0.17	0.04	0.01	0.11	17.62
Pan Evaporation	in	5.72	2.48	1.66	1.53	2.15	3.79	5.82	8.90	11.00	13.22	12.06	8.67	77.00
Effective Lake Evaporation	in	4.29	1.86	1.25	1.15	1.61	2.84	4.37	6.68	8.25	9.92	9.05	6.50	57.75
WASTEWATER GENERATION														
Facility Wastewater Influent	MG	11.3	11.0	11.3	11.3	10.2	11.3	11.0	11.3	11.0	11.3	11.3	11.0	133.6
TOTAL Wastewater Influent	ac-ft	34.8	33.7	34.8	34.8	31.5	34.8	33.7	34.8	33.7	34.8	34.8	33.7	410.0
WWTP CONTRIBUTIONS														
Site Run-off	ac-ft	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.6
Basin Precipitation (direct)	ac-ft	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Basin Evaporation	ac-ft	-0.1	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.9
WATERSHED CONTRIBUTING AREAS														
Run-off into WWTP Reservoir	ac-ft	0.1	0.2	0.4	0.4	0.4	0.3	0.1	0.1	0.0	0.0	0.0	0.0	1.9
Run-off into South Lake	ac-ft	0.4	0.6	1.4	1.3	1.3	0.9	0.5	0.3	0.1	0.0	0.0	0.0	6.8
STORAGE RESERVOIRS														
WWTP Reservoir Volume	ac-ft	1	1	1	1	1	51	51	51	51	51	1	1	
WWTP Reservoir Depth	ft	18.6	18.6	18.6	18.6	18.6	45.8	45.8	45.8	45.8	45.8	18.6	18.6	
WWTP Res Surface Area	acre	0.7	0.7	0.7	0.7	0.7	2.8	2.8	2.8	2.8	2.8	0.7	0.7	
GC South Lake Volume	ac-ft	78.9	78.9	102.1	136.6	170.2	150.8	169.7	148.7	97.0	28.8	78.9	78.9	
GC South Lake Depth	ft	6.9	6.9	8.6	10.9	13.0	11.8	13.0	11.7	8.2	3.1	6.9	6.9	
GC South Lake Surface Area	acre	14.1	14.1	14.7	15.6	16.6	16.0	16.6	16.0	14.5	12.8	14.1	14.1	
GC South Lake Elevation (+/-)	ft-amsl	264.9	264.9	266.6	268.9	271.0	269.8	271.0	269.7	266.2	261.1	264.9	264.9	
Total Water Surface Area	acre	14.7	14.7	15.4	16.3	17.3	18.9	19.4	18.8	17.4	15.6	14.7	14.7	
Reservoir Precip (direct)	ac-ft	1.6	2.7	6.0	5.3	5.7	3.7	2.1	1.1	0.3	0.1	0.0	0.2	28.7
Reservoir Evaporation	ac-ft	-5.3	-2.3	-1.6	-1.6	-2.3	-4.5	-7.1	-10.5	-11.9	-12.9	-11.1	-8.0	-79.0
Percolation	in	0	0	0	0	0	0	0	0	0	0	0	0	0.0
RECYCLED WATER DISTRIBUTION														
Recycled Water To Casino	ac-ft	-6.7	-6.4	-6.7	-6.7	-6.0	-6.7	-6.4	-6.7	-6.4	-6.7	-6.7	-6.4	-78.4
Leachfields	ac-ft	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Landscape Irrigation	ac-ft	0.0	0.0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Golf Course Irrigation	ac-ft	-36.4	-5.4	0.0	0.0	0.0	-9.8	-43.9	-70.9	-85.6	-94.5	-83.8	-64.5	-494.7
Spray (Crop) Field	ac-ft	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RAW WATER MAKE-UP														
Blend Raw Water (Cache Creek)	ac-ft	11.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	79.3	66.9	45.1	204.5
MONTHLY STORAGE BALANCE														
Beginning Storage Volume	ac-ft	79.9	79.9	103.1	137.6	171.2	201.9	220.8	199.8	148.1	79.9	79.9	79.9	
Change in Water Volume	ac-ft	0.0	23.2	34.6	33.6	30.7	18.9	-20.9	-51.8	-68.2	0.0	0.0	0.0	0.0
Final Storage Volume	ac-ft	79.9	103.1	137.6	171.2	201.9	220.8	199.8	148.1	79.9	79.9	79.9	79.9	
Maximum Seasonal Storage (ac-ft)														**140.9**
Maximum Elevation in South Lake (ft-amsl)														**271.0**

Water Balance - Cache Creek Hotel Expansion Project

Scenario: Existing Facilities + Reduced Intensity Project

June 23, 2016 By: Bill Slenter, HydroScience

WASTEWATER INFLUENT FLOW			*STORAGE DATA*			*OTHER INPUTS*			*RECYCLED WATER DISTRIBUTION AND DISPOSAL ALTERNATIVES*							
Daily Average Wastewater Influent Flow	355,000	gpd	WWTP Reservoir	51	ac-ft	100-YR Multiplier	2.35	unitless	RW Returned for Toilets	70,000	gpd	Golf Course Irrigation	135	acres	Leachfields	0 gpd
Peak Day Wastewater Influent Flow	497,000	gpd	South Lake	438	ac-ft	Pan Evap Coefficient	0.75	unitless	NPDES Discharge	0	gpd	Landscape Irrigation	0	acres	Spray Fields	0 gpd

		100-YEAR ANNUAL PRECIPITATION RETURN PERIOD													*AVERAGE ANNUAL PRECIPITATION RETURN PERIOD*											
No. Days		31	30	31	31	28	31	30	31	30	31	31	30		31	30	31	31	28	31	30	31	30	31	31	30	
	Units	October	November	December	January	February	March	April	May	June	July	August	September	Water Year	October	November	December	January	February	March	April	May	June	July	August	September	Water Year
CLIMATE INPUTS																											
Precipitation	in	2.35	3.91	8.64	7.60	8.17	5.37	3.06	1.60	0.40	0.09	0.02	0.26	41.48	1.00	1.66	3.67	3.23	3.47	2.28	1.30	0.68	0.17	0.04	0.01	0.11	17.62
Pan Evaporation	in	5.72	2.48	1.66	1.53	2.15	3.79	5.82	8.9	11.00	13.22	12.06	8.67	77.00	5.72	2.48	1.66	1.53	2.15	3.79	5.82	8.90	11.00	13.22	12.06	8.67	77.00
Effective Lake Evaporation	in	4.29	1.40	0.93	0.86	1.21	2.13	4.37	6.68	8.25	9.92	9.05	6.50	55.57	4.29	1.86	1.25	1.15	1.61	2.84	4.37	6.68	8.25	9.92	9.05	6.50	57.75
WASTEWATER GENERATION																											
Facility Wastewater Influent	MG	11.0	10.7	11.0	11.0	9.9	11.0	10.7	11.0	10.7	11.0	11.0	10.7	129.6	11.0	10.7	11.0	11.0	9.9	11.0	10.7	11.0	10.7	11.0	11.0	10.7	129.6
TOTAL Wastewater Influent	ac-ft	33.8	32.7	33.8	33.8	30.5	33.8	32.7	33.8	32.7	33.8	33.8	32.7	397.7	33.8	32.7	33.8	33.8	30.5	33.8	32.7	33.8	32.7	33.8	33.8	32.7	397.7
WWTP CONTRIBUTIONS																											
Site Run-off	ac-ft	0.1	0.1	0.3	0.3	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.0	1.5	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.6
Basin Precipitation (direct)	ac-ft	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Basin Evaporation	ac-ft	-0.1	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.8	-0.1	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.9
WATERSHED CONTRIBUTING AREAS																											
Run-off into WWTP Reservoir	ac-ft	0.3	0.4	1.0	0.8	0.9	0.6	0.3	0.2	0.0	0.0	0.0	0.0	4.6	0.1	0.2	0.4	0.4	0.4	0.3	0.1	0.1	0.0	0.0	0.0	0.0	1.9
Run-off into South Lake	ac-ft	0.9	1.5	3.4	3.0	3.2	2.1	1.2	0.6	0.2	0.0	0.0	0.1	16.1	0.4	0.6	1.4	1.3	1.3	0.9	0.5	0.3	0.1	0.0	0.0	0.0	6.8
STORAGE RESERVOIRS																											
WWTP Reservoir Volume	ac-ft	1	1	1	1	1	51	51	51	51	51	1	1		1	1	1	1	1	51	51	51	51	51	1	1	
WWTP Reservoir Depth	ft	18.6	18.6	18.6	18.6	18.6	45.8	45.8	45.8	45.8	45.8	18.6	18.6		18.6	18.6	18.6	18.6	18.6	45.8	45.8	45.8	45.8	45.8	18.6	18.6	
WWTP Res Surface Area	acre	0.7	0.7	0.7	0.7	0.7	2.8	2.8	2.8	2.8	2.8	0.7	0.7		0.7	0.7	0.7	0.7	0.7	2.8	2.8	2.8	2.8	2.8	0.7	0.7	
GC South Lake Volume	ac-ft	78.9	80.1	113.1	157.8	200.3	190.7	225.9	221.1	176.4	106.2	78.9	78.9		78.9	78.9	101.1	134.6	167.1	146.8	164.6	142.7	90.0	28.8	78.9	78.9	
GC South Lake Depth	ft	6.9	7.0	9.3	12.3	14.8	14.2	16.2	16.0	13.4	8.8	6.9	6.9		6.9	6.9	8.5	10.8	12.8	11.6	12.7	11.3	7.7	3.1	6.9	6.9	
GC South Lake Surface Area	acre	14.1	14.1	15.0	16.2	17.4	17.2	18.2	18.0	16.8	14.8	14.1	14.1		14.1	14.1	14.6	15.6	16.5	15.9	16.4	15.8	14.3	12.8	14.1	14.1	
GC South Lake Elevation (+/-)	ft-amsl	264.9	265.0	267.3	270.3	272.8	272.2	274.2	274.0	271.4	266.8	264.9	264.9		264.9	264.9	266.5	268.8	270.8	269.6	270.7	269.3	265.7	261.1	264.9	264.9	
Total Water Surface Area	acre	14.7	14.8	15.7	16.9	18.1	20.0	21.0	20.9	19.6	17.6	14.7	14.7		14.7	14.7	15.3	16.3	17.2	18.8	19.3	18.6	17.2	15.6	14.7	14.7	
Reservoir Precip (direct)	ac-ft	3.8	6.4	14.1	12.4	13.3	8.8	5.0	2.6	0.7	0.2	0.0	0.4	67.7	1.6	2.7	6.0	5.3	5.7	3.7	2.1	1.1	0.3	0.1	0.0	0.2	28.7
Reservoir Evaporation	ac-ft	-5.3	-1.7	-1.2	-1.2	-1.8	-3.6	-7.6	-11.6	-13.5	-14.6	-11.1	-8.0	-81.2	-5.3	-2.3	-1.6	-1.6	-2.3	-4.4	-7.0	-10.4	-11.8	-12.9	-11.1	-8.0	-78.7
Percolation	in	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
RECYCLED WATER DISTRIBUTION																											
Recycled Water To Casino	ac-ft	-6.7	-6.4	-6.7	-6.7	-6.0	-6.7	-6.4	-6.7	-6.4	-6.7	-6.7	-6.4	-78.4	-6.7	-6.4	-6.7	-6.7	-6.0	-6.7	-6.4	-6.7	-6.4	-6.7	-6.7	-6.4	-78.4
Leachfields	ac-ft	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Landscape Irrigation	ac-ft	0.0	0.0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Golf Course Irrigation	ac-ft	-25.7	0.0	0.0	0.0	0.0	0.0	-30.0	-63.6	-83.7	-94.1	-83.7	-63.3	-444.2	-36.4	-5.4	0.0	0.0	0.0	-9.8	-43.9	-70.9	-85.6	-94.5	-83.8	-64.5	-494.7
Spray (Crop) Field	ac-ft	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RAW WATER MAKE-UP																											
Blend Raw Water (Cache Creek)	ac-ft	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1	67.8	44.6	116.5	12.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.7	80.4	67.9	46.1	216.5
MONTHLY STORAGE BALANCE																											
Beginning Storage Volume	ac-ft	79.9	81.1	114.1	158.8	201.3	241.8	277.0	272.2	227.5	157.3	79.9	79.9		79.9	79.9	102.1	135.6	168.1	197.9	215.7	193.8	141.1	79.9	79.9	79.9	
Change in Water Volume	ac-ft	1.2	33.0	44.7	42.5	40.5	35.2	-4.8	-44.7	-70.2	-77.4	0.0	0.0	0.0	0.0	22.2	33.5	32.6	29.7	17.8	-21.9	-52.7	-61.2	0.0	0.0	0.0	0.0
Final Storage Volume	ac-ft	81.1	114.1	158.8	201.3	241.8	277.0	272.2	227.5	157.3	79.9	79.9	79.9		79.9	102.1	135.6	168.1	197.9	215.7	193.8	141.1	79.9	79.9	79.9	79.9	
Maximum Seasonal Storage (ac-ft)														**197.1**													**135.8**
Maximum Elevation in South Lake (ft-amsl)														**274.2**													**270.8**

APPENDIX G

GRADING AND DRAINAGE STUDY

GRADING
&
DRAINAGE STUDY

for

HOTEL EXPANSION PROJECT

CACHE CREEK CASINO RESORT

BROOKS, CALIFORNIA

JULY 22, 2016

DRAFT

Prepared by:

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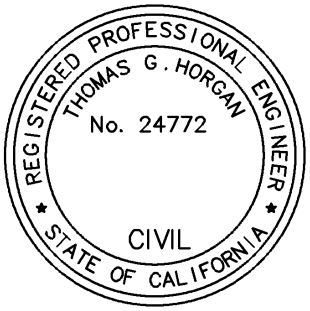

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CHAPTER 3

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CHAPTER 1

1.0 INTRODUCTION

This Chapter briefly describes the existing Cache Creek Casino Resort (CCCR), the proposed Hotel Expansion Project and the scope of this study. The 8½" x 11" and 11" x 17" size figures referenced in this study are placed at the end of their respective chapters.

1.01 BACKGROUND

CCCR is located along the east side of SH16, approximately 0.8 mile south of Brooks, a small, unincorporated community in western Yolo County, situated on the perimeter of an agricultural region in the Capay Valley. A location map is included as **Figure 1.1** and a site plan of existing resort facilities as **Figure 1.2**.

The CCCR existing facilities include the casino, hotel, spa and pool, parking garage, minimart-fuel station, fire station, water desalination treatment facility, water storage tank, wastewater treatment plant, maintenance building, warehouse, parking lots and nearby golf course.

The Yocha Dehe Wintun Nation has prepared the Tribal EIR for the Cache Creek Hotel Expansion Project (Proposed Project). The Proposed Project Site Plan is shown as **Figure 1.3**.

This Proposed Project includes:

- Expansion of the existing hotel facilities with construction of a new hotel tower at the south side of the existing casino building. This expansion would occur within the existing paved surface parking area. The proposed fire command center and fire pump room will be constructed on the abandoned (2010±) sewer pump station site located just south of the proposed hotel.

- Infrastructure modifications:

  The existing Wastewater Treatment Plant (WWTP) and Water Treatment Facility (WTF) will be modified as part of the Proposed Project to treat the additional wastewater generated by the project and to supply the additional water requirement.

  Addition of a second potable water storage tank adjacent to the existing tank. The existing hilltop tank yard will be expanded to accommodate the new tank.

  Construction of a paved auto parking lot ("Lot F") near the existing photovoltaic array. This lot will be terraced into the existing hillside and connected to Golf Course Drive.

All Proposed Project work would be on Trust Land, and, therefore, will not be "off-reservation."

1.02 SCOPE OF STUDY

This study presents a preliminary description of the grading and drainage improvements required to accommodate the Proposed Project. This document will also provide background for environmental assessment studies.

The scope of this study includes the following:

- Description of existing topographic features.
- Definition of basic grading features needed to accommodate the Proposed Project.
- Evaluation of existing drainage facilities.
- Identification of drainage facilities required to serve the Proposed Project.

Proposed grading features and drainage facilities are presented with conceptual planning level detail, and some refinements and modifications to this preliminary design are anticipated during development of the final design.

CACHE CREEK CASINO RESORT

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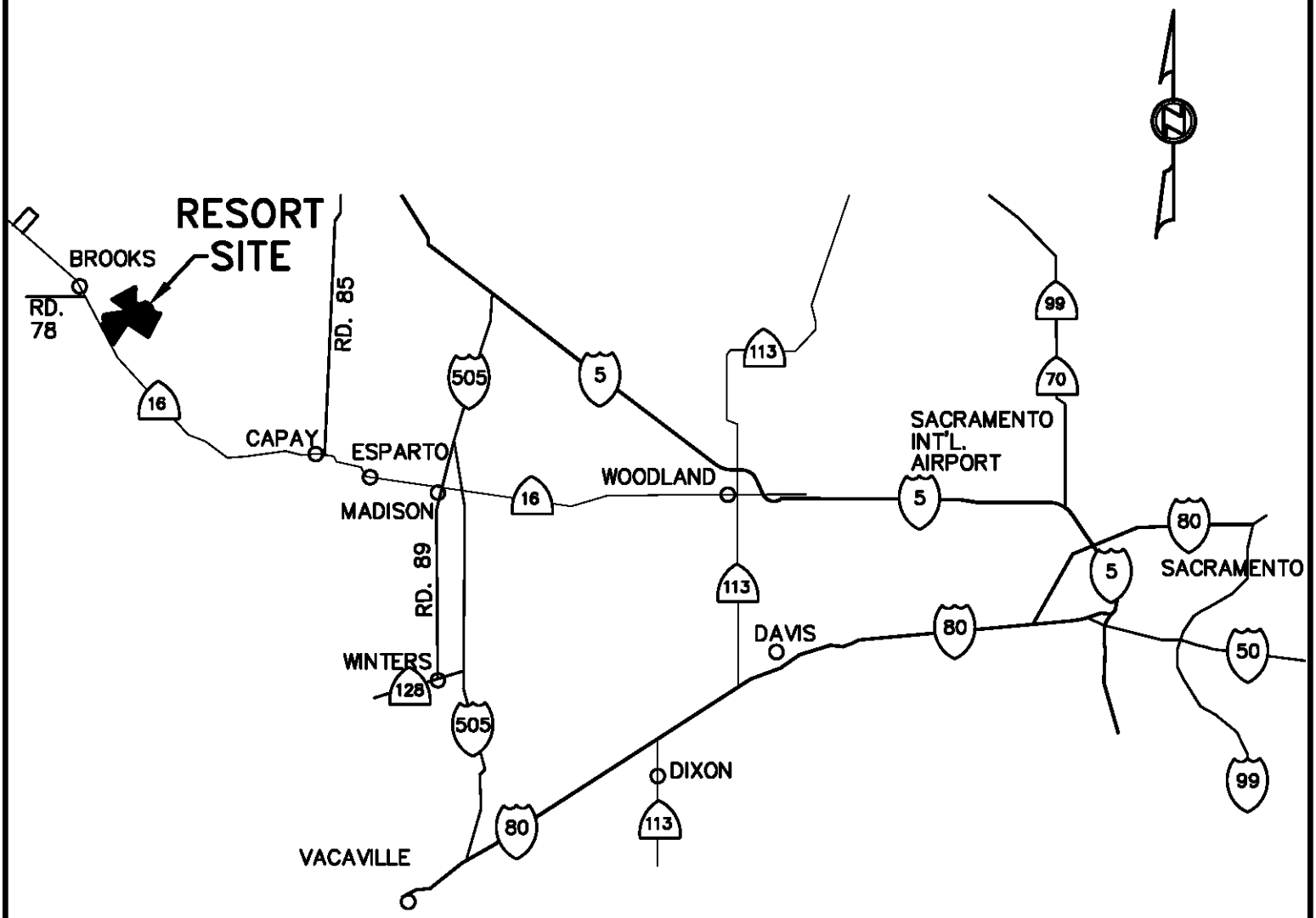
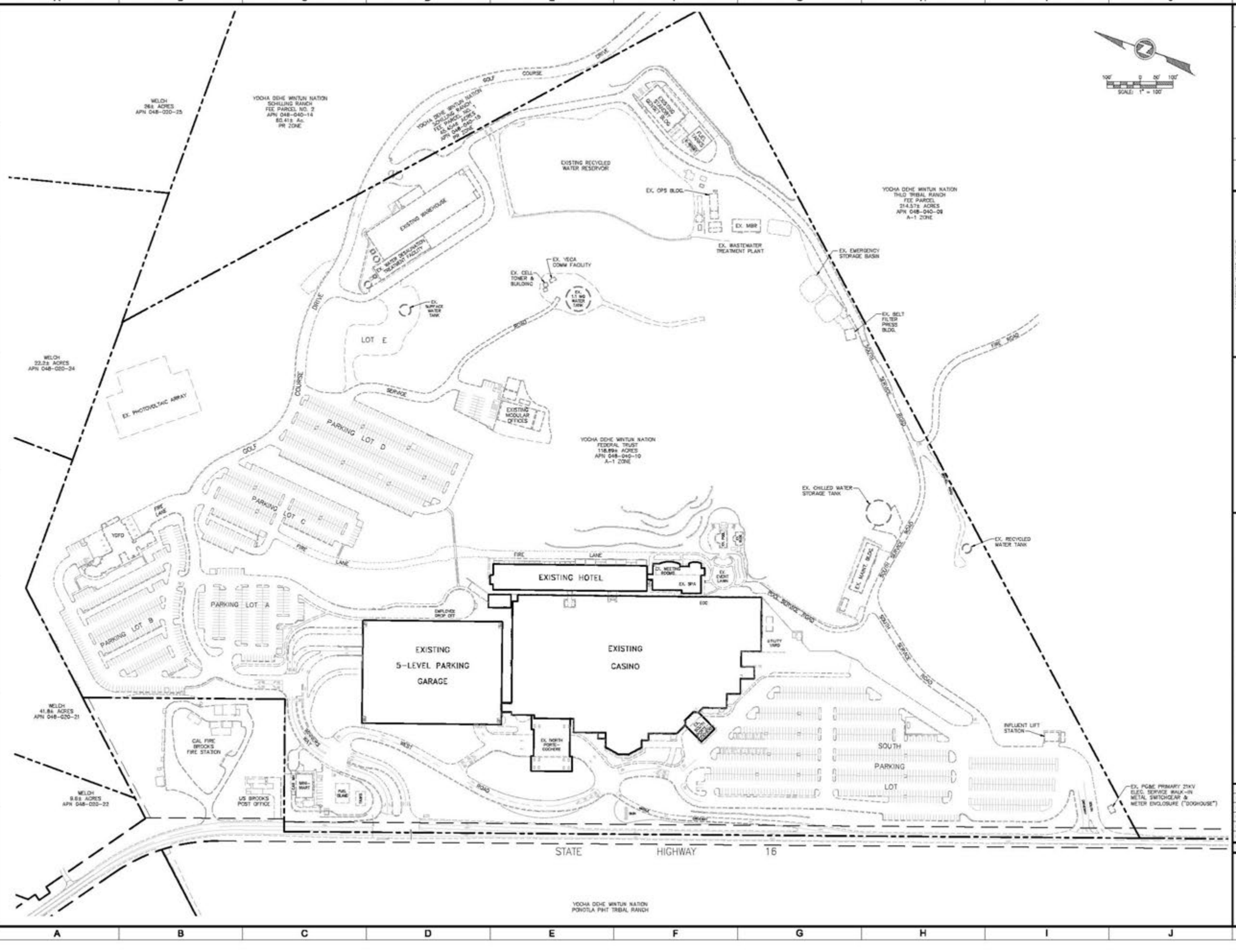


FIGURE 1.1

LOCATION MAP



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REVISION

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BY THOMAS G. HORGAN

DATE P.E. 24772

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HOTEL EXPANSION PROJECT
CACHE CREEK CASINO RESORT

14455 STATE HIGHWAY 16, BROOKS, YOCHA DEHE WINTUN NATION, YOLO CO., CA.

JOB NO.	2305-705-C
DESIGNED	TGH
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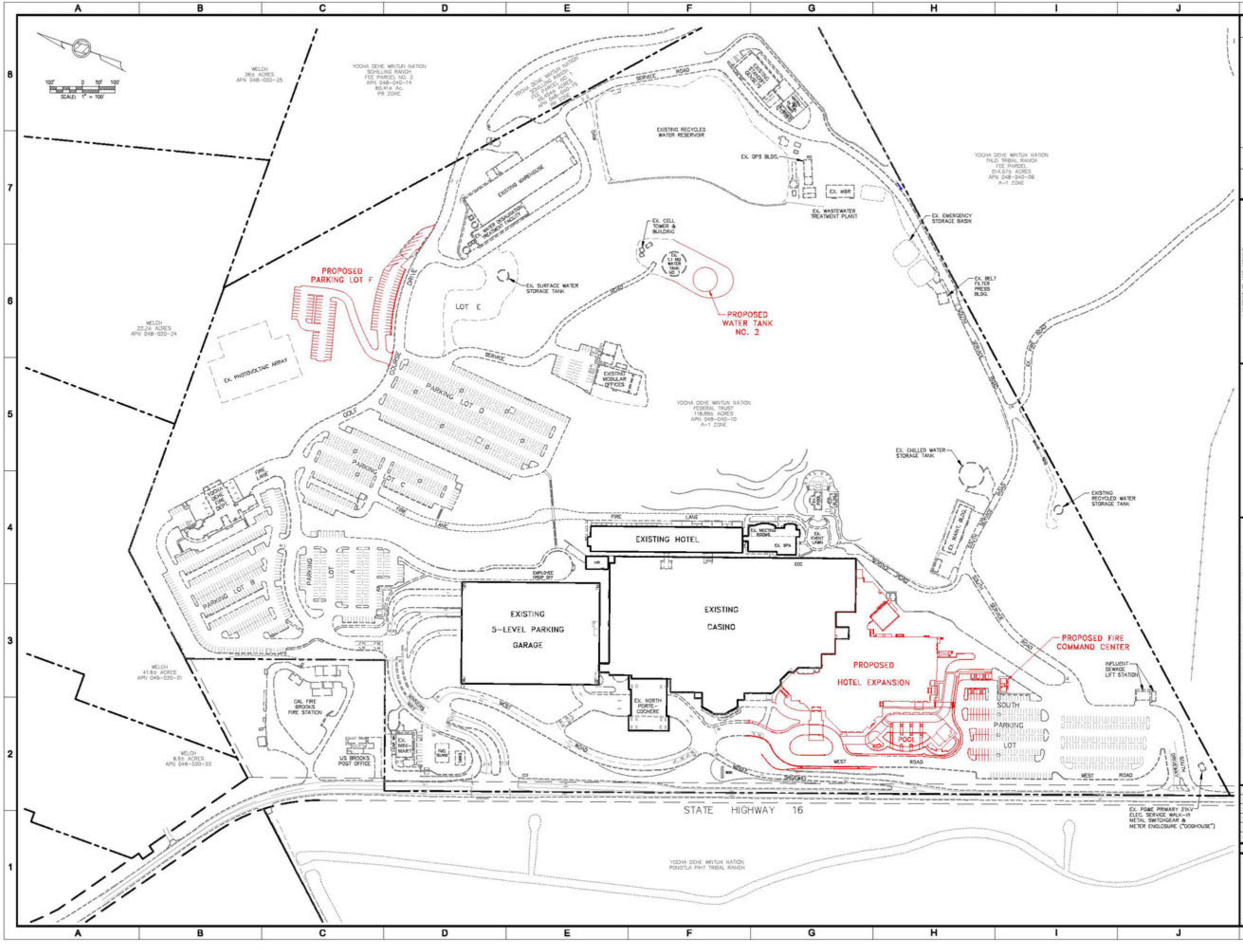
FILE	FIG. 1.2
CHECKED	TGH
DATE	22 JULY 2016
SCALE	1"=100'

SHEET

FIG. 1.2



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DATE _____ P.E. 24772
REGISTRATION EXPIRES: 12-31-17

PROPOSED PROJECT SITE PLAN

HOTEL EXPANSION PROJECT
CACHE CREEK CASINO RESORT

14455 STATE HIGHWAY 16, BROOKS, YOCHA DEHE WINTUN NATION, YOLO CO., CA.

JOB NO.	2505-705-C
DESIGNED	TGH
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FILE	Fig. 1.3
CHECKED	TGH
DATE	22 JULY 2016
SCALE	1"=100'

SHEET
FIG. 1.3

CHAPTER 2

2.0 GRADING

This chapter describes the grading features of the existing facilities and the grading associated with the Proposed Project.

2.01 EXISTING CONDITIONS

Site plan and topographic features of the existing CCCR facilities are shown on **Figure 2.1**. The casino, hotel, spa and pool, garage, fire station, warehouse and mini-mart buildings and related parking areas are situated on terraces that were graded into the original hillsides. Masonry retaining walls were constructed along the east side of portions of SH16, along buildings and on the terraced hillside east of the hotel and spa. Three gently sloping driveways, known as "south driveway," "middle driveway" and "Winners Way," connect the site to SH16. The SH16 - Winners Way intersection is signalized.

2.02 PROPOSED GRADING

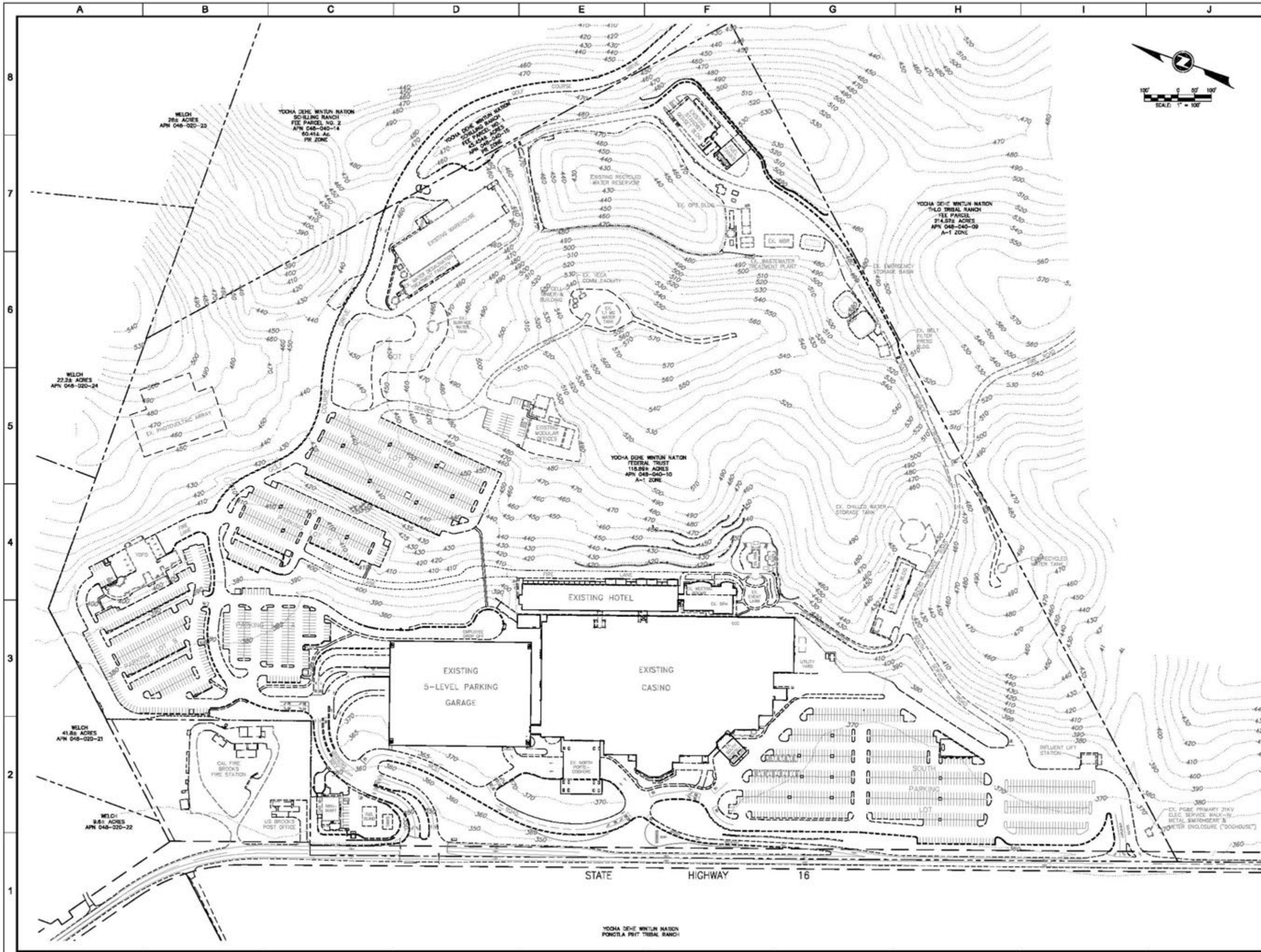
The Proposed Project involves construction of a level building pad for the hotel on the existing parking area adjacent to the south side of the existing casino building. The proposed hotel first-floor level would be set to match the existing casino floor elevation. **Figure 2.2** depicts the proposed general grading features. **Figure 2.3** details proposed grading around the proposed hotel.

The proposed hotel construction on the existing south parking lot requires only minor excavation for the truck docks, but more significant earth fill placement for the building pad. Retaining walls along the westerly and southerly sides of the hotel building site will create a level pad (**Figure 2.3**). Only minor grading modifications are contemplated for the balance of the south parking lot (south of the proposed building expansion) to provide a smooth grade transition to the drive aisles and nearby parking spaces. Grading activities would include excavation of approximately 30,000 cubic yards of earth needed to construct the hotel building pad.

Earthwork required for the fire command center and fire pump room will be negligible as the site is already level. Terrace grading for Lot F construction will require roughly 5,000 cubic yards of earth fill. Expansion of the existing hilltop water storage tank yard will yield less than 1,000 cubic yards of excess excavated earth.

Earth excavated from the hilltop tank yard will be used for fill at Lot F. Soil needed for the balance of Parking Lot F fill and for hotel building pad construction (roughly 34,000 total cubic yards) will be excavated from the area east of the existing south parking lot, on the Casino Trust Parcel. The excavated area will be contoured to blend into the adjoining land and the sloped areas will be constructed with protective erosion control features.

All earthwork, including excavation, fill and earth building pad construction, will be performed in accord with the project geotechnical engineering study. Earthwork activities will be monitored and inspected by the project geotechnical engineer. A Storm Water Pollution Prevention Plan (SWPPP), including an erosion and sedimentation control plan, will be incorporated into the project grading and drainage construction documents.



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CACHE CREEK CASINO RESORT

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JOB NO.	2303-705-C
DESIGNED	TGH
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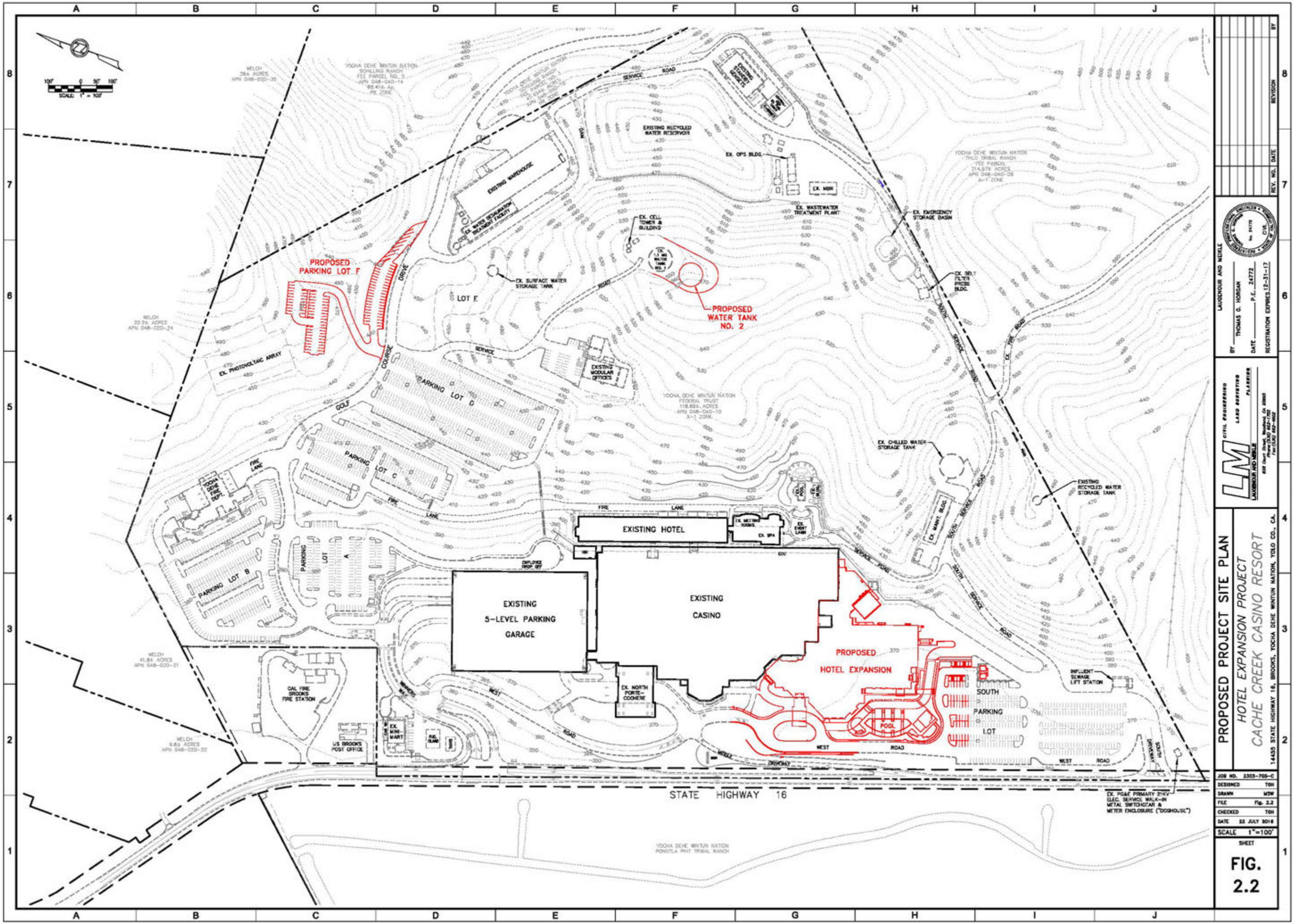
FILE	FIG. 2.1
CHECKED	TGH
DATE	22 JULY 2016
SCALE	1"=100'

SHEET

FIG. 2.1


PROPOSED PARKING LOT F
PROPOSED WATER TANK NO. 2
EXISTING HOTEL
EXISTING 5-LEVEL PARKING GARAGE
EXISTING CASINO
PROPOSED HOTEL EXPANSION
SOUTH PARKING LOT
POOL
PARKING LOT A
PARKING LOT B
PARKING LOT C
PARKING LOT D
LOT E
EXISTING WAREHOUSE
EXISTING RECYCLED WATER RESERVOIR
EX. OPS BLDG.
EX. WASTEWATER TREATMENT PLANT
EX. EMERGENCY STORAGE BASIN
EX. CELL TOWER & BUILDING
EX. SURFACE WATER STORAGE TANK
EX. PHOTOVOLTAIC ARRAY
EXISTING MODULAR OFFICES
EX. CHILLED WATER STORAGE TANK
EXISTING RECYCLED WATER STORAGE TANK
EX. NORTH PORTE-COCHERE
CAL FIRE BROOKS FIRE STATION
US BROOKS POST OFFICE
EX. MINI-MART
INFLUENT SEWAGE LIFT STATION
EX. PG&E PRIMARY 21KV ELEC. SERVICE WALK-IN METAL SWITCHGEAR & METER ENCLOSURE ("DOGHOUSE")
STATE HIGHWAY 16
SCALE: 1" = 100'
LAUGENOUR AND MEIKLE
BY THOMAS G. HORGAN
DATE P.E. 24772
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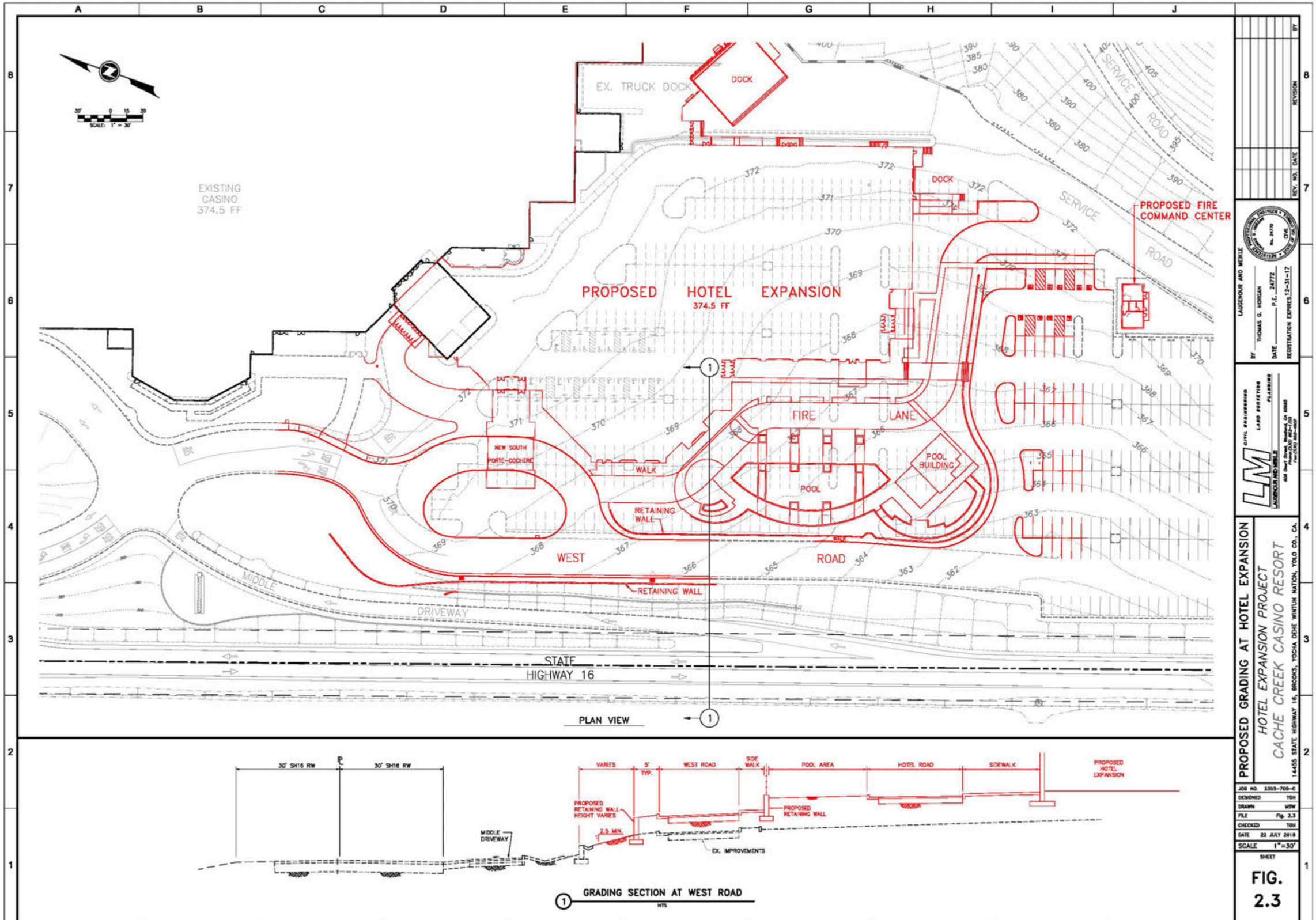
PLANNING
PROPOSED PROJECT SITE PLAN
HOTEL EXPANSION PROJECT
CACHE CREEK CASINO RESORT
14455 STATE HIGHWAY 16, BROOKS, YOCHA DEHE WINTUN NATION, YOLO CO., CA.
JOB NO. 2303-705-C
DESIGNED TGH
DRAWN MSW
FILE Fig. 2.2
CHECKED TGH
DATE 22 JULY 2016
SCALE 1"=100'
SHEET
FIG. 2.2



PROPOSED GRADING AT HOTEL EXPANSION

HOTEL EXPANSION PROJECT

CACHE CREEK CASINO RESORT

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SCALE	1"=30'

SHEET

FIG. 2.3

CHAPTER 3

3.0 DRAINAGE

This chapter includes a description of the existing drainage conditions and the modifications proposed for the CCCR Hotel Expansion Project.

3.01 EXISTING CONDITIONS

- Pre-1997 Development Drainage Pattern:

  Prior to 1997, runoff from the hillside areas east of the casino flowed down onto and across the casino site. The hillside and casino runoff was intercepted by the roadside ditch along the east side of SH16 and then conveyed under SH16 through two culverts. Situated within a subbasin of Cache Creek, drainage eventually reaches Cache Creek as it flows across fields and through various channels.

- 1997 Development Drainage Pattern:

  In 1997 an on-site drainage detention basin and on-site storm drain collection system, consisting of drainage inlets, manholes and pipelines were constructed. The basin was located in an area currently occupied by the mini-mart. The southerly end of the storm drain system intercepted a significant portion of the runoff that previously crossed SH16 at the middle culvert and routed it northerly toward the detention basin. That basin provided 4.2 acre-feet of storage capacity and attenuated peak flows with a flow-control structure that was designed to limit peak flow through the north SH16 culvert to not exceed the pre-1997 runoff rate.

- 2003 Development Drainage Pattern:

  To accommodate the 2003 hotel and casino expansion project, significant modifications were made to the storm drain system. Features of that current drainage system are shown in **Figure 3.1**.

  Drainage from the southerly portion of the site and from the north corner of the neighboring parcel to the south is collected in a piping system and conveyed westerly through the south parking lot to the south SH16 culvert crossing (**Figure 3.3**). That 42-inch diameter reinforced concrete culvert drains into a ditch that continues to flow westerly into the existing Ponotla Piht Tribal Ranch drainage channel.

  In the central part of the casino site, runoff is collected by a pipeline system, conveyed westward to SH16 and then under SH16 through a 35-inch x 24-inch corrugated steel pipe arch culvert. This culvert is also connected to the existing Ponotla Piht Tribal Ranch drainage channel.

In the northern portion of the existing casino site, drainage collection piping connects to the existing 48-inch diameter, reinforced concrete SH16 culvert which empties into the existing Ponotla Piht Tribal Ranch drainage channel.

Proprietary Stormgate separators are installed upstream of the inlets at each of the three existing SH16 culverts. A Stormgate separator is an underground, precast concrete settling chamber with a high-flow bypass. In the chamber heavier solids settle to the bottom, while floatables and free oil and grease rise to the top. To prevent short circuiting, an internal baffle directs flow over a long flow path to maximize residence time. When inflows exceed the design flow of the separator, high flows are routed over the weir, bypassing the tank and preventing re-suspension of pollutants. Sand-oil separators are installed at the fire station, mini-mart, warehouse and casino utility yard.

Runoff is conveyed by the Ponotla Piht Tribal Ranch drainage channel northwestward across the Tribal Ranch to a basin initially excavated to provide only storage for agricultural irrigation runoff. The basin was enlarged in 2003 to provide additional storm water detention. A drainage pump station installed at the northwest corner of the basin discharges northerly into the small channel on Ponotla Piht Tribal Ranch at a rate not exceeding the pre-2003 project 100-year event flow rate of 26.8 cfs. The earthen basin has a 24 acre-foot storage capacity.

- Effective FEMA Flood Insurance Rate Map:

  The effective FEMA Flood Insurance Rate Map (FIRM) for the area is dated June 18, 2010 as shown on Map Number 06113C 0375G. The FIRM does not show the project site to be in a flood hazard zone.

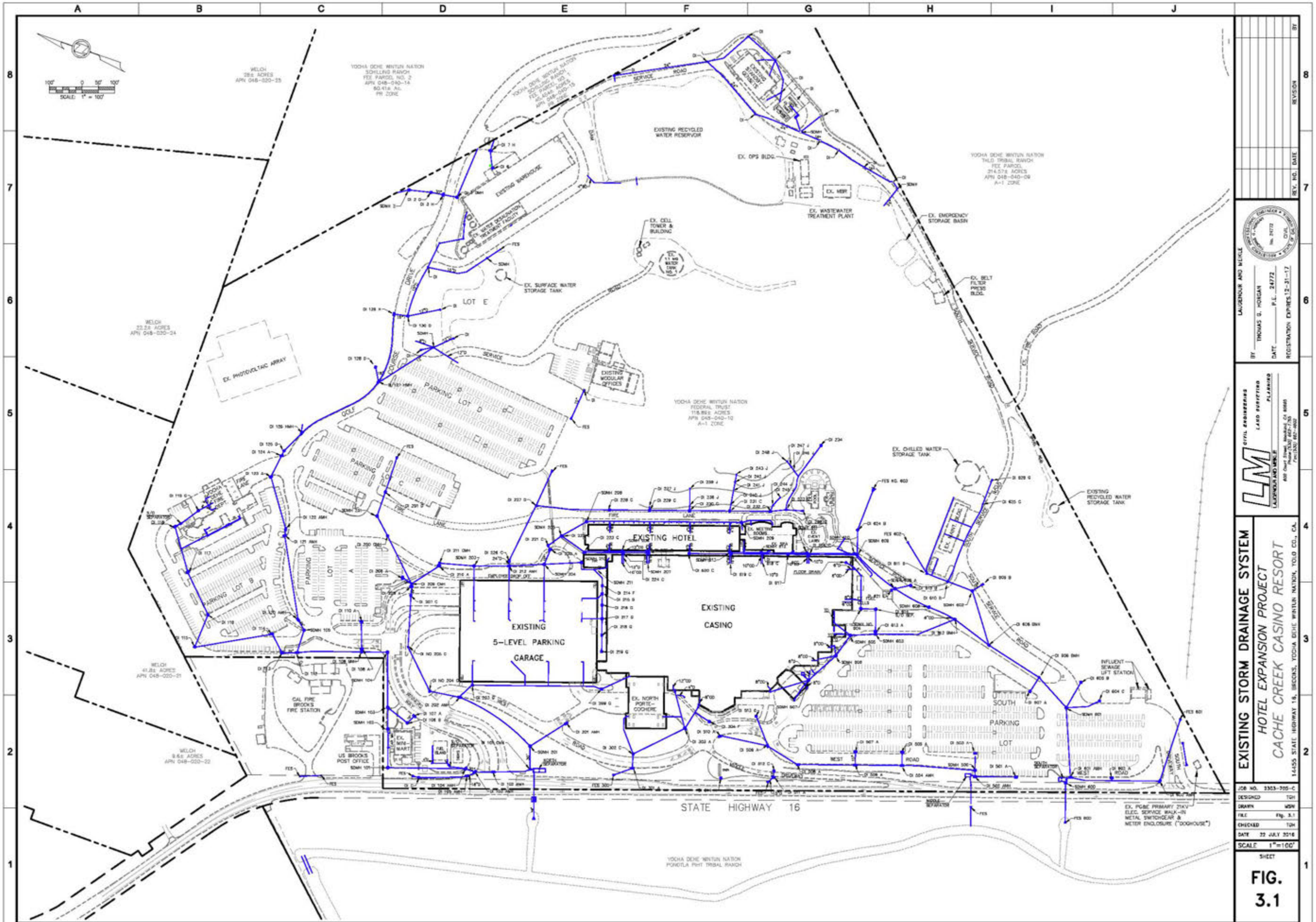
3.02 PROPOSED PROJECT DRAINAGE CONDITIONS

As shown schematically on **Figure 3.2**, the Proposed Project will require the removal and rerouting of certain small sections of the existing on-site drainage system to accommodate the proposed hotel expansion, and related site improvements. The rerouted sections of onsite drainage system will be of similar size and capacity as the original system that it is replacing.

The existing Tribal Ranch earthen drainage channels and detention basin (**Figure 3.3**) shall be routinely cleaned and repaired, when necessary, as part of their normal operation and maintenance program. No modifications to the existing off-site drainage channel system are required for the Proposed Project.

The added impervious areas of proposed Lot F and the water storage tank yard amount to less than 3% of the total impervious area of the CCCR site runoff area, and this slight increase yields about 0.5 acre-foot of 100-year/24-hour duration storm event runoff. Since the existing conditions (2003 design) runoff storage requirement for the 100-year, 24-hour storm event is 22 acre-feet, the existing 24 acre-foot capacity storm water runoff detention system can easily accommodate the proposed project runoff without any modifications. A gravel-surfaced service road provides all-weather access to the basin.

The existing drainage pump station will continue to be operated to draw-down water collected in the basin and discharge it, with peak flows not exceeding 26.8 cfs (the existing conditions discharge limit). The basin will also provide settling time for inflow sediment. Because the Proposed Project would occur almost entirely on areas that are currently paved, and the re-routing of the storm drains would be minor, post-project runoff rates and volumes would not be significantly different than current runoff conditions, and no significant drainage impacts are expected.



LAUGENOUR AND MEIKLE

BY THOMAS G. HORGAN

DATE P.E. 24772

REGISTRATION EXPIRES 12-31-17

CIVIL ENGINEERING

LAND SURVEYING

PLANNING

LAUGENOUR AND MEIKLE

EXISTING STORM DRAINAGE SYSTEM

HOTEL EXPANSION PROJECT

CACHE CREEK CASINO RESORT

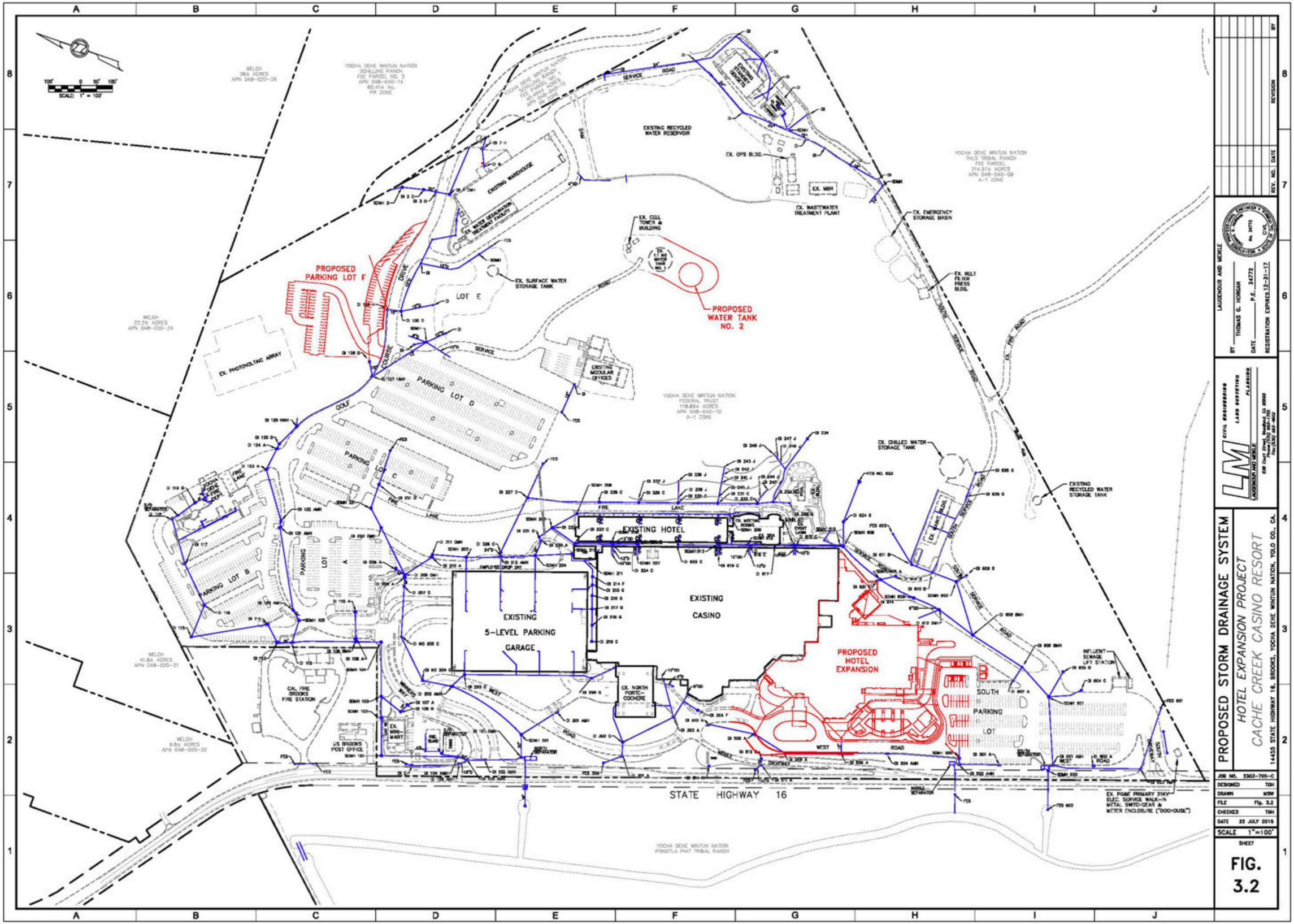
14455 STATE HIGHWAY 16, BROOKS, YOCHA DEHE WINTUN NATION, YOLO CO., CA.

JOB NO.	2303-705-C
DESIGNED	TGH
DRAWN	MSW
FILE	Fig. 3.1
CHECKED	TGH
DATE	22 JULY 2016
SCALE	1"=100'

SHEET

FIG. 3.1

3.4



PROPOSED STORM DRAINAGE SYSTEM

HOTEL EXPANSION PROJECT

CACHE CREEK CASINO RESORT

14455 STATE HIGHWAY 16, BROOKS, YOCHA DEHE WINTUN NATION, YOLO CO., CA.

LAUGENOUR AND MEIKLE

BY THOMAS G. HORGAN

DATE P.E. 24772

REGISTRATION EXPIRES 12-31-17

REV. NO.	DATE	REVISION	BY

JOB NO. 2303-705-C

DESIGNED TGH

DRAWN NSW

FILE Fig. 3.2

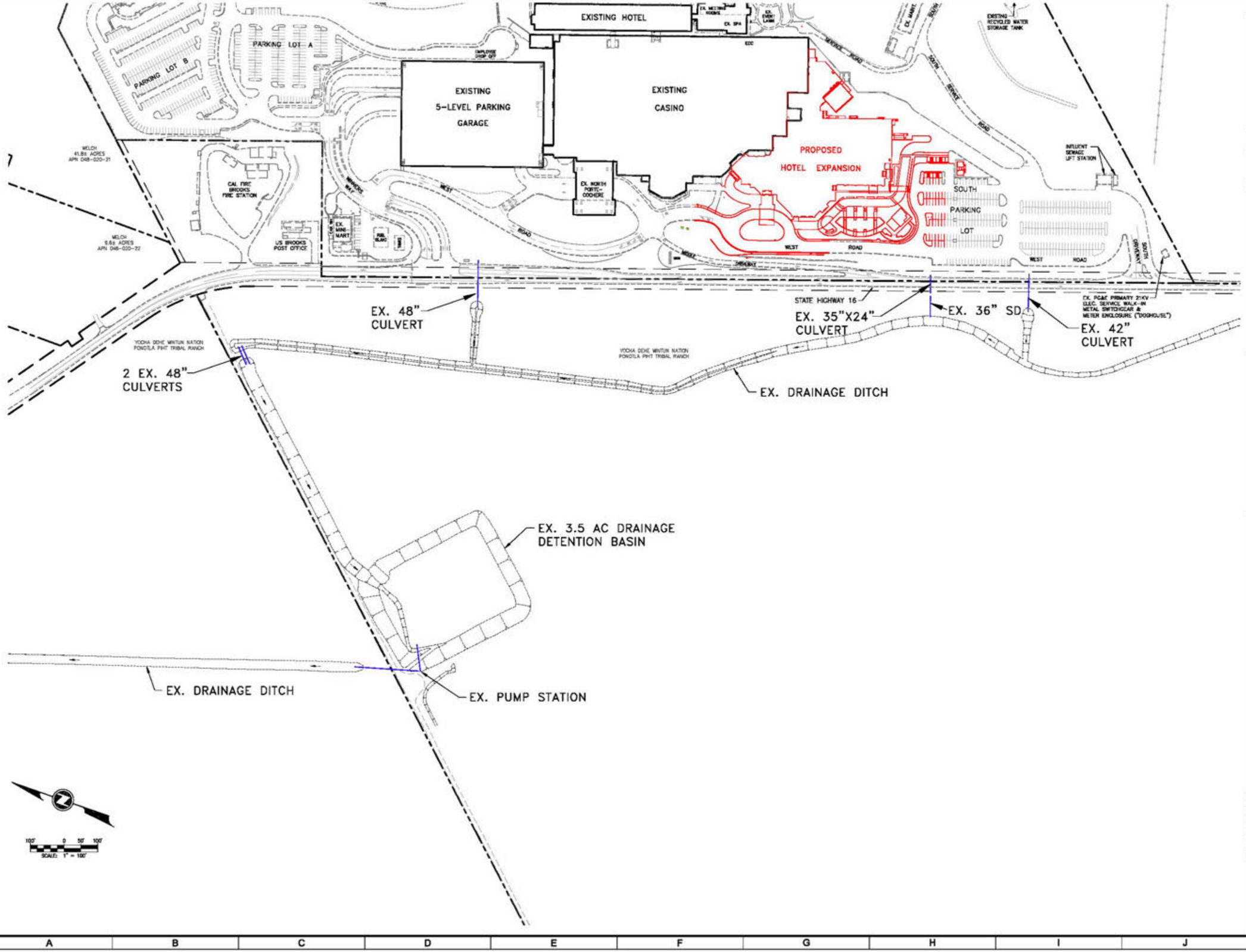
CHECKED TGH

DATE 22 JULY 2016

SCALE 1"=100'

SHEET

FIG. 3.2



EXISTING OFF-SITE DRAINAGE PLAN

HOTEL EXPANSION PROJECT

CACHE CREEK CASINO RESORT

14455 STATE HIGHWAY 16, BROOKS, YOCHA DEHE WINTUN NATION, YOLO CO., CA.

LAUGENOUR AND MEIKLE — CIVIL ENGINEERING, LAND SURVEYING, PLANNING

BY THOMAS G. HORGAN — P.E. 24773 — DATE — REGISTRATION EXPIRES 12-31-17

REV. NO. | DATE | REVISION | BY

JOB NO.	2303-703-C
DESIGNED	TGH
DRAWN	MSW
FILE	Fig. 3.3
CHECKED	TGH
DATE	22 JULY 2015
SCALE	1"=100'

SHEET

FIG. 3.3

APPENDIX H

SPECIAL STATUS SPECIES SEARCHES

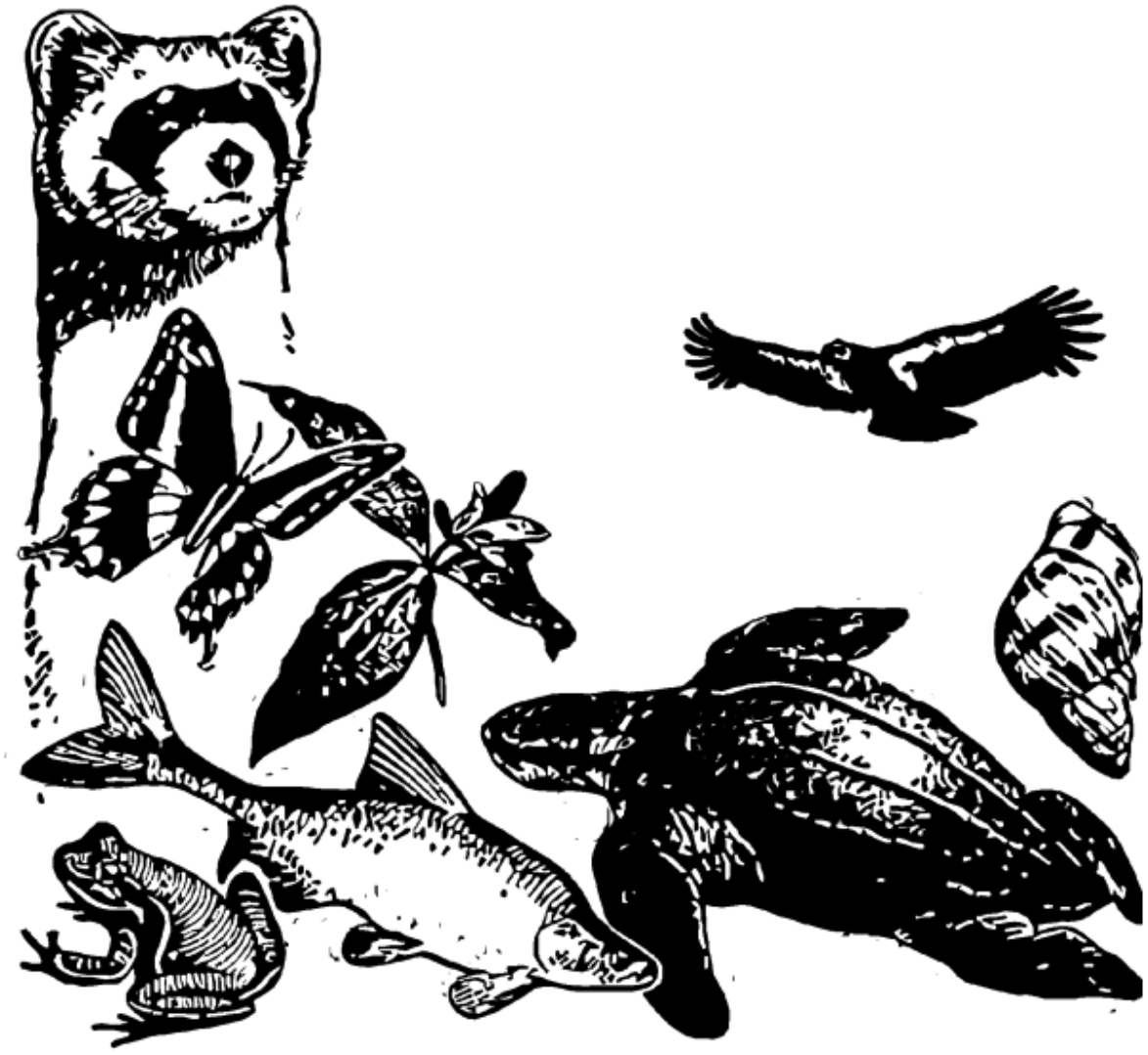
U.S. Fish & Wildlife Service

Yocha 215573

IPaC Trust Resources Report

Generated April 18, 2016 02:53 PM MDT, IPaC v3.0.2

This report is for informational purposes only and should not be used for planning or analyzing project level impacts. For project reviews that require U.S. Fish & Wildlife Service review or concurrence, please return to the IPaC website and request an official species list from the Regulatory Documents page.



IPaC - Information for Planning and Conservation (https://ecos.fws.gov/ipac/): A project planning tool to help streamline the U.S. Fish & Wildlife Service environmental review process.

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Project Description 1
Endangered Species 2
Migratory Birds 9
Refuges & Hatcheries 12
Wetlands 13

U.S. Fish & Wildlife Service

IPaC Trust Resources Report

NAME

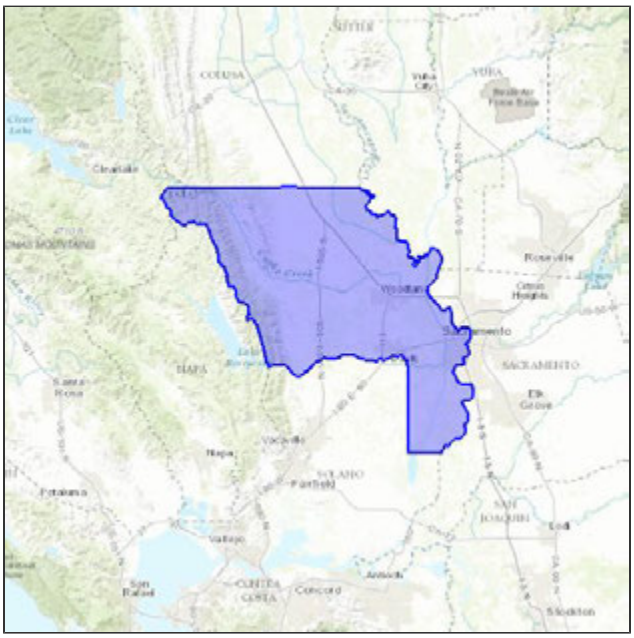
Yocha 215573

LOCATION

Yolo County, California

IPAC LINK

https://ecos.fws.gov/ipac/project/7IQUZ-YDWZR-B27AX-INDCN-TEXTDE



U.S. Fish & Wildlife Service Contact Information

Trust resources in this location are managed by:

San Francisco Bay-delta Fish And Wildlife
650 Capitol Mall
Suite 8-300
Sacramento, CA 95814
(916) 930-5603

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

Endangered Species

Proposed, candidate, threatened, and endangered species are managed by the Endangered Species Program of the U.S. Fish & Wildlife Service.

This USFWS trust resource report is for informational purposes only and should not be used for planning or analyzing project level impacts.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list from the Regulatory Documents section.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency.

A letter from the local office and a species list which fulfills this requirement can only be obtained by requesting an official species list either from the Regulatory Documents section in IPaC or from the local field office directly.

The list of species below are those that may occur or could potentially be affected by activities in this location:

Amphibians

California Red-legged Frog Rana draytonii — Threatened

MANAGED BY
Sacramento Fish And Wildlife Office
San Francisco Bay-delta Fish And Wildlife

CRITICAL HABITAT
There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=D02D

California Tiger Salamander Ambystoma californiense — Threatened

MANAGED BY
Sacramento Fish And Wildlife Office
San Francisco Bay-delta Fish And Wildlife

CRITICAL HABITAT
There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=D01T

Birds

Least Bell's Vireo *Vireo bellii pusillus*

Endangered

MANAGED BY
San Francisco Bay-delta Fish And Wildlife

CRITICAL HABITAT
There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B067

Northern Spotted Owl *Strix occidentalis caurina*

Threatened

MANAGED BY
Sacramento Fish And Wildlife Office

CRITICAL HABITAT
There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B08B

Western Snowy Plover *Charadrius alexandrinus nivosus*

Threatened

MANAGED BY
Sacramento Fish And Wildlife Office
San Francisco Bay-delta Fish And Wildlife

CRITICAL HABITAT
There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B07C

Yellow-billed Cuckoo *Coccyzus americanus*

Threatened

MANAGED BY
Sacramento Fish And Wildlife Office
San Francisco Bay-delta Fish And Wildlife

CRITICAL HABITAT
There is **proposed** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B06R

Crustaceans

California Freshwater Shrimp *Syncaris pacifica* — Endangered

MANAGED BY
Sacramento Fish And Wildlife Office

CRITICAL HABITAT
No critical habitat has been designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=K01W

Conservancy Fairy Shrimp *Branchinecta conservatio* — Endangered

MANAGED BY
Sacramento Fish And Wildlife Office
San Francisco Bay-delta Fish And Wildlife

CRITICAL HABITAT
There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=K03D

Vernal Pool Fairy Shrimp *Branchinecta lynchi* — Threatened

MANAGED BY
Sacramento Fish And Wildlife Office
San Francisco Bay-delta Fish And Wildlife

CRITICAL HABITAT
There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=K03G

Vernal Pool Tadpole Shrimp *Lepidurus packardi* — Endangered

MANAGED BY
Sacramento Fish And Wildlife Office
San Francisco Bay-delta Fish And Wildlife

CRITICAL HABITAT
There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=K048

CNPS California Native Plant So Rare and Endangered Plant Inventory

Plant List

1 matches found. *Click on scientific name for details*

Search Criteria

Found in Quad 38122F2

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Rank	Global Rank
Malacothamnus hallii	Hall's bush-mallow	Malvaceae	perennial deciduous shrub	3.3	S3	G3Q

Suggested Citation

CNPS, Rare Plant Program. 2016. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society, Sacramento, CA. Website http://www.rareplants.cnps.org [accessed 19 April 2016].

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The California Lichen Society

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CNPS California Native Plant So Rare and Endangered Plant Inventory

Plant List

1 matches found. *Click on scientific name for details*

Search Criteria

Found in Quad 38122F1

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Rank	Global Rank
Malacothamnus hallii	Hall's bush-mallow	Malvaceae	perennial deciduous shrub	3.3	S3	G3Q

Suggested Citation

CNPS, Rare Plant Program. 2016. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society, Sacramento, CA. Website http://www.rareplants.cnps.org [accessed 19 April 2016].

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CNPS California Native Plant Society

Rare and Endangered Plant Inventory

Advanced Search

Search Criteria				Criteria Matches	Total Matches
Name					
Family		Enter part of a name.			
Genus					
List / Rank					
Rare Plant Rank (aka CNPS List)	☐ 1A Extirpated in CA, Rare or Extinct Elsewhere	☐ 1B Rare, Endangered	☐ 2A Extirpated in CA, Common Elsewhere		
	☐ 2B Endangered in CA	☐ 3 Needs Review	☐ 4 Uncommon in CA		
Federal listing Status	☐ Endangered	☐ Threatened	☐ Species of Concern	☐ Not Listed	
State Listing Status	☐ Endangered	☐ Threatened	☐ Rare	☐ Not Listed	
Global Rank	ALL G1 G2 G3	Select multiple values using shift or control.			
State Rank	ALL S1 S2 S3	Select multiple values using shift or control.			
Location					
County or Island	ALL Alameda Alpine Amador	Select multiple values using shift or control.			
USGS 7.5' Quadrangle	USGS Code / Quad Name 38121F8 Madison	CLEAR	◉ One Quad ○ Nine Quads	Select Quads from a Map	
	Note: Quad data is not available for all List 3 and 4 plants. For those that do contain this data, it has not been quality controlled and is potentially incomplete, inaccurate, and/or out of date. Please use caution when referencing this information. We are currently working hard to maintain this data and hope to provide accurate and up to date information in the near future.			0	0
Elevation	Low	High	meters ▾	APPLY	
	Select plants whose range is within or overlaps the specified range.				
Endemic to California	☐				
Biology					
Natural Community	ALL Alpine boulder and rock field Alpine dwarf scrub Bogs and fens	Select multiple values using shift or control.			
Lifeform	Vascular			Non-Vascular	
	☐ Tree	☐ Shrub	☐ Leaf succulent	☐ Bryophyte	
	☐ Herb	☐ Vine	☐ Stem succulent	☐ Lichen	
Duration	☐ Annual	☐ Perennial	☐ Ephemeral		
Bloom Time	☐ January	☐ February	☐ March	☐ April	
	☐ May	☐ June	☐ July	☐ August	
	☐ September	☐ October	☐ November	☐ December	

Clear All View 0 Matching Plants

Suggested Citation

CNPS, Rare Plant Program. 2016. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society, Sacramento, CA. Website http://www.rareplants.cnps.org [accessed 19 April 2016].

CNPS California Native Plant So Rare and Endangered Plant Inventory

Plant List

3 matches found. *Click on scientific name for details*

Search Criteria

Found in Quad 38121F7

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Rank	Global Rank
Centromadia parryi ssp. rudis	Parry's rough tarplant	Asteraceae	annual herb	4.2	S3	G3T3
Lessingia hololeuca	woolly-headed lessingia	Asteraceae	annual herb	3	S3?	G3?
Puccinellia simplex	California alkali grass	Poaceae	annual herb	1B.2	S2S3	G2G3

Suggested Citation

CNPS, Rare Plant Program. 2016. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society, Sacramento, CA. Website http://www.rareplants.cnps.org [accessed 19 April 2016].

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Fishes

Delta Smelt Hypomesus transpacificus

Threatened

MANAGED BY

Sacramento Fish And Wildlife Office
San Francisco Bay-delta Fish And Wildlife

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=E070

Steelhead Oncorhynchus (=Salmo) mykiss

Threatened

MANAGED BY

Sacramento Fish And Wildlife Office
San Francisco Bay-delta Fish And Wildlife

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=E08D

Flowering Plants

Burke's Goldfields Lasthenia burkei

Endangered

MANAGED BY
Sacramento Fish And Wildlife Office

CRITICAL HABITAT
No critical habitat has been designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=Q1XU

Colusa Grass Neostapfia colusana

Threatened

MANAGED BY
Sacramento Fish And Wildlife Office
San Francisco Bay-delta Fish And Wildlife

CRITICAL HABITAT
There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=Q19I

Keck's Checker-mallow Sidalcea keckii

Endangered

MANAGED BY
Sacramento Fish And Wildlife Office

CRITICAL HABITAT
There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=Q1OS

Palmate-bracted Bird's Beak Cordylanthus palmatus

Endangered

MANAGED BY
Sacramento Fish And Wildlife Office
San Francisco Bay-delta Fish And Wildlife

CRITICAL HABITAT
No critical habitat has been designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=Q1UT

Solano Grass Tuctoria mucronata

Endangered

MANAGED BY
Sacramento Fish And Wildlife Office
San Francisco Bay-delta Fish And Wildlife

CRITICAL HABITAT
There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=Q23L

Insects

Delta Green Ground Beetle Elaphrus viridis — Threatened

MANAGED BY
San Francisco Bay-delta Fish And Wildlife

CRITICAL HABITAT
There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=I01G

Valley Elderberry Longhorn Beetle Desmocerus californicus dimorphus — Threatened

MANAGED BY
Sacramento Fish And Wildlife Office
San Francisco Bay-delta Fish And Wildlife

CRITICAL HABITAT
There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=I01L

Reptiles

Giant Garter Snake Thamnophis gigas — Threatened

MANAGED BY
Sacramento Fish And Wildlife Office
San Francisco Bay-delta Fish And Wildlife

CRITICAL HABITAT
No critical habitat has been designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=C057

Critical Habitats

This location overlaps all or part of the critical habitat for the following species:

California Tiger Salamander Ambystoma californiense
Final designated critical habitat
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=D01T#crithab

Chinook Salmon Oncorhynchus (=Salmo) tshawytscha
Final designated critical habitat
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=E06D#crithab

Colusa Grass Neostapfia colusana
Final designated critical habitat
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=Q19I#crithab

Delta Smelt Hypomesus transpacificus
Final designated critical habitat
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=E070#crithab

Solano Grass Tuctoria mucronata

Final designated critical habitat
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=Q23L#crithab

Steelhead Oncorhynchus (=Salmo) mykiss

Final designated critical habitat
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=E08D#crithab

Vernal Pool Tadpole Shrimp Lepidurus packardi

Final designated critical habitat
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=K048#crithab

Migratory Birds

Birds are protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act.

Any activity that results in the take of migratory birds or eagles is prohibited unless authorized by the U.S. Fish & Wildlife Service.[1] There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures.

---

1. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

Additional information can be found using the following links:

- Birds of Conservation Concern
  http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Conservation measures for birds
  http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Year-round bird occurrence data
  http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/akn-histogram-tools.php

The following species of migratory birds could potentially be affected by activities in this location:

Bald Eagle Haliaeetus leucocephalus — Bird of conservation concern
Year-round
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B008

Bell's Sparrow Amphispiza belli — Bird of conservation concern
Year-round
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HE

Black Rail Laterallus jamaicensis — Bird of conservation concern
Season: Breeding
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B09A

Black-chinned Sparrow Spizella atrogularis — Bird of conservation concern
Season: Breeding
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0IR

Burrowing Owl Athene cunicularia — Bird of conservation concern
Year-round
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0NC

Fox Sparrow Passerella iliaca — Bird of conservation concern
Season: Wintering

Lawrence's Goldfinch Carduelis lawrencei — Bird of conservation concern
Season: Breeding
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0J8

Least Bittern Ixobrychus exilis
Season: Breeding
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B092

Lesser Yellowlegs Tringa flavipes — Bird of conservation concern
Season: Wintering
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0MD

Lewis's Woodpecker Melanerpes lewis — Bird of conservation concern
Season: Wintering
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HQ

Loggerhead Shrike Lanius ludovicianus — Bird of conservation concern
Year-round
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0FY

Long-billed Curlew Numenius americanus — Bird of conservation concern
Season: Wintering
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B06S

Marbled Godwit Limosa fedoa — Bird of conservation concern
Season: Wintering
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0JL

Mountain Plover Charadrius montanus — Bird of conservation concern
Season: Wintering
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B078

Nuttall's Woodpecker Picoides nuttallii — Bird of conservation concern
Year-round
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HT

Oak Titmouse Baeolophus inornatus — Bird of conservation concern
Year-round
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0MJ

Olive-sided Flycatcher Contopus cooperi — Bird of conservation concern
Season: Breeding
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0AN

Peregrine Falcon Falco peregrinus — Bird of conservation concern
Year-round
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0FU

Short-eared Owl Asio flammeus — Bird of conservation concern
Season: Wintering
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HD

Swainson's Hawk Buteo swainsoni — Bird of conservation concern
Season: Breeding
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B070

Tricolored Blackbird Agelaius tricolor — Bird of conservation concern
Year-round
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B06P

Western Grebe aechmophorus occidentalis — Bird of conservation concern
Year-round
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0EA

Williamson's Sapsucker Sphyrapicus thyroideus — Bird of conservation concern
Year-round
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0FX

Yellow-billed Magpie Pica nuttalli — Bird of conservation concern
Year-round
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0N8

Wildlife refuges and fish hatcheries

There are no refuges or fish hatcheries in this location

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

DATA LIMITATIONS

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

DATA EXCLUSIONS

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

DATA PRECAUTIONS

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Wetland data is unavailable at this time.

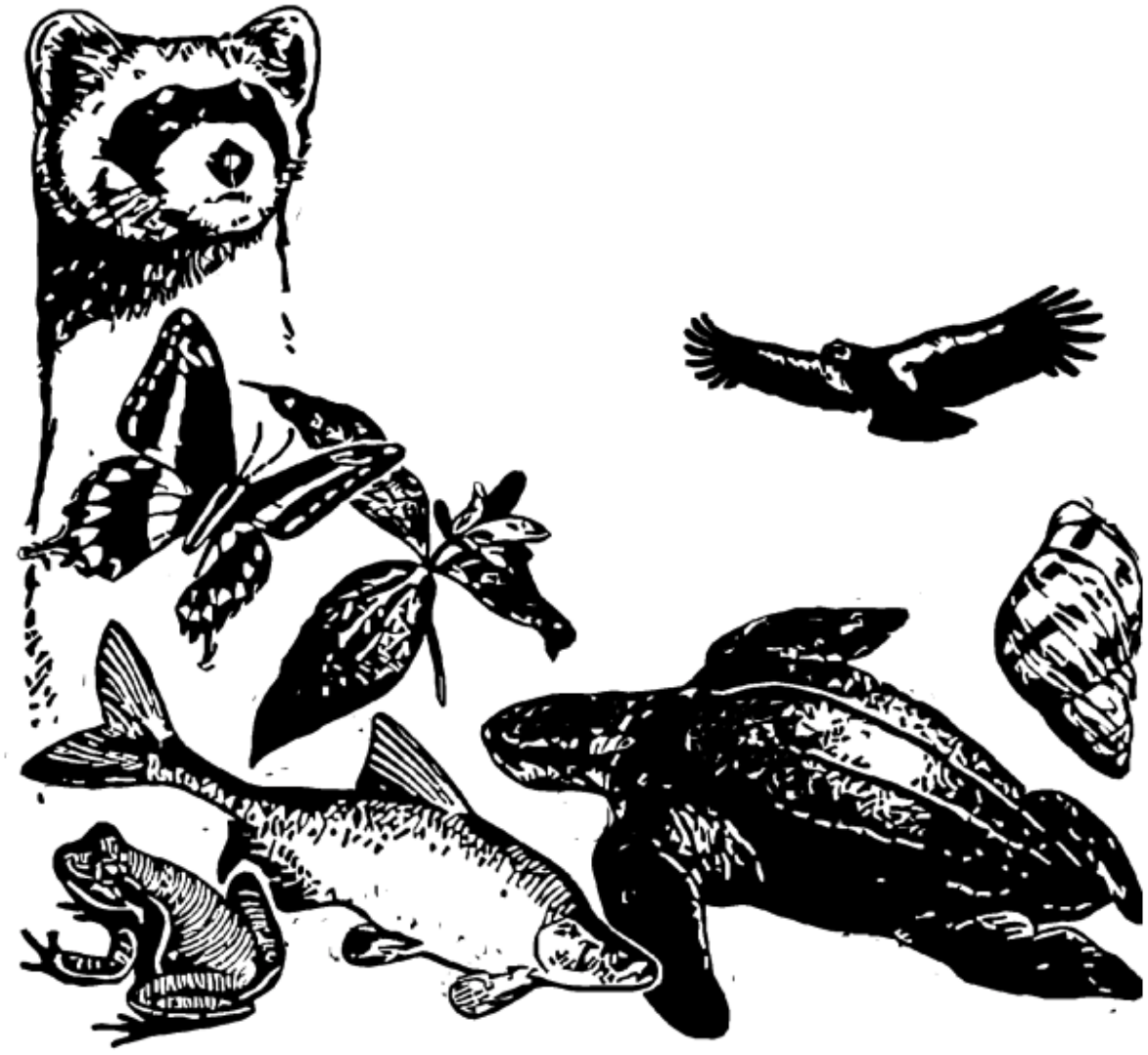
U.S. Fish & Wildlife Service

Yocha off-site impacts

IPaC Trust Resources Report

Generated July 12, 2016 11:17 AM MDT, IPaC v3.0.8

This report is for informational purposes only and should not be used for planning or analyzing project level impacts. For project reviews that require U.S. Fish & Wildlife Service review or concurrence, please return to the IPaC website and request an official species list from the Regulatory Documents page.



IPaC - Information for Planning and Conservation (https://ecos.fws.gov/ipac/): A project planning tool to help streamline the U.S. Fish & Wildlife Service environmental review process.

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U.S. Fish & Wildlife Service

IPaC Trust Resources Report

NAME

Yocha off-site impacts

LOCATION

Yolo County, California

DESCRIPTION

Potential road improvements

IPAC LINK

https://ecos.fws.gov/ipac/project/LTZN5-AKRV5-FZNJM-RSFER-AZTBRM

U.S. Fish & Wildlife Service Contact Information

Trust resources in this location are managed by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

Endangered Species

Proposed, candidate, threatened, and endangered species are managed by the Endangered Species Program of the U.S. Fish & Wildlife Service.

This USFWS trust resource report is for informational purposes only and should not be used for planning or analyzing project level impacts.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list from the Regulatory Documents section.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency.

A letter from the local office and a species list which fulfills this requirement can only be obtained by requesting an official species list either from the Regulatory Documents section in IPaC or from the local field office directly.

The list of species below are those that may occur or could potentially be affected by activities in this location:

Amphibians

California Red-legged Frog Rana draytonii — Threatened

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=D02D

California Tiger Salamander Ambystoma californiense — Threatened

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=D01T

Birds

Northern Spotted Owl Strix occidentalis caurina — Threatened

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B08B

Yellow-billed Cuckoo Coccyzus americanus — Threatened

CRITICAL HABITAT

There is **proposed** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B06R

Crustaceans

Vernal Pool Fairy Shrimp Branchinecta lynchi — Threatened

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=K03G

Vernal Pool Tadpole Shrimp Lepidurus packardi — Endangered

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=K048

Fishes

Delta Smelt Hypomesus transpacificus — Threatened

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=E070

Steelhead Oncorhynchus (=Salmo) mykiss — Threatened

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=E08D

Insects

Valley Elderberry Longhorn Beetle Desmocerus californicus dimorphus — Threatened

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=I01L

Reptiles

Giant Garter Snake Thamnophis gigas — Threatened

CRITICAL HABITAT

No critical habitat has been designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=C057

Critical Habitats

There are no critical habitats in this location

Migratory Birds

Birds are protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act.

Any activity that results in the take of migratory birds or eagles is prohibited unless authorized by the U.S. Fish & Wildlife Service.[1] There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures.

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1. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

Additional information can be found using the following links:

- Birds of Conservation Concern
  http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Conservation measures for birds
  http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Year-round bird occurrence data
  http://www.birdscanada.org/birdmon/default/datasummaries.jsp

The following species of migratory birds could potentially be affected by activities in this location:

Bald Eagle Haliaeetus leucocephalus — Bird of conservation concern
Season: Year-round
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B008

Bell's Sparrow Amphispiza belli — Bird of conservation concern
Season: Year-round
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HE

Black-chinned Sparrow Spizella atrogularis — Bird of conservation concern
Season: Breeding
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0IR

Burrowing Owl Athene cunicularia — Bird of conservation concern
Season: Year-round
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0NC

Fox Sparrow Passerella iliaca — Bird of conservation concern
Season: Wintering

Lawrence's Goldfinch Carduelis lawrencei — Bird of conservation concern
Season: Breeding
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0J8

Least Bittern Ixobrychus exilis
Season: Breeding
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B092

Lesser Yellowlegs Tringa flavipes — Bird of conservation concern
Season: Wintering
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0MD

Lewis's Woodpecker Melanerpes lewis — Bird of conservation concern
Season: Wintering
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HQ

Loggerhead Shrike Lanius ludovicianus — Bird of conservation concern
Season: Year-round
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0FY

Long-billed Curlew Numenius americanus — Bird of conservation concern
Season: Wintering
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B06S

Marbled Godwit Limosa fedoa — Bird of conservation concern
Season: Wintering
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0JL

Mountain Plover Charadrius montanus — Bird of conservation concern
Season: Wintering
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B078

Nuttall's Woodpecker Picoides nuttallii — Bird of conservation concern
Season: Year-round
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HT

Oak Titmouse Baeolophus inornatus — Bird of conservation concern
Season: Year-round
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0MJ

Peregrine Falcon Falco peregrinus — Bird of conservation concern
Season: Year-round
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0FU

Short-eared Owl Asio flammeus — Bird of conservation concern
Season: Wintering
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HD

Swainson's Hawk Buteo swainsoni — Bird of conservation concern

Season: Breeding
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B070

Tricolored Blackbird Agelaius tricolor — Bird of conservation concern

Season: Year-round
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B06P

Western Grebe aechmophorus occidentalis — Bird of conservation concern

Season: Year-round
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0EA

Yellow-billed Magpie Pica nuttalli — Bird of conservation concern

Season: Year-round
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0N8

Wildlife refuges and fish hatcheries

There are no refuges or fish hatcheries in this location

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

DATA LIMITATIONS

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

DATA EXCLUSIONS

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

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This location overlaps all or part of the following wetlands:

Freshwater Emergent Wetland

PEM1Kx

Freshwater Forested/shrub Wetland

PFOA

Freshwater Pond

PUSCh

Riverine

R2UBHx
R4SBC
R4SBCx
R5UBF

A full description for each wetland code can be found at the National Wetlands Inventory website: http://107.20.228.18/decoders/wetlands.aspx

CNPS California Native Plant Society Rare and Endangered Plant Inventory

Plant List

16 matches found. Click on scientific name for details

Search Criteria

Found in 9 Quads around 38121F7

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Rank	Global Rank
Astragalus pauperculus	depauperate milk-vetch	Fabaceae	annual herb	4.3	S4	G4
Astragalus tener var. ferrisiae	Ferris' milk-vetch	Fabaceae	annual herb	1B.1	S1	G2T1
Astragalus tener var. tener	alkali milk-vetch	Fabaceae	annual herb	1B.2	S2	G2T2
Atriplex cordulata var. cordulata	heartscale	Chenopodiaceae	annual herb	1B.2	S2	G3T2
Atriplex depressa	brittlescale	Chenopodiaceae	annual herb	1B.2	S2	G2
California macrophylla	round-leaved filaree	Geraniaceae	annual herb	1B.2	S3?	G3?
Centromadia parryi ssp. rudis	Parry's rough tarplant	Asteraceae	annual herb	4.2	S3	G3T3
Chloropyron palmatum	palmate-bracted bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	1B.1	S1	G1
Extriplex joaquinana	San Joaquin spearscale	Chenopodiaceae	annual herb	1B.2	S2	G2
Hibiscus lasiocarpos var. occidentalis	woolly rose-mallow	Malvaceae	perennial rhizomatous herb	1B.2	S2	G5T2
Lepidium latipes var. heckardii	Heckard's pepper-grass	Brassicaceae	annual herb	1B.2	S2	G4T2
Lessingia hololeuca	woolly-headed lessingia	Asteraceae	annual herb	3	S3?	G3?
Malacothamnus helleri	Heller's bush-mallow	Malvaceae	perennial deciduous shrub	3.3	S3	G3Q
Navarretia leucocephala ssp. bakeri	Baker's navarretia	Polemoniaceae	annual herb	1B.1	S2	G4T2
Puccinellia simplex	California alkali grass	Poaceae	annual herb	1B.2	S2S3	G2G3
Trifolium hydrophilum	saline clover	Fabaceae	annual herb	1B.2	S2	G2

Suggested Citation

CNPS, Rare Plant Program. 2016. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society, Sacramento, CA. Website http://www.rareplants.cnps.org [accessed 18 April 2016].

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CNPS California Native Plant Society Rare and Endangered Plant Inventory

Plant List

52 matches found. Click on scientific name for details

Search Criteria

Found in 9 Quads around 38122F2

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Rank	Global Rank
Allium fimbriatum var. purdyi	Purdy's onion	Alliaceae	perennial bulbiferous herb	4.3	S3	G4G5T3
Amorpha californica var. napensis	Napa false indigo	Fabaceae	perennial deciduous shrub	1B.2	S2	G4T2
Antirrhinum virga	twig-like snapdragon	Plantaginaceae	perennial herb	4.3	S3S4	G3G4
Arabis modesta	modest rockcress	Brassicaceae	perennial herb	4.3	S3	G3
Arabis oregana	Oregon rockcress	Brassicaceae	perennial herb	4.3	S3	G3G4Q
Asclepias solanoana	serpentine milkweed	Apocynaceae	perennial herb	4.2	S3	G3
Astragalus breweri	Brewer's milk-vetch	Fabaceae	annual herb	4.2	S3	G3
Astragalus claranus	Clara Hunt's milk-vetch	Fabaceae	annual herb	1B.1	S1	G1
Astragalus clevelandii	Cleveland's milk-vetch	Fabaceae	perennial herb	4.3	S4	G4
Astragalus rattanii var. jepsonianus	Jepson's milk-vetch	Fabaceae	annual herb	1B.2	S3	G4T3
Brodiaea leptandra	narrow-anthered brodiaea	Themidaceae	perennial bulbiferous herb	1B.2	S3?	G3?
Calamagrostis ophitidis	serpentine reed grass	Poaceae	perennial herb	4.3	S3	G3
Calyptridium quadripetalum	four-petaled pussypaws	Montiaceae	annual herb	4.3	S4	G4
Calystegia collina ssp. oxyphylla	Mt. Saint Helena morning-glory	Convolvulaceae	perennial rhizomatous herb	4.2	S3	G4T3
Castilleja rubicundula var. rubicundula	pink creamsacs	Orobanchaceae	annual herb (hemiparasitic)	1B.2	S2	G5T2
Clarkia gracilis ssp. tracyi	Tracy's clarkia	Onagraceae	annual herb	4.2	S3	G5T3
Collomia diversifolia	serpentine collomia	Polemoniaceae	annual herb	4.3	S4	G4
Cordylanthus tenuis ssp. brunneus	serpentine bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	4.3	S3	G4G5T3
Cryptantha dissita	serpentine cryptantha	Boraginaceae	annual herb	1B.2	S2	G2
Delphinium uliginosum	swamp larkspur	Ranunculaceae	perennial herb	4.2	S3	G3
Erigeron greenei	Greene's narrow-leaved daisy	Asteraceae	perennial herb	1B.2	S2	G2
Eriogonum nervulosum	Snow Mountain buckwheat	Polygonaceae	perennial rhizomatous herb	1B.2	S2	G2

Fritillaria pluriflora	adobe-lily	Liliaceae	perennial bulbiferous herb	1B.2	S2S3	G2G3
Fritillaria purdyi	Purdy's fritillary	Liliaceae	perennial bulbiferous herb	4.3	S4	G4
Harmonia hallii	Hall's harmonia	Asteraceae	annual herb	1B.2	S2	G2
Harmonia nutans	nodding harmonia	Asteraceae	annual herb	4.3	S3	G3
Helianthus exilis	serpentine sunflower	Asteraceae	annual herb	4.2	S3	G3Q
Hesperolinon bicarpellatum	two-carpellate western flax	Linaceae	annual herb	1B.2	S3	G3
Hesperolinon breweri	Brewer's western flax	Linaceae	annual herb	1B.2	S2?	G2?
Hesperolinon drymarioides	drymaria-like western flax	Linaceae	annual herb	1B.2	S2	G2
Hesperolinon sharsmithiae	Sharsmith’s western flax	Linaceae	annual herb	1B.2	S2	G2Q
Layia septentrionalis	Colusa layia	Asteraceae	annual herb	1B.2	S2	G2
Leptosiphon jepsonii	Jepson's leptosiphon	Polemoniaceae	annual herb	1B.2	S3	G3
Leptosiphon latisectus	broad-lobed leptosiphon	Polemoniaceae	annual herb	4.3	S4	G4
Lomatium hooveri	Hoover's lomatium	Apiaceae	perennial herb	4.3	S3	G3
Malacothamnus helleri	Heller's bush-mallow	Malvaceae	perennial deciduous shrub	3.3	S3	G3Q
Microseris sylvatica	sylvan microseris	Asteraceae	perennial herb	4.2	S4	G4
Mimulus nudatus	bare monkeyflower	Phrymaceae	annual herb	4.3	S4	G4
Monardella viridis	green monardella	Lamiaceae	perennial rhizomatous herb	4.3	S4	G4
Navarretia cotulifolia	cotula navarretia	Polemoniaceae	annual herb	4.2	S4	G4
Navarretia heterandra	Tehama navarretia	Polemoniaceae	annual herb	4.3	S4	G4
Navarretia jepsonii	Jepson's navarretia	Polemoniaceae	annual herb	4.3	S4	G4
Navarretia rosulata	Marin County navarretia	Polemoniaceae	annual herb	1B.2	S2	G2
Plagiobothrys hystriculus	bearded popcornflower	Boraginaceae	annual herb	1B.1	S2	G2
Ranunculus lobbii	Lobb's aquatic buttercup	Ranunculaceae	annual herb	4.2	S3	G4
Senecio clevelandii var. clevelandii	Cleveland's ragwort	Asteraceae	perennial herb	4.3	S3	G4?T3Q
Sidalcea keckii	Keck's checkerbloom	Malvaceae	annual herb	1B.1	S2	G2
Streptanthus hesperidis	green jewelflower	Brassicaceae	annual herb	1B.2	S2	G2
Streptanthus morrisonii ssp. elatus	Three Peaks jewelflower	Brassicaceae	perennial herb	1B.2	S2	G2T2
Streptanthus morrisonii ssp. kruckebergii	Kruckeberg's jewelflower	Brassicaceae	perennial herb	1B.2	S1	G2T1
Thelypodium brachycarpum	short-podded thelypodium	Brassicaceae	perennial herb	4.2	S3	G3
Toxicoscordion fontanum	marsh zigadenus	Melanthiaceae	perennial bulbiferous herb	4.2	S3	G3

Suggested Citation

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Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: County IS (Yolo)
 AND Quad IS (Brooks (3812262) OR Esparto (3812261) OR Madison (3812168) OR Woodland (3812167))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	None	G2G3	S1S2	SSC
Ambystoma californiense California tiger salamander	AAAAA01180	Threatened	Threatened	G2G3	S2S3	SSC
Andrena blennospermatis Blennosperma vernal pool andrenid bee	IIHYM35030	None	None	G2	S2	
Antrozous pallidus pallid bat	AMACC10010	None	None	G5	S3	SSC
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Bombus occidentalis western bumble bee	IIHYM24250	None	None	G2G3	S1	
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
Charadrius montanus mountain plover	ABNNB03100	None	None	G3	S2?	SSC
Corynorhinus townsendii Townsend's big-eared bat	AMACC08010	None	Candidate Threatened	G3G4	S2	SSC
Desmocerus californicus dimorphus valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T2	S2	
Lasionycteris noctivagans silver-haired bat	AMACC02010	None	None	G5	S3S4	
Lasiurus blossevillii western red bat	AMACC05060	None	None	G5	S3	SSC
Lasiurus cinereus hoary bat	AMACC05030	None	None	G5	S4	
Nycticorax nycticorax black-crowned night heron	ABNGA11010	None	None	G5	S4	
Puccinellia simplex California alkali grass	PMPOA53110	None	None	G2G3	S2S3	1B.2
Rana boylii foothill yellow-legged frog	AAABH01050	None	None	G3	S3	SSC
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S2	
Taxidea taxus American badger	AMAJF04010	None	None	G5	S3	SSC
Valley Oak Woodland Valley Oak Woodland	CTT71130CA	None	None	G3	S2.1	

Record Count: 19

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: County IS (Yolo)
 AND Quad IS (Bird Valley (3812271) OR Brooks (3812262) OR Chiles Valley (3812253) OR Davis (3812156) OR Eldorado Bend (3812177) OR Esparto (3812261) OR Grays Bend (3812166) OR Guinda (3812272) OR Knights Landing (3812176) OR Knoxville (3812273) OR Lake Berryessa (3812252) OR Madison (3812168) OR Merritt (3812157) OR Monticello Dam (3812251) OR Walter Springs (3812263) OR Winters (3812158) OR Woodland (3812167) OR Zamora (3812178))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	None	G2G3	S1S2	SSC
Ambystoma californiense California tiger salamander	AAAAA01180	Threatened	Threatened	G2G3	S2S3	SSC
Andrena blennospermatis Blennosperma vernal pool andrenid bee	IIHYM35030	None	None	G2	S2	
Antrozous pallidus pallid bat	AMACC10010	None	None	G5	S3	SSC
Astragalus rattanii var. jepsonianus Jepson's milk-vetch	PDFAB0F7E1	None	None	G4T3	S3	1B.2
Astragalus tener var. ferrisiae Ferris' milk-vetch	PDFAB0F8R3	None	None	G2T1	S1	1B.1
Astragalus tener var. tener alkali milk-vetch	PDFAB0F8R1	None	None	G2T2	S2	1B.2
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Atriplex cordulata var. cordulata heartscale	PDCHE040B0	None	None	G3T2	S2	1B.2
Atriplex depressa brittlescale	PDCHE042L0	None	None	G2	S2	1B.2
Bombus crotchii Crotch bumble bee	IIHYM24480	None	None	G3G4	S1S2	
Bombus occidentalis western bumble bee	IIHYM24250	None	None	G2G3	S1	
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
California macrophylla round-leaved filaree	PDGER01070	None	None	G3?	S3?	1B.2
Castilleja rubicundula var. rubicundula pink creamsacs	PDSCR0D482	None	None	G5T2	S2	1B.2
Charadrius alexandrinus nivosus western snowy plover	ABNNB03031	Threatened	None	G3T3	S2	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Charadrius montanus mountain plover	ABNNB03100	None	None	G3	S2?	SSC
Chloropyron palmatum palmate-bracted salty bird's-beak	PDSCR0J0J0	Endangered	Endangered	G1	S1	1B.1
Cicindela hirticollis abrupta Sacramento Valley tiger beetle	IICOL02106	None	None	G5TH	SH	
Coccyzus americanus occidentalis western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
Corynorhinus townsendii Townsend's big-eared bat	AMACC08010	None	Candidate Threatened	G3G4	S2	SSC
Desmocerus californicus dimorphus valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T2	S2	
Elanus leucurus white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Extriplex joaquinana San Joaquin spearscale	PDCHE041F3	None	None	G2	S2	1B.2
Falco columbarius merlin	ABNKD06030	None	None	G5	S3S4	WL
Falco mexicanus prairie falcon	ABNKD06090	None	None	G5	S4	WL
Fritillaria pluriflora adobe-lily	PMLIL0V0F0	None	None	G2G3	S2S3	1B.2
Great Valley Mixed Riparian Forest Great Valley Mixed Riparian Forest	CTT61420CA	None	None	G2	S2.2	
Harmonia hallii Hall's harmonia	PDAST650A0	None	None	G2	S2	1B.2
Hibiscus lasiocarpos var. occidentalis woolly rose-mallow	PDMAL0H0R3	None	None	G5T2	S2	1B.2
Lasionycteris noctivagans silver-haired bat	AMACC02010	None	None	G5	S3S4	
Lasiurus blossevillii western red bat	AMACC05060	None	None	G5	S3	SSC
Lasiurus cinereus hoary bat	AMACC05030	None	None	G5	S4	
Layia septentrionalis Colusa layia	PDAST5N0F0	None	None	G2	S2	1B.2
Lepidium latipes var. heckardii Heckard's pepper-grass	PDBRA1M0K1	None	None	G4T2	S2	1B.2
Lepidurus packardi vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G3	S2S3	

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Leptosiphon jepsonii Jepson's leptosiphon	PDPLM09140	None	None	G3	S3	1B.2
Linderiella occidentalis California linderiella	ICBRA06010	None	None	G2G3	S2S3	
Melospiza melodia song sparrow ("Modesto" population)	ABPBXA3010	None	None	G5	S3?	SSC
Myrmosula pacifica Antioch multilid wasp	IIHYM15010	None	None	GH	SH	
Nycticorax nycticorax black-crowned night heron	ABNGA11010	None	None	G5	S4	
Oncorhynchus mykiss irideus steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	G5T2Q	S2	
Oncorhynchus tshawytscha chinook salmon - Central Valley spring-run ESU	AFCHA0205A	Threatened	Threatened	G5	S1	
Plegadis chihi white-faced ibis	ABNGE02020	None	None	G5	S3S4	WL
Pogonichthys macrolepidotus Sacramento splittail	AFCJB34020	None	None	GNR	S3	SSC
Puccinellia simplex California alkali grass	PMPOA53110	None	None	G2G3	S2S3	1B.2
Rana boylii foothill yellow-legged frog	AAABH01050	None	None	G3	S3	SSC
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S2	
Sidalcea keckii Keck's checkerbloom	PDMAL110D0	Endangered	None	G2	S2	1B.1
Spirinchus thaleichthys longfin smelt	AFCHB03010	Candidate	Threatened	G5	S1	SSC
Taxidea taxus American badger	AMAJF04010	None	None	G5	S3	SSC
Thaleichthys pacificus eulachon	AFCHB04010	Threatened	None	G5	S3	
Thamnophis gigas giant garter snake	ARADB36150	Threatened	Threatened	G2	S2	
Trifolium hydrophilum saline clover	PDFAB400R5	None	None	G2	S2	1B.2
Valley Oak Woodland Valley Oak Woodland	CTT71130CA	None	None	G3	S2.1	

Record Count: 57

APPENDIX I

CULTURAL RESOURCE RECORD SEARCH

CULTURAL RESOURCES RECORD SEARCH
BOUND SEPARATELY*

***THE CULTURAL RESOURCES RECORD SEARCH HAS BEEN BOUND SEPARATELY TO PROTECT POTENTIALLY SENSITIVE INFORMATION ABOUT THE LOCATION AND NATURE OF CULTURAL RESOURCES.**

APPENDIX J

CALEEMOD INPUT AND OUTPUT FILES

CalEEMod Inputs

Cache Creek Hotel Expansion Project

Project-Specific Inputs for the Cache Creek Hotel Expansion Project

Input	Type of Input	Project Specific Inputs	
		Inputs	Source/Notes
Project Name	Project Name	Cache Creek Hotel Expansion Project	Project Description
Project Location	Air Quality District/ Air Basin	YSAQMD	Modeler, based on location
Climate zone	Climate Zone Number	2	Modeler, based on location
Land Use Setting	Urban or Rural	Rural	Modeler, based on location
Operational Year	1st year of operation after full buildout.	2019	Project Description
Utility Company	Utility Company Name	PG&E	PG&E Website
Land Use Type and Subtype	Residential, Commercial, Recreation, etc.	See **Table 1.**	See **Table 1.**
Unit Amount	Size of Buildings or Number of units for each Land Use Type.	See **Table 1.**	See **Table 1.**
Lot Acreage	Acreage of each Land Use Type	See **Table 1.**	See **Table 1.**
Population	Population based on persons/household	See **Table 1.**	See **Table 1.**
Construction Phases	Type of construction phase (Demo, Site Prep, etc.) and beginning and ending dates	Alt A- 24 Months starting 1/1/2017 Alt B - Alt A- 24 Months starting 1/1/2017	24 months of construction from project description
Off-Road Equipment	Type of equipment (Excavator, Dozer, etc.) and number of units per construction phase	See **Table 2.**	See **Table 2.**
Demolition	Sq ft or tons of Demo	N/A	--
Construction Trip Gen Rate	Average number of one-way trips per day	See **Table 2.**	See **Table 2.**
Operational Trip Reductions	% reduction in trips.	70 percent reduction for Ballroom, 75 percent reduction for restaurant, and 75 percent for Hotel in trips generated due to internal capture.	2016 KH Traffic Impact Analysis.
Operational Trip Gen Rate and trip length	Trips and trip lengths	See **Tables 3**.	See **Tables 3**.
Area Sources	Hearths – # of wood-burning fireplaces, #of gas fireplaces, and # of units with no fireplace.	Not Applicable	No hearths are included in the project design.

Input	Type of Input	Project Specific Inputs	
		Inputs	Source/Notes
	Landscape Equipment - % of equipment that is electric.	--	--
Energy Use	Project Specific Emission Factors.	--	--
Water and Wastewater	Indoor and outdoor water use for each Land Use Subtype in gallons per year.	Total GPY Alt A - 46,720,000 Alt B - 42,705,000	Water and Wastewater Feasibility Study – CCCR Water and Wastewater Feasibility Study, June, 2016 Tables 2-3, 2-4
Solid waste	Tons of solid waste generated per year	--	--
	Land Fill Gas Capture Rate		
Operational off-road equipment	Excavator, Dozer, etc.	--	--
Land Use Change	Vegetation land use type (cropland, etc.) and initial and final acreage	--	--
Sequestration	Type and net number of new trees added	--	--

Source: AES, 2016; CalEEMod, 2013.

Project–Mitigation Inputs for the Cache Creek Hotel Expansion Project

Mitigation Input Category	CAPCOA Mitigation Number	Include in Model? (yes/no)	Type of Input / Unit	Project Specific Inputs	
				Inputs	Source/Notes
Off-Road Equipment	C-1	Yes	Engine Type, DPF Level, and Oxidation Catalyst	See **Table 4.**	See **Table 4.**
Soil Stabilizer for Unpaved Roads	N/A	Yes	PM10 (% Reduction)	10%	Default % Reduction.
	N/A		PM2.5 (% Reduction)	10%	Default % Reduction.
Water Exposed Area	N/A	Yes	Frequency (per day)	2 times per day	Default % Reduction
	N/A		PM10 (% Reduction)	55%	Default % Reduction.
	N/A		PM2.5 (% Reduction)	55%	Default % Reduction.
Replace Ground Cover of Area Disturbed	N/A	No	PM10 (% Reduction)	--	--
	N/A		PM2.5 (% Reduction)	--	--
Unpaved Road Mitigation	N/A	No	Moisture Content (%)	--	--
	N/A	Yes	Vehicle Speed (mph)	--	--
Type of Residential	N/A	Yes	Type of Residential	--	--
Increased Density	LUT-1	No	Dwelling Units/Acre	--	--
			Job/Job Acre	--	--
Increased Diversity	LUT-3	No	Yes or No	--	--
Improved Walkability Design	LUT-9	No	Intersections/Square Miles	--	--
Improve Destination Accessibility	LUT-4	No	Distance to Downtown/Job Ctr	--	--
Increased Transit Accessibility	LUT-5	No	Average Distance to Transit Station (miles)	--	--
Integrated Below Market Rate Housing	LUT-6	No	# Dwelling Units Below Market Rate	--	--
Improve Pedestrian Network	SDT-1	No	Yes or No; Project Site, Project Site and Connecting off-site, and Rural	--	--

Mitigation Input Category	CAPCOA Mitigation Number	Include in Model? (yes/no)	Type of Input / Unit	Project Specific Inputs	
				Inputs	Source/Notes
Provide Traffic Calming Measures	SDT-2	No	% Streets with Improvement	--	--
		No	% Intersections with Improvement	--	--
Implement Neighborhood Electric Vehicle (NEV) Network	SDT-3	No	% of streets equipped with NEV network.	--	--
Limit Parking Supply	PDT-1	No	% Reduction in Spaces	--	--
Unbundled Parking Costs	PDT-2	No	Monthly Parking Costs ($)	--	--
On-Street Market Pricing	PDT-3	No	% Increase in Price	--	--
Provide a Bus Rapid Transit System	TST-1	No	% Lines BRT	--	--
Expand Transit Network	TST-3	Yes	% Increase Transit Coverage	--	--
Increase Transit Frequency	TST-4	No	Level of Implementation	--	--
		No	% Reduction in Headways	--	--
Implement Trip Reduction Program	TRT-1, TRT-2	No	% employee eligible	--	--
		No	Program Type	--	--
Transit Subsidy	TRT-4	No	% employee eligible	--	--
		No	Daily Transit Subsidy Amount ($)	--	--
Implement Employee Parking “Cash-Out”	TRT-15	No	% employee eligible	--	--
Workplace Parking Charge	TRT-14	No	% employee eligible	--	--
		No	Daily Parking Charge ($)	--	--
Encourage Telecommuting	TRT-6	No	% employee work 9/80	--	--

Mitigation Input Category	CAPCOA Mitigation Number	Include in Model? (yes/no)	Type of Input / Unit	Project Specific Inputs	
				Inputs	Source/Notes
and Alternative Work Schedules		No	% employee work 4/40	--	--
		No	% employee telecommute 1.5 days	--	--
Market Commute Trip Reduction Option	TRT-7	No	% employee eligible	--	--
Employee Vanpool/Shuttle	TRT-11	Yes	% employee eligible	--	--
		Yes	% vanpool mode share	--	--
Provide Ride Sharing Program	TRT-3	No	% employee eligible	--	--
Implement School Bus Program	TRT-13	No	% family using	--	--
Only Natural Gas Hearth	N/A	No	Yes or No	--	--
No hearth	N/A	No	Yes or No	--	--
Use of Low VOC Cleaning Supplies	N/A	No	Yes or No	--	--
Use low VOC Paint (Residential Interior)	N/A	Yes	Emission Factor (EF) (g/l)	--	--
Use low VOC Paint (Residential Exterior)	N/A	Yes	EF (g/l)	--	--
Use low VOC Paint (Non-residential Interior)	N/A	Yes	EF (g/l)	--	--
Use low VOC Paint (Non-residential Exterior)	N/A	Yes	EF (g/l)	--	--
Electric Lawnmower	A-1	Yes	Percent of equipment type that will be electric.	--	--
Electric Leafblower	A-1	Yes	Percent of equipment type that will be electric.	--	--

Mitigation Input Category	CAPCOA Mitigation Number	Include in Model? (yes/no)	Type of Input / Unit	Project Specific Inputs	
				Inputs	Source/Notes
Electric Chainsaw	A-1	Yes	Percent of equipment type that will be electric.	--	--
Exceed Title 24	BE-1	Yes	Percentage improvement selected for the Project.	46%	Assuming use of 2016 California Building Code
Install High Efficiently Lighting	LE-1	Yes	% Lighting Energy Reduction	--	--
On-site Renewable Energy	AE-1, AE-2, AE-3	No	kWh Generated	--	--
		No	% of Electricity Use Generated	--	--
Energy Efficient Appliances	BE-4	Yes	Appliance Type, Land Use Subtype, % Improvement	Use Default Values	Defaults
Apply Water Conservation Strategy	WUW-2	No	% Reduction Indoor	--	--
		No	% Reduction Outdoor	--	--
Use Reclaimed Water	WSW-1	No	% Indoor Water Use	Both Alts-15,000 GPD 5,475,000 GPY 11.72% Alt A 12.82% Alt B	Water and Wastewater Feasibility Study – CCCR Water and Wastewater Feasibility Study, June, 2016 Table 2-6
		No	% Outdoor Water Use	--	--
Use Grey Water	WSW-2	No	% Indoor Water Use	--	--
		No	% Outdoor Water Use	--	--
Install Low-Flow Bathroom Faucet	WUW-1	Yes	% Reduction in flow	32%	Default % reduction assuming implementation of Recommended Mitigation
Install Low-flow Kitchen Faucet	WUW-1	Yes	% Reduction in flow	18%	Default % reduction assuming implementation of Recommended Mitigation.
Install Low-flow Toilet	WUW-1	Yes	% Reduction in flow	20%	Default % reduction assuming implementation of Recommended Mitigation
Install Low-flow Shower	WUW-1	Yes	% Reduction in flow	20%	Default % reduction assuming implementation of Recommended Mitigation
Turf Reduction	WUW-5	No	Turf Reduction Area (sqft)	--	--
		No	% Reduction turf	--	--
Use Water-Efficient Irrigation Systems	WUW-4	No	% Reduction	--	--

Mitigation Input Category	CAPCOA Mitigation Number	Include in Model? (yes/no)	Type of Input / Unit	Project Specific Inputs	
				Inputs	Source/Notes
Water Efficient Landscape	WUW-3	No	Maximum Applied Water Allowance (MAWA) (gal/yr)	--	--
		No	Estimated Total Water Use (ETWU) (gal/yr)	--	--
Institute Recycling and Composting Service	SW-1	Yes	% Reduction in Waste Disposal over State requirements	--	--

Source: AES, 2016; CalEEMod, 2013

Table 1a – Land Use Inputs Alternative A[1]

Land Use Type	Land Use Subtype	Unit Amount	Size Metric	Lot Acreage	Square Feet	Population
Recreation	Hotel	459	Rooms		346,801	
Recreation	Arena (Ballroom)	13.350	1,000 sq ft		13,350	
Recreation	Quality Restaurant	9.475	1,000 sq ft		9,475	

Table 1b – Land Use Inputs Alternative B[1]

Land Use Type	Land Use Subtype	Unit Amount	Size Metric	Lot Acreage	Square Feet	Population
Recreation	Hotel	399	Rooms		346,801	
Recreation	Arena (Ballroom)	13.350	1,000 sq ft		13,350	
Recreation	Quality Restaurant	9.475	1,000 sq ft		9,475	

Table 2 – Construction Equipment Usage

Equipment	Total No.	Construction Phase Activities					
		Demolition	Site Preparation	Grading	Construction	Paving	Architectural Coating
	Construction Phasing	3/1/17- 4/06/17	4/7/17/ - 4/26/17	4/27/17 - 6/22/17	6/23/17 - 01/15/19	1/16/2018 - 02/21/18	02/22/19 - 04/01/2019
Air Compressors	1						1
Concrete/Industrial Saws	1	1					
Cranes	1				1		
Excavators	5	3		2			
Forklifts	3				3		
Gensets	1				1		
Graders	1			1			
Pavers	2					2	
Paving Equipment	2					2	
Rollers	2					2	
Rubber Tired Dozers	6	2	3	1			
Scrapers	2			2			
Tractors/Loaders/Backhoes	9		4	2	3		
Welders	1				1		

Source: CalEEMod defaults used for equipment and phase time proportion. Total time from Project Description.

Table 3 - Trip Generation Rates[1]

Land Use	Daily Trip Generation Rate[1]	
	Weekday	Weekend
Hotel	2.044 trips/rooms	2.048 trips/rooms
Arena (Ballroom)	37.75 trips/1000 sq ft	37.75 trips/1000 sq ft
Restaurant	13.55 trips/1000 sq ft	13.33 trips/1000 sq ft

Notes: 1 – Kimley>>>Horn, 2014 Traffic Impact Analysis, includes trip reduction due to internal capture.

Table 4 – Off-Road Equipment Mitigation Inputs

Equipment Type	Engine Tier	Number of Equipment Mitigated	Diesel Particulate Filter (DPF) Level 2014
Air Compressors	Tier 3	1	Level 3
Concrete/Industrial Saws	Tier 3	1	Level 3
Cranes	Tier 3	1	Level 3
Excavators	Tier 3	5	Level 3
Forklifts	Tier 3	3	Level 3
Generator Sets	Tier 3	1	Level 3
Graders	Tier 3	1	Level 3
Pavers	Tier 3	2	Level 3
Paving Equipment	Tier 3	2	Level 3
Rollers	Tier 3	2	Level 3
Rubber Tired Dozers	Tier 3	6	Level 3
Rubber Tired Loaders	Tier 3	2	Level 3
Scrapers	No Change	9	No Change
Tractors/Loaders/Backhoes	Tier 3	1	Level 3
Welders	Tier 3	1	Level 3

Mitigation Measures

Cache Creek Hotel Expansion Project

Yolo/Solano AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Arena	13.35	1000sqft	0.31	13,350.00	0
Hotel	459.00	Room	7.96	346,801.00	0
Quality Restaurant	9.47	1000sqft	0.22	9,475.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	6.8	**Precipitation Freq (Days)**	55
Climate Zone	2			**Operational Year**	2019
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Refer to CalEEMod Tables

Construction Phase - CalEEMod defaults used for equipment and phase time proportion. Total time from Project Description.

Trips and VMT -

Grading -

Architectural Coating -

Area Coating -

Water And Wastewater - Refer to CalEEMod tables

Solid Waste -

Construction Off-road Equipment Mitigation - Refer to CalEEMod Tables

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3

tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
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tblConstEquipMitigation	Tier	No Change	Tier 3
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tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3

tblConstructionPhase	NumDays	20.00	25.00
tblConstructionPhase	NumDays	230.00	375.00
tblConstructionPhase	NumDays	20.00	25.00
tblConstructionPhase	NumDays	20.00	37.00
tblConstructionPhase	NumDays	20.00	25.00
tblConstructionPhase	NumDays	10.00	13.00
tblConstructionPhase	PhaseEndDate	2/3/2017	2/5/2017
tblConstructionPhase	PhaseEndDate	4/14/2017	4/15/2017
tblConstructionPhase	PhaseEndDate	10/26/2018	10/25/2018
tblConstructionPhase	PhaseStartDate	9/22/2018	9/21/2018
tblLandUse	LandUseSquareFeet	666,468.00	346,801.00
tblLandUse	LandUseSquareFeet	9,470.00	9,475.00
tblLandUse	LotAcreage	4.29	0.31
tblLandUse	LotAcreage	15.30	7.96
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblProjectCharacteristics	OperationalYear	2014	2019
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblVehicleTrips	CC_TL	6.60	55.00
tblVehicleTrips	CC_TL	6.60	55.00
tblVehicleTrips	CC_TL	6.60	55.00
tblVehicleTrips	CNW_TL	6.60	55.00
tblVehicleTrips	CNW_TL	6.60	55.00
tblVehicleTrips	CNW_TL	6.60	55.00
tblVehicleTrips	CW_TL	14.70	41.30
tblVehicleTrips	CW_TL	14.70	41.30
tblVehicleTrips	CW_TL	14.70	41.30
tblVehicleTrips	ST_TR	10.71	37.75

tblVehicleTrips	ST_TR	8.19	2.05
tblVehicleTrips	ST_TR	94.36	13.33
tblVehicleTrips	SU_TR	10.71	37.75
tblVehicleTrips	SU_TR	5.95	2.05
tblVehicleTrips	SU_TR	72.16	13.33
tblVehicleTrips	WD_TR	10.71	37.75
tblVehicleTrips	WD_TR	8.17	2.04
tblVehicleTrips	WD_TR	89.95	13.55
tblWater	IndoorWaterUseRate	5,750,781.07	0.00
tblWater	IndoorWaterUseRate	11,643,347.43	46,720,000.00
tblWater	IndoorWaterUseRate	2,874,464.26	0.00
tblWater	OutdoorWaterUseRate	367,071.13	0.00
tblWater	OutdoorWaterUseRate	1,293,705.27	0.00
tblWater	OutdoorWaterUseRate	183,476.44	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.6060	5.1531	5.0732	7.8800e-003	22.1939	0.2788	22.4727	2.3533	0.2600	2.6132	0.0000	671.5014	671.5014	0.1166	0.0000	673.9501
2018	2.9589	2.9602	3.5974	6.4400e-003	22.3586	0.1634	22.5220	2.2671	0.1533	2.4204	0.0000	526.0694	526.0694	0.0726	0.0000	527.5944
Total	**3.5649**	**8.1134**	**8.6706**	**0.0143**	**44.5525**	**0.4422**	**44.9946**	**4.6204**	**0.4133**	**5.0336**	**0.0000**	**1,197.5709**	**1,197.5709**	**0.1892**	**0.0000**	**1,201.5444**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.2667	3.1175	4.7517	7.8800e-003	19.8702	0.0497	19.9199	2.0646	0.0471	2.1117	0.0000	671.5010	671.5010	0.1166	0.0000	673.9496
2018	2.7529	2.0126	3.6544	6.4400e-003	20.1439	0.0220	20.1659	2.0461	0.0213	2.0674	0.0000	526.0691	526.0691	0.0726	0.0000	527.5941
Total	**3.0196**	**5.1302**	**8.4061**	**0.0143**	**40.0141**	**0.0717**	**40.0858**	**4.1107**	**0.0684**	**4.1791**	**0.0000**	**1,197.5701**	**1,197.5701**	**0.1892**	**0.0000**	**1,201.5436**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**15.30**	**36.77**	**3.05**	**0.00**	**10.19**	**83.80**	**10.91**	**11.03**	**83.44**	**16.98**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.7010	4.0000e-005	4.4700e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.6100e-003	8.6100e-003	2.0000e-005	0.0000	9.1000e-003
Energy	0.0597	0.5425	0.4557	3.2600e-003		0.0412	0.0412		0.0412	0.0412	0.0000	1,477.7576	1,477.7576	0.0514	0.0191	1,484.7672
Mobile	1.8506	8.6981	27.8070	0.0786	299.2609	0.1360	299.3969	30.5963	0.1253	30.7215	0.0000	5,839.8731	5,839.8731	0.2054	0.0000	5,844.1868
Waste						0.0000	0.0000		0.0000	0.0000	52.8406	0.0000	52.8406	3.1228	0.0000	118.4191
Water						0.0000	0.0000		0.0000	0.0000	14.8221	73.5430	88.3651	1.5257	0.0366	131.7614
Total	**3.6113**	**9.2406**	**28.2672**	**0.0819**	**299.2609**	**0.1773**	**299.4382**	**30.5963**	**0.1665**	**30.7628**	**67.6627**	**7,391.1823**	**7,458.8450**	**4.9054**	**0.0558**	**7,579.1436**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.7010	4.0000e-005	4.4700e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.6100e-003	8.6100e-003	2.0000e-005	0.0000	9.1000e-003
Energy	0.0341	0.3097	0.2602	1.8600e-003		0.0235	0.0235		0.0235	0.0235	0.0000	1,105.0616	1,105.0616	0.0412	0.0134	1,110.0697
Mobile	1.8506	8.6981	27.8070	0.0786	299.2609	0.1360	299.3969	30.5963	0.1253	30.7215	0.0000	5,839.8731	5,839.8731	0.2054	0.0000	5,844.1868
Waste						0.0000	0.0000		0.0000	0.0000	52.8406	0.0000	52.8406	3.1228	0.0000	118.4191
Water						0.0000	0.0000		0.0000	0.0000	-1,070.9144	-5,313.5678	-6,384.4822	-110.2134	-2.6427	-9,518.2111
Total	**3.5857**	**9.0078**	**28.0717**	**0.0805**	**299.2609**	**0.1596**	**299.4205**	**30.5963**	**0.1488**	**30.7451**	**-1,018.0739**	**1,631.3755**	**613.3016**	**-106.8440**	**-2.6294**	**-2,445.5265**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.71**	**2.52**	**0.69**	**1.71**	**0.00**	**9.98**	**0.01**	**0.00**	**10.62**	**0.06**	**1,604.63**	**77.93**	**91.78**	**2,278.11**	**4,815.51**	**132.27**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2017	2/5/2017	5	25	
2	Site Preparation	Site Preparation	2/6/2017	2/22/2017	5	13	
3	Grading	Grading	2/23/2017	4/15/2017	5	37	
4	Building Construction	Building Construction	4/16/2017	9/21/2018	5	375	
5	Paving	Paving	9/21/2018	10/25/2018	5	25	
6	Architectural Coating	Architectural Coating	10/26/2018	11/29/2018	5	25	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 92.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 554,439; Non-Residential Outdoor: 184,813 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	162	0.38
Demolition	Rubber Tired Dozers	2	8.00	255	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Scrapers	2	8.00	361	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	2	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	155.00	61.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	31.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

3.2 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0506	0.5337	0.4237	5.0000e-004		0.0266	0.0266		0.0248	0.0248	0.0000	45.7728	45.7728	0.0126	0.0000	46.0365
Total	**0.0506**	**0.5337**	**0.4237**	**5.0000e-004**		**0.0266**	**0.0266**		**0.0248**	**0.0248**	**0.0000**	**45.7728**	**45.7728**	**0.0126**	**0.0000**	**46.0365**

3.2 Demolition - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.8000e-004	1.3100e-003	0.0122	3.0000e-005	0.2385	2.0000e-005	0.2385	0.0242	2.0000e-005	0.0242	0.0000	2.0568	2.0568	1.1000e-004	0.0000	2.0592
Total	**6.8000e-004**	**1.3100e-003**	**0.0122**	**3.0000e-005**	**0.2385**	**2.0000e-005**	**0.2385**	**0.0242**	**2.0000e-005**	**0.0242**	**0.0000**	**2.0568**	**2.0568**	**1.1000e-004**	**0.0000**	**2.0592**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0119	0.2345	0.3158	5.0000e-004		1.6500e-003	1.6500e-003		1.6500e-003	1.6500e-003	0.0000	45.7727	45.7727	0.0126	0.0000	46.0364
Total	**0.0119**	**0.2345**	**0.3158**	**5.0000e-004**		**1.6500e-003**	**1.6500e-003**		**1.6500e-003**	**1.6500e-003**	**0.0000**	**45.7727**	**45.7727**	**0.0126**	**0.0000**	**46.0364**

3.2 Demolition - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.8000e-004	1.3100e-003	0.0122	3.0000e-005	0.2148	2.0000e-005	0.2148	0.0218	2.0000e-005	0.0218	0.0000	2.0568	2.0568	1.1000e-004	0.0000	2.0592
Total	**6.8000e-004**	**1.3100e-003**	**0.0122**	**3.0000e-005**	**0.2148**	**2.0000e-005**	**0.2148**	**0.0218**	**2.0000e-005**	**0.0218**	**0.0000**	**2.0568**	**2.0568**	**1.1000e-004**	**0.0000**	**2.0592**

3.3 Site Preparation - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1174	0.0000	0.1174	0.0646	0.0000	0.0646	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0315	0.3364	0.2561	2.5000e-004		0.0179	0.0179		0.0165	0.0165	0.0000	23.6050	23.6050	7.2300e-003	0.0000	23.7569
Total	**0.0315**	**0.3364**	**0.2561**	**2.5000e-004**	**0.1174**	**0.0179**	**0.1353**	**0.0646**	**0.0165**	**0.0810**	**0.0000**	**23.6050**	**23.6050**	**7.2300e-003**	**0.0000**	**23.7569**

3.3 Site Preparation - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.3000e-004	8.2000e-004	7.6200e-003	2.0000e-005	0.1488	1.0000e-005	0.1488	0.0151	1.0000e-005	0.0151	0.0000	1.2835	1.2835	7.0000e-005	0.0000	1.2849
Total	**4.3000e-004**	**8.2000e-004**	**7.6200e-003**	**2.0000e-005**	**0.1488**	**1.0000e-005**	**0.1488**	**0.0151**	**1.0000e-005**	**0.0151**	**0.0000**	**1.2835**	**1.2835**	**7.0000e-005**	**0.0000**	**1.2849**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0528	0.0000	0.0528	0.0291	0.0000	0.0291	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.1800e-003	0.1265	0.1521	2.5000e-004		9.4000e-004	9.4000e-004		9.4000e-004	9.4000e-004	0.0000	23.6050	23.6050	7.2300e-003	0.0000	23.7569
Total	**6.1800e-003**	**0.1265**	**0.1521**	**2.5000e-004**	**0.0528**	**9.4000e-004**	**0.0538**	**0.0291**	**9.4000e-004**	**0.0300**	**0.0000**	**23.6050**	**23.6050**	**7.2300e-003**	**0.0000**	**23.7569**

3.3 Site Preparation - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.3000e-004	8.2000e-004	7.6200e-003	2.0000e-005	0.1341	1.0000e-005	0.1341	0.0136	1.0000e-005	0.0136	0.0000	1.2835	1.2835	7.0000e-005	0.0000	1.2849
Total	**4.3000e-004**	**8.2000e-004**	**7.6200e-003**	**2.0000e-005**	**0.1341**	**1.0000e-005**	**0.1341**	**0.0136**	**1.0000e-005**	**0.0136**	**0.0000**	**1.2835**	**1.2835**	**7.0000e-005**	**0.0000**	**1.2849**

3.4 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1605	0.0000	0.1605	0.0665	0.0000	0.0665	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1128	1.2875	0.8659	1.1400e-003		0.0614	0.0614		0.0565	0.0565	0.0000	105.9568	105.9568	0.0325	0.0000	106.6385
Total	**0.1128**	**1.2875**	**0.8659**	**1.1400e-003**	**0.1605**	**0.0614**	**0.2218**	**0.0665**	**0.0565**	**0.1230**	**0.0000**	**105.9568**	**105.9568**	**0.0325**	**0.0000**	**106.6385**

3.4 Grading - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3500e-003	2.5900e-003	0.0241	6.0000e-005	0.4705	3.0000e-005	0.4706	0.0477	3.0000e-005	0.0477	0.0000	4.0588	4.0588	2.2000e-004	0.0000	4.0634
Total	**1.3500e-003**	**2.5900e-003**	**0.0241**	**6.0000e-005**	**0.4705**	**3.0000e-005**	**0.4706**	**0.0477**	**3.0000e-005**	**0.0477**	**0.0000**	**4.0588**	**4.0588**	**2.2000e-004**	**0.0000**	**4.0634**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0722	0.0000	0.0722	0.0299	0.0000	0.0299	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0625	0.8924	0.7853	1.1400e-003		0.0264	0.0264		0.0245	0.0245	0.0000	105.9566	105.9566	0.0325	0.0000	106.6384
Total	**0.0625**	**0.8924**	**0.7853**	**1.1400e-003**	**0.0722**	**0.0264**	**0.0986**	**0.0299**	**0.0245**	**0.0544**	**0.0000**	**105.9566**	**105.9566**	**0.0325**	**0.0000**	**106.6384**

3.4 Grading - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3500e-003	2.5900e-003	0.0241	6.0000e-005	0.4239	3.0000e-005	0.4240	0.0430	3.0000e-005	0.0431	0.0000	4.0588	4.0588	2.2000e-004	0.0000	4.0634
Total	**1.3500e-003**	**2.5900e-003**	**0.0241**	**6.0000e-005**	**0.4239**	**3.0000e-005**	**0.4240**	**0.0430**	**3.0000e-005**	**0.0431**	**0.0000**	**4.0588**	**4.0588**	**2.2000e-004**	**0.0000**	**4.0634**

3.5 Building Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2870	2.4425	1.6770	2.4800e-003		0.1648	0.1648		0.1548	0.1548	0.0000	221.5182	221.5182	0.0545	0.0000	222.6631
Total	**0.2870**	**2.4425**	**1.6770**	**2.4800e-003**		**0.1648**	**0.1648**		**0.1548**	**0.1548**	**0.0000**	**221.5182**	**221.5182**	**0.0545**	**0.0000**	**222.6631**

3.5 Building Construction - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0694	0.4480	0.8731	1.2300e-003	2.8248	6.8700e-003	2.8317	0.2879	6.3100e-003	0.2942	0.0000	109.9720	109.9720	8.5000e-004	0.0000	109.9899
Worker	0.0523	0.1003	0.9336	2.1700e-003	18.2334	1.2600e-003	18.2346	1.8474	1.1600e-003	1.8486	0.0000	157.2777	157.2777	8.5700e-003	0.0000	157.4577
Total	**0.1216**	**0.5483**	**1.8067**	**3.4000e-003**	**21.0582**	**8.1300e-003**	**21.0663**	**2.1353**	**7.4700e-003**	**2.1428**	**0.0000**	**267.2497**	**267.2497**	**9.4200e-003**	**0.0000**	**267.4476**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0621	1.3111	1.6479	2.4800e-003		0.0125	0.0125		0.0125	0.0125	0.0000	221.5179	221.5179	0.0545	0.0000	222.6628
Total	**0.0621**	**1.3111**	**1.6479**	**2.4800e-003**		**0.0125**	**0.0125**		**0.0125**	**0.0125**	**0.0000**	**221.5179**	**221.5179**	**0.0545**	**0.0000**	**222.6628**

3.5 Building Construction - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0694	0.4480	0.8731	1.2300e-003	2.5455	6.8700e-003	2.5524	0.2600	6.3100e-003	0.2663	0.0000	109.9720	109.9720	8.5000e-004	0.0000	109.9899
Worker	0.0523	0.1003	0.9336	2.1700e-003	16.4268	1.2600e-003	16.4281	1.6672	1.1600e-003	1.6683	0.0000	157.2777	157.2777	8.5700e-003	0.0000	157.4577
Total	**0.1216**	**0.5483**	**1.8067**	**3.4000e-003**	**18.9724**	**8.1300e-003**	**18.9805**	**1.9272**	**7.4700e-003**	**1.9346**	**0.0000**	**267.2497**	**267.2497**	**9.4200e-003**	**0.0000**	**267.4476**

3.5 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2535	2.2098	1.6656	2.5500e-003		0.1420	0.1420		0.1335	0.1335	0.0000	224.9312	224.9312	0.0551	0.0000	226.0871
Total	**0.2535**	**2.2098**	**1.6656**	**2.5500e-003**		**0.1420**	**0.1420**		**0.1335**	**0.1335**	**0.0000**	**224.9312**	**224.9312**	**0.0551**	**0.0000**	**226.0871**

3.5 Building Construction - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0627	0.4138	0.8336	1.2600e-003	2.9012	6.4900e-003	2.9077	0.2957	5.9700e-003	0.3016	0.0000	110.9604	110.9604	8.5000e-004	0.0000	110.9783
Worker	0.0472	0.0934	0.8602	2.2300e-003	18.7262	1.2600e-003	18.7274	1.8973	1.1700e-003	1.8985	0.0000	155.4549	155.4549	8.1700e-003	0.0000	155.6265
Total	**0.1099**	**0.5072**	**1.6938**	**3.4900e-003**	**21.6273**	**7.7500e-003**	**21.6351**	**2.1930**	**7.1400e-003**	**2.2001**	**0.0000**	**266.4153**	**266.4153**	**9.0200e-003**	**0.0000**	**266.6048**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0638	1.3465	1.6925	2.5500e-003		0.0129	0.0129		0.0129	0.0129	0.0000	224.9309	224.9309	0.0550	0.0000	226.0869
Total	**0.0638**	**1.3465**	**1.6925**	**2.5500e-003**		**0.0129**	**0.0129**		**0.0129**	**0.0129**	**0.0000**	**224.9309**	**224.9309**	**0.0550**	**0.0000**	**226.0869**

3.5 Building Construction - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0627	0.4138	0.8336	1.2600e-003	2.6143	6.4900e-003	2.6208	0.2670	5.9700e-003	0.2730	0.0000	110.9604	110.9604	8.5000e-004	0.0000	110.9783
Worker	0.0472	0.0934	0.8602	2.2300e-003	16.8708	1.2600e-003	16.8721	1.7122	1.1700e-003	1.7134	0.0000	155.4549	155.4549	8.1700e-003	0.0000	155.6265
Total	**0.1099**	**0.5072**	**1.6938**	**3.4900e-003**	**19.4851**	**7.7500e-003**	**19.4929**	**1.9792**	**7.1400e-003**	**1.9864**	**0.0000**	**266.4153**	**266.4153**	**9.0200e-003**	**0.0000**	**266.6048**

3.6 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0201	0.2145	0.1812	2.8000e-004		0.0117	0.0117		0.0108	0.0108	0.0000	25.4609	25.4609	7.9300e-003	0.0000	25.6274
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0201**	**0.2145**	**0.1812**	**2.8000e-004**		**0.0117**	**0.0117**		**0.0108**	**0.0108**	**0.0000**	**25.4609**	**25.4609**	**7.9300e-003**	**0.0000**	**25.6274**

3.6 Paving - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-004	1.1900e-003	0.0110	3.0000e-005	0.2385	2.0000e-005	0.2385	0.0242	1.0000e-005	0.0242	0.0000	1.9795	1.9795	1.0000e-004	0.0000	1.9817
Total	**6.0000e-004**	**1.1900e-003**	**0.0110**	**3.0000e-005**	**0.2385**	**2.0000e-005**	**0.2385**	**0.0242**	**1.0000e-005**	**0.0242**	**0.0000**	**1.9795**	**1.9795**	**1.0000e-004**	**0.0000**	**1.9817**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.8600e-003	0.1383	0.2116	2.8000e-004		1.1200e-003	1.1200e-003		1.1200e-003	1.1200e-003	0.0000	25.4609	25.4609	7.9300e-003	0.0000	25.6274
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.8600e-003**	**0.1383**	**0.2116**	**2.8000e-004**		**1.1200e-003**	**1.1200e-003**		**1.1200e-003**	**1.1200e-003**	**0.0000**	**25.4609**	**25.4609**	**7.9300e-003**	**0.0000**	**25.6274**

3.6 Paving - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-004	1.1900e-003	0.0110	3.0000e-005	0.2148	2.0000e-005	0.2148	0.0218	1.0000e-005	0.0218	0.0000	1.9795	1.9795	1.0000e-004	0.0000	1.9817
Total	**6.0000e-004**	**1.1900e-003**	**0.0110**	**3.0000e-005**	**0.2148**	**2.0000e-005**	**0.2148**	**0.0218**	**1.0000e-005**	**0.0218**	**0.0000**	**1.9795**	**1.9795**	**1.0000e-004**	**0.0000**	**1.9817**

3.7 Architectural Coating - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.5698					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.7300e-003	0.0251	0.0232	4.0000e-005		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	3.1916	3.1916	3.0000e-004	0.0000	3.1979
Total	**2.5736**	**0.0251**	**0.0232**	**4.0000e-005**		**1.8800e-003**	**1.8800e-003**		**1.8800e-003**	**1.8800e-003**	**0.0000**	**3.1916**	**3.1916**	**3.0000e-004**	**0.0000**	**3.1979**

3.7 Architectural Coating - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2400e-003	2.4600e-003	0.0226	6.0000e-005	0.4928	3.0000e-005	0.4928	0.0499	3.0000e-005	0.0500	0.0000	4.0909	4.0909	2.1000e-004	0.0000	4.0954
Total	**1.2400e-003**	**2.4600e-003**	**0.0226**	**6.0000e-005**	**0.4928**	**3.0000e-005**	**0.4928**	**0.0499**	**3.0000e-005**	**0.0500**	**0.0000**	**4.0909**	**4.0909**	**2.1000e-004**	**0.0000**	**4.0954**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.5698					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.4000e-004	0.0170	0.0229	4.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	3.1916	3.1916	3.0000e-004	0.0000	3.1979
Total	**2.5706**	**0.0170**	**0.0229**	**4.0000e-005**		**1.8000e-004**	**1.8000e-004**		**1.8000e-004**	**1.8000e-004**	**0.0000**	**3.1916**	**3.1916**	**3.0000e-004**	**0.0000**	**3.1979**

3.7 Architectural Coating - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2400e-003	2.4600e-003	0.0226	6.0000e-005	0.4440	3.0000e-005	0.4440	0.0451	3.0000e-005	0.0451	0.0000	4.0909	4.0909	2.1000e-004	0.0000	4.0954
Total	**1.2400e-003**	**2.4600e-003**	**0.0226**	**6.0000e-005**	**0.4440**	**3.0000e-005**	**0.4440**	**0.0451**	**3.0000e-005**	**0.0451**	**0.0000**	**4.0909**	**4.0909**	**2.1000e-004**	**0.0000**	**4.0954**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.8506	8.6981	27.8070	0.0786	299.2609	0.1360	299.3969	30.5963	0.1253	30.7215	0.0000	5,839.8731	5,839.8731	0.2054	0.0000	5,844.1868
Unmitigated	1.8506	8.6981	27.8070	0.0786	299.2609	0.1360	299.3969	30.5963	0.1253	30.7215	0.0000	5,839.8731	5,839.8731	0.2054	0.0000	5,844.1868

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Arena	503.96	503.96	503.96	73,762	73,762
Hotel	936.36	940.95	940.95	12,060,269	12,060,269
Quality Restaurant	128.32	126.24	126.24	1,056,295	1,056,295
Total	1,568.64	1,571.15	1,571.15	13,190,326	13,190,326

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Arena	41.30	55.00	55.00	0.00	81.00	19.00	0.66	0.28	0.6
Hotel	41.30	55.00	55.00	19.40	61.60	19.00	58	38	4
Quality Restaurant	41.30	55.00	55.00	12.00	69.00	19.00	38	18	44

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.471403	0.066929	0.152676	0.151738	0.056590	0.006768	0.023176	0.056544	0.001000	0.001364	0.008404	0.000498	0.002911

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	767.9018	767.9018	0.0347	7.1800e-003	770.8580
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	887.1691	887.1691	0.0401	8.3000e-003	890.5844
NaturalGas Mitigated	0.0341	0.3097	0.2602	1.8600e-003		0.0235	0.0235		0.0235	0.0235	0.0000	337.1598	337.1598	6.4600e-003	6.1800e-003	339.2117
NaturalGas Unmitigated	0.0597	0.5425	0.4557	3.2600e-003		0.0412	0.0412		0.0412	0.0412	0.0000	590.5885	590.5885	0.0113	0.0108	594.1828

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Arena	261794	1.4100e-003	0.0128	0.0108	8.0000e-005		9.8000e-004	9.8000e-004		9.8000e-004	9.8000e-004	0.0000	13.9703	13.9703	2.7000e-004	2.6000e-004	14.0553
Hotel	9.74858e+006	0.0526	0.4779	0.4014	2.8700e-003		0.0363	0.0363		0.0363	0.0363	0.0000	520.2212	520.2212	9.9700e-003	9.5400e-003	523.3871
Quality Restaurant	1.05684e+006	5.7000e-003	0.0518	0.0435	3.1000e-004		3.9400e-003	3.9400e-003		3.9400e-003	3.9400e-003	0.0000	56.3971	56.3971	1.0800e-003	1.0300e-003	56.7403
Total		**0.0597**	**0.5425**	**0.4557**	**3.2600e-003**		**0.0412**	**0.0412**		**0.0412**	**0.0412**	**0.0000**	**590.5885**	**590.5885**	**0.0113**	**0.0108**	**594.1828**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Hotel	5.30571e+006	0.0286	0.2601	0.2185	1.5600e-003		0.0198	0.0198		0.0198	0.0198	0.0000	283.1328	283.1328	5.4300e-003	5.1900e-003	284.8559
Quality Restaurant	870690	4.6900e-003	0.0427	0.0359	2.6000e-004		3.2400e-003	3.2400e-003		3.2400e-003	3.2400e-003	0.0000	46.4633	46.4633	8.9000e-004	8.5000e-004	46.7461
Arena	141737	7.6000e-004	6.9500e-003	5.8400e-003	4.0000e-005		5.3000e-004	5.3000e-004		5.3000e-004	5.3000e-004	0.0000	7.5636	7.5636	1.4000e-004	1.4000e-004	7.6097
Total		**0.0341**	**0.3097**	**0.2602**	**1.8600e-003**		**0.0235**	**0.0235**		**0.0235**	**0.0235**	**0.0000**	**337.1598**	**337.1598**	**6.4600e-003**	**6.1800e-003**	**339.2117**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Arena	123221	35.8463	1.6200e-003	3.4000e-004	35.9843
Hotel	2.60794e+006	758.6807	0.0343	7.1000e-003	761.6014
Quality Restaurant	318455	92.6421	4.1900e-003	8.7000e-004	92.9988
Total		**887.1691**	**0.0401**	**8.3100e-003**	**890.5844**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Arena	110816	32.2376	1.4600e-003	3.0000e-004	32.3617
Hotel	2.24262e+006	652.4049	0.0295	6.1000e-003	654.9164
Quality Restaurant	286202	83.2594	3.7600e-003	7.8000e-004	83.5799
Total		**767.9018**	**0.0347**	**7.1800e-003**	**770.8580**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.7010	4.0000e-005	4.4700e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.6100e-003	8.6100e-003	2.0000e-005	0.0000	9.1000e-003
Unmitigated	1.7010	4.0000e-005	4.4700e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.6100e-003	8.6100e-003	2.0000e-005	0.0000	9.1000e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2570					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.4436					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.2000e-004	4.0000e-005	4.4700e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.6100e-003	8.6100e-003	2.0000e-005	0.0000	9.1000e-003
Total	**1.7010**	**4.0000e-005**	**4.4700e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**8.6100e-003**	**8.6100e-003**	**2.0000e-005**	**0.0000**	**9.1000e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2570					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.4436					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.2000e-004	4.0000e-005	4.4700e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.6100e-003	8.6100e-003	2.0000e-005	0.0000	9.1000e-003
Total	**1.7010**	**4.0000e-005**	**4.4700e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**8.6100e-003**	**8.6100e-003**	**2.0000e-005**	**0.0000**	**9.1000e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Use Reclaimed Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	-6,384.4822	-110.2134	-2.6427	-9,518.2111
Unmitigated	88.3651	1.5257	0.0366	131.7614

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Arena	0 / 0	0.0000	0.0000	0.0000	0.0000
Hotel	46.72 / 0	88.3651	1.5257	0.0366	131.7614
Quality Restaurant	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**88.3651**	**1.5257**	**0.0366**	**131.7614**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Arena	-0 / 0	0.0000	0.0000	0.0000	0.0000
Hotel	-3375.58 / 0	-6,384.4822	-110.2134	-2.6427	-9,518.2111
Quality Restaurant	-0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**-6,384.4822**	**-110.2134**	**-2.6427**	**-9,518.2111**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	52.8406	3.1228	0.0000	118.4191
Unmitigated	52.8406	3.1228	0.0000	118.4191

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Arena	0.37	0.0751	4.4400e-003	0.0000	0.1683
Hotel	251.3	51.0116	3.0147	0.0000	114.3204
Quality Restaurant	8.64	1.7538	0.1037	0.0000	3.9305
Total		**52.8406**	**3.1228**	**0.0000**	**118.4191**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Arena	0.37	0.0751	4.4400e-003	0.0000	0.1683
Hotel	251.3	51.0116	3.0147	0.0000	114.3204
Quality Restaurant	8.64	1.7538	0.1037	0.0000	3.9305
Total		**52.8406**	**3.1228**	**0.0000**	**118.4191**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Cache Creek Hotel Expansion Project

Yolo/Solano AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Arena	13.35	1000sqft	0.31	13,350.00	0
Hotel	459.00	Room	7.96	346,801.00	0
Quality Restaurant	9.47	1000sqft	0.22	9,475.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	6.8	**Precipitation Freq (Days)**	55
Climate Zone	2			**Operational Year**	2019
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Refer to CalEEMod Tables

Construction Phase - CalEEMod defaults used for equipment and phase time proportion. Total time from Project Description.

Trips and VMT -

Grading -

Architectural Coating -

Area Coating -

Water And Wastewater - Refer to CalEEMod tables

Solid Waste -

Construction Off-road Equipment Mitigation - Refer to CalEEMod Tables

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
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tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3

tblConstEquipMitigation	DPF	No Change	Level 3
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tblConstructionPhase	NumDays	20.00	25.00
tblConstructionPhase	NumDays	230.00	375.00
tblConstructionPhase	NumDays	20.00	25.00
tblConstructionPhase	NumDays	20.00	37.00
tblConstructionPhase	NumDays	20.00	25.00
tblConstructionPhase	NumDays	10.00	13.00
tblConstructionPhase	PhaseEndDate	2/3/2017	2/5/2017
tblConstructionPhase	PhaseEndDate	4/14/2017	4/15/2017
tblConstructionPhase	PhaseEndDate	10/26/2018	10/25/2018
tblConstructionPhase	PhaseStartDate	9/22/2018	9/21/2018
tblLandUse	LandUseSquareFeet	666,468.00	346,801.00
tblLandUse	LandUseSquareFeet	9,470.00	9,475.00
tblLandUse	LotAcreage	4.29	0.31
tblLandUse	LotAcreage	15.30	7.96
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblProjectCharacteristics	OperationalYear	2014	2019
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblVehicleTrips	CC_TL	6.60	55.00
tblVehicleTrips	CC_TL	6.60	55.00
tblVehicleTrips	CC_TL	6.60	55.00
tblVehicleTrips	CNW_TL	6.60	55.00
tblVehicleTrips	CNW_TL	6.60	55.00
tblVehicleTrips	CNW_TL	6.60	55.00
tblVehicleTrips	CW_TL	14.70	41.30
tblVehicleTrips	CW_TL	14.70	41.30
tblVehicleTrips	CW_TL	14.70	41.30
tblVehicleTrips	ST_TR	10.71	37.75

tblVehicleTrips	ST_TR	8.19	2.05
tblVehicleTrips	ST_TR	94.36	13.33
tblVehicleTrips	SU_TR	10.71	37.75
tblVehicleTrips	SU_TR	5.95	2.05
tblVehicleTrips	SU_TR	72.16	13.33
tblVehicleTrips	WD_TR	10.71	37.75
tblVehicleTrips	WD_TR	8.17	2.04
tblVehicleTrips	WD_TR	89.95	13.55
tblWater	IndoorWaterUseRate	5,750,781.07	0.00
tblWater	IndoorWaterUseRate	11,643,347.43	46,720,000.00
tblWater	IndoorWaterUseRate	2,874,464.26	0.00
tblWater	OutdoorWaterUseRate	367,071.13	0.00
tblWater	OutdoorWaterUseRate	1,293,705.27	0.00
tblWater	OutdoorWaterUseRate	183,476.44	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	6.1834	69.7165	48.3110	0.0660	267.7342	3.3190	269.6028	27.0934	3.0534	28.8467	0.0000	6,578.9206	6,578.9206	1.9476	0.0000	6,619.8199
2018	206.0005	45.5380	50.1530	0.0907	290.1692	2.5155	292.6846	29.3622	2.3443	31.7064	0.0000	8,319.7747	8,319.7747	1.4514	0.0000	8,350.2546
Total	**212.1839**	**115.2545**	**98.4640**	**0.1567**	**557.9033**	**5.8344**	**562.2874**	**56.4555**	**5.3977**	**60.5532**	**0.0000**	**14,898.6953**	**14,898.6953**	**3.3990**	**0.0000**	**14,970.0744**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	3.4618	48.3603	43.9539	0.0660	241.1837	1.4293	241.4064	24.4442	1.3243	24.6598	0.0000	6,578.9206	6,578.9206	1.9476	0.0000	6,619.8199
2018	205.7613	30.3530	52.8691	0.0907	261.3933	0.3075	261.7009	26.4909	0.3009	26.7918	0.0000	8,319.7747	8,319.7747	1.4514	0.0000	8,350.2546
Total	**209.2231**	**78.7133**	**96.8230**	**0.1567**	**502.5770**	**1.7368**	**503.1072**	**50.9351**	**1.6253**	**51.4516**	**0.0000**	**14,898.6952**	**14,898.6952**	**3.3990**	**0.0000**	**14,970.0744**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.40**	**31.70**	**1.67**	**0.00**	**9.92**	**70.23**	**10.52**	**9.78**	**69.89**	**15.03**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	9.3228	4.6000e-004	0.0497	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		0.1055	0.1055	2.9000e-004		0.1115
Energy	0.3270	2.9727	2.4970	0.0178		0.2259	0.2259		0.2259	0.2259		3,567.1913	3,567.1913	0.0684	0.0654	3,588.9007
Mobile	10.7506	44.5279	164.9494	0.4633	1,651.0124	0.7502	1,651.7626	168.9205	0.6910	169.6115		37,729.9412	37,729.9412	1.2497		37,756.1840
Total	**20.4004**	**47.5010**	**167.4961**	**0.4811**	**1,651.0124**	**0.9763**	**1,651.9887**	**168.9205**	**0.9171**	**169.8376**		**41,297.2380**	**41,297.2380**	**1.3183**	**0.0654**	**41,345.1961**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	9.3228	4.6000e-004	0.0497	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		0.1055	0.1055	2.9000e-004		0.1115
Energy	0.1867	1.6971	1.4255	0.0102		0.1290	0.1290		0.1290	0.1290		2,036.4659	2,036.4659	0.0390	0.0373	2,048.8595
Mobile	10.7506	44.5279	164.9494	0.4633	1,651.0124	0.7502	1,651.7626	168.9205	0.6910	169.6115		37,729.9412	37,729.9412	1.2497		37,756.1840
Total	**20.2601**	**46.2254**	**166.4246**	**0.4734**	**1,651.0124**	**0.8794**	**1,651.8918**	**168.9205**	**0.8201**	**169.7407**		**39,766.5125**	**39,766.5125**	**1.2890**	**0.0373**	**39,805.1549**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.69**	**2.69**	**0.64**	**1.59**	**0.00**	**9.93**	**0.01**	**0.00**	**10.57**	**0.06**	**0.00**	**3.71**	**3.71**	**2.23**	**42.91**	**3.72**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2017	2/5/2017	5	25	
2	Site Preparation	Site Preparation	2/6/2017	2/22/2017	5	13	
3	Grading	Grading	2/23/2017	4/15/2017	5	37	
4	Building Construction	Building Construction	4/16/2017	9/21/2018	5	375	
5	Paving	Paving	9/21/2018	10/25/2018	5	25	
6	Architectural Coating	Architectural Coating	10/26/2018	11/29/2018	5	25	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 92.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 554,439; Non-Residential Outdoor: 184,813 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	162	0.38
Demolition	Rubber Tired Dozers	2	8.00	255	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Scrapers	2	8.00	361	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	2	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	155.00	61.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	31.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

3.2 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.0482	42.6971	33.8934	0.0399		2.1252	2.1252		1.9797	1.9797		4,036.4674	4,036.4674	1.1073		4,059.7211
Total	**4.0482**	**42.6971**	**33.8934**	**0.0399**		**2.1252**	**2.1252**		**1.9797**	**1.9797**		**4,036.4674**	**4,036.4674**	**1.1073**		**4,059.7211**

3.2 Demolition - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0632	0.0934	1.1295	2.5000e-003	22.4350	1.3200e-003	22.4364	2.2688	1.2200e-003	2.2700		199.1637	199.1637	9.8900e-003		199.3713
Total	**0.0632**	**0.0934**	**1.1295**	**2.5000e-003**	**22.4350**	**1.3200e-003**	**22.4364**	**2.2688**	**1.2200e-003**	**2.2700**		**199.1637**	**199.1637**	**9.8900e-003**		**199.3713**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9478	18.7614	25.2649	0.0399		0.1323	0.1323		0.1323	0.1323	0.0000	4,036.4674	4,036.4674	1.1073		4,059.7211
Total	**0.9478**	**18.7614**	**25.2649**	**0.0399**		**0.1323**	**0.1323**		**0.1323**	**0.1323**	**0.0000**	**4,036.4674**	**4,036.4674**	**1.1073**		**4,059.7211**

3.2 Demolition - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0632	0.0934	1.1295	2.5000e-003	20.2097	1.3200e-003	20.2110	2.0468	1.2200e-003	2.0480		199.1637	199.1637	9.8900e-003		199.3713
Total	**0.0632**	**0.0934**	**1.1295**	**2.5000e-003**	**20.2097**	**1.3200e-003**	**20.2110**	**2.0468**	**1.2200e-003**	**2.0480**		**199.1637**	**199.1637**	**9.8900e-003**		**199.3713**

3.3 Site Preparation - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.8382	51.7535	39.3970	0.0391		2.7542	2.7542		2.5339	2.5339		4,003.0859	4,003.0859	1.2265		4,028.8432
Total	**4.8382**	**51.7535**	**39.3970**	**0.0391**	**18.0663**	**2.7542**	**20.8205**	**9.9307**	**2.5339**	**12.4646**		**4,003.0859**	**4,003.0859**	**1.2265**		**4,028.8432**

3.3 Site Preparation - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0759	0.1120	1.3554	3.0000e-003	26.9221	1.5900e-003	26.9236	2.7226	1.4600e-003	2.7240		238.9964	238.9964	0.0119		239.2455
Total	**0.0759**	**0.1120**	**1.3554**	**3.0000e-003**	**26.9221**	**1.5900e-003**	**26.9236**	**2.7226**	**1.4600e-003**	**2.7240**		**238.9964**	**238.9964**	**0.0119**		**239.2455**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	0.9515	19.4584	23.4003	0.0391		0.1442	0.1442		0.1442	0.1442	0.0000	4,003.0859	4,003.0859	1.2265		4,028.8432
Total	**0.9515**	**19.4584**	**23.4003**	**0.0391**	**8.1298**	**0.1442**	**8.2740**	**4.4688**	**0.1442**	**4.6130**	**0.0000**	**4,003.0859**	**4,003.0859**	**1.2265**		**4,028.8432**

3.3 Site Preparation - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0759	0.1120	1.3554	3.0000e-003	24.2516	1.5900e-003	24.2532	2.4561	1.4600e-003	2.4576		238.9964	238.9964	0.0119		239.2455
Total	**0.0759**	**0.1120**	**1.3554**	**3.0000e-003**	**24.2516**	**1.5900e-003**	**24.2532**	**2.4561**	**1.4600e-003**	**2.4576**		**238.9964**	**238.9964**	**0.0119**		**239.2455**

3.4 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	6.0991	69.5920	46.8050	0.0617		3.3172	3.3172		3.0518	3.0518		6,313.3690	6,313.3690	1.9344		6,353.9915
Total	**6.0991**	**69.5920**	**46.8050**	**0.0617**	**8.6733**	**3.3172**	**11.9905**	**3.5965**	**3.0518**	**6.6483**		**6,313.3690**	**6,313.3690**	**1.9344**		**6,353.9915**

3.4 Grading - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0843	0.1245	1.5060	3.3300e-003	29.9134	1.7600e-003	29.9152	3.0251	1.6200e-003	3.0267		265.5516	265.5516	0.0132		265.8284
Total	**0.0843**	**0.1245**	**1.5060**	**3.3300e-003**	**29.9134**	**1.7600e-003**	**29.9152**	**3.0251**	**1.6200e-003**	**3.0267**		**265.5516**	**265.5516**	**0.0132**		**265.8284**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.9030	0.0000	3.9030	1.6184	0.0000	1.6184			0.0000			0.0000
Off-Road	3.3775	48.2358	42.4479	0.0617		1.4275	1.4275		1.3227	1.3227	0.0000	6,313.3690	6,313.3690	1.9344		6,353.9915
Total	**3.3775**	**48.2358**	**42.4479**	**0.0617**	**3.9030**	**1.4275**	**5.3305**	**1.6184**	**1.3227**	**2.9412**	**0.0000**	**6,313.3690**	**6,313.3690**	**1.9344**		**6,353.9915**

3.4 Grading - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0843	0.1245	1.5060	3.3300e-003	26.9463	1.7600e-003	26.9480	2.7290	1.6200e-003	2.7306		265.5516	265.5516	0.0132		265.8284
Total	**0.0843**	**0.1245**	**1.5060**	**3.3300e-003**	**26.9463**	**1.7600e-003**	**26.9480**	**2.7290**	**1.6200e-003**	**2.7306**		**265.5516**	**265.5516**	**0.0132**		**265.8284**

3.5 Building Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.1024	26.4057	18.1291	0.0268		1.7812	1.7812		1.6730	1.6730		2,639.8053	2,639.8053	0.6497		2,653.4490
Total	**3.1024**	**26.4057**	**18.1291**	**0.0268**		**1.7812**	**1.7812**		**1.6730**	**1.6730**		**2,639.8053**	**2,639.8053**	**0.6497**		**2,653.4490**

3.5 Building Construction - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.6696	4.6164	7.2226	0.0133	35.9054	0.0738	35.9792	3.6491	0.0678	3.7169		1,315.1236	1,315.1236	0.0100		1,315.3341
Worker	0.6533	0.9647	11.6715	0.0258	231.8288	0.0137	231.8424	23.4443	0.0126	23.4569		2,058.0246	2,058.0246	0.1022		2,060.1698
Total	**1.3229**	**5.5811**	**18.8941**	**0.0392**	**267.7342**	**0.0875**	**267.8216**	**27.0934**	**0.0804**	**27.1738**		**3,373.1482**	**3,373.1482**	**0.1122**		**3,375.5039**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6712	14.1741	17.8156	0.0268		0.1352	0.1352		0.1352	0.1352	0.0000	2,639.8053	2,639.8053	0.6497		2,653.4490
Total	**0.6712**	**14.1741**	**17.8156**	**0.0268**		**0.1352**	**0.1352**		**0.1352**	**0.1352**	**0.0000**	**2,639.8053**	**2,639.8053**	**0.6497**		**2,653.4490**

3.5 Building Construction - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.6696	4.6164	7.2226	0.0133	32.3501	0.0738	32.4239	3.2943	0.0678	3.3622		1,315.1236	1,315.1236	0.0100		1,315.3341
Worker	0.6533	0.9647	11.6715	0.0258	208.8335	0.0137	208.8472	21.1498	0.0126	21.1624		2,058.0246	2,058.0246	0.1022		2,060.1698
Total	**1.3229**	**5.5811**	**18.8941**	**0.0392**	**241.1837**	**0.0875**	**241.2711**	**24.4442**	**0.0804**	**24.5246**		**3,373.1482**	**3,373.1482**	**0.1122**		**3,375.5039**

3.5 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6687	23.2608	17.5327	0.0268		1.4943	1.4943		1.4048	1.4048		2,609.9390	2,609.9390	0.6387		2,623.3517
Total	**2.6687**	**23.2608**	**17.5327**	**0.0268**		**1.4943**	**1.4943**		**1.4048**	**1.4048**		**2,609.9390**	**2,609.9390**	**0.6387**		**2,623.3517**

3.5 Building Construction - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5909	4.1548	6.5848	0.0133	35.9054	0.0679	35.9733	3.6491	0.0625	3.7115		1,292.0378	1,292.0378	9.7700e-003		1,292.2429
Worker	0.5794	0.8750	10.5228	0.0258	231.8288	0.0133	231.8421	23.4443	0.0123	23.4566		1,980.8347	1,980.8347	0.0948		1,982.8255
Total	**1.1703**	**5.0298**	**17.1076**	**0.0391**	**267.7341**	**0.0813**	**267.8154**	**27.0934**	**0.0748**	**27.1681**		**3,272.8726**	**3,272.8726**	**0.1046**		**3,275.0684**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6712	14.1741	17.8156	0.0268		0.1352	0.1352		0.1352	0.1352	0.0000	2,609.9389	2,609.9389	0.6387		2,623.3517
Total	**0.6712**	**14.1741**	**17.8156**	**0.0268**		**0.1352**	**0.1352**		**0.1352**	**0.1352**	**0.0000**	**2,609.9389**	**2,609.9389**	**0.6387**		**2,623.3517**

3.5 Building Construction - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5909	4.1548	6.5848	0.0133	32.3501	0.0679	32.4181	3.2943	0.0625	3.3568		1,292.0378	1,292.0378	9.7700e-003		1,292.2429
Worker	0.5794	0.8750	10.5228	0.0258	208.8335	0.0133	208.8469	21.1498	0.0123	21.1621		1,980.8347	1,980.8347	0.0948		1,982.8255
Total	**1.1703**	**5.0298**	**17.1076**	**0.0391**	**241.1837**	**0.0813**	**241.2649**	**24.4441**	**0.0748**	**24.5189**		**3,272.8726**	**3,272.8726**	**0.1046**		**3,275.0684**

3.6 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6114	17.1628	14.4944	0.0223		0.9386	0.9386		0.8635	0.8635		2,245.2695	2,245.2695	0.6990		2,259.9481
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.6114**	**17.1628**	**14.4944**	**0.0223**		**0.9386**	**0.9386**		**0.8635**	**0.8635**		**2,245.2695**	**2,245.2695**	**0.6990**		**2,259.9481**

3.6 Paving - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0561	0.0847	1.0183	2.5000e-003	22.4350	1.2900e-003	22.4363	2.2688	1.1900e-003	2.2700		191.6937	191.6937	9.1700e-003		191.8863
Total	**0.0561**	**0.0847**	**1.0183**	**2.5000e-003**	**22.4350**	**1.2900e-003**	**22.4363**	**2.2688**	**1.1900e-003**	**2.2700**		**191.6937**	**191.6937**	**9.1700e-003**		**191.8863**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5490	11.0645	16.9276	0.0223		0.0897	0.0897		0.0897	0.0897	0.0000	2,245.2695	2,245.2695	0.6990		2,259.9481
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.5490**	**11.0645**	**16.9276**	**0.0223**		**0.0897**	**0.0897**		**0.0897**	**0.0897**	**0.0000**	**2,245.2695**	**2,245.2695**	**0.6990**		**2,259.9481**

3.6 Paving - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0561	0.0847	1.0183	2.5000e-003	20.2097	1.2900e-003	20.2110	2.0468	1.1900e-003	2.0480		191.6937	191.6937	9.1700e-003		191.8863
Total	**0.0561**	**0.0847**	**1.0183**	**2.5000e-003**	**20.2097**	**1.2900e-003**	**20.2110**	**2.0468**	**1.1900e-003**	**2.0480**		**191.6937**	**191.6937**	**9.1700e-003**		**191.8863**

3.7 Architectural Coating - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	205.5860					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2986	2.0058	1.8542	2.9700e-003		0.1506	0.1506		0.1506	0.1506		281.4485	281.4485	0.0267		282.0102
Total	**205.8846**	**2.0058**	**1.8542**	**2.9700e-003**		**0.1506**	**0.1506**		**0.1506**	**0.1506**		**281.4485**	**281.4485**	**0.0267**		**282.0102**

3.7 Architectural Coating - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1159	0.1750	2.1046	5.1600e-003	46.3658	2.6600e-003	46.3684	4.6889	2.4600e-003	4.6913		396.1670	396.1670	0.0190		396.5651
Total	**0.1159**	**0.1750**	**2.1046**	**5.1600e-003**	**46.3658**	**2.6600e-003**	**46.3684**	**4.6889**	**2.4600e-003**	**4.6913**		**396.1670**	**396.1670**	**0.0190**		**396.5651**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	205.5860					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0594	1.3570	1.8324	2.9700e-003		0.0143	0.0143		0.0143	0.0143	0.0000	281.4485	281.4485	0.0267		282.0102
Total	**205.6454**	**1.3570**	**1.8324**	**2.9700e-003**		**0.0143**	**0.0143**		**0.0143**	**0.0143**	**0.0000**	**281.4485**	**281.4485**	**0.0267**		**282.0102**

3.7 Architectural Coating - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1159	0.1750	2.1046	5.1600e-003	41.7667	2.6600e-003	41.7694	4.2300	2.4600e-003	4.2324		396.1670	396.1670	0.0190		396.5651
Total	**0.1159**	**0.1750**	**2.1046**	**5.1600e-003**	**41.7667**	**2.6600e-003**	**41.7694**	**4.2300**	**2.4600e-003**	**4.2324**		**396.1670**	**396.1670**	**0.0190**		**396.5651**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	10.7506	44.5279	164.9494	0.4633	1,651.0124	0.7502	1,651.7626	168.9205	0.6910	169.6115		37,729.9412	37,729.9412	1.2497		37,756.1840
Unmitigated	10.7506	44.5279	164.9494	0.4633	1,651.0124	0.7502	1,651.7626	168.9205	0.6910	169.6115		37,729.9412	37,729.9412	1.2497		37,756.1840

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Arena	503.96	503.96	503.96	73,762	73,762
Hotel	936.36	940.95	940.95	12,060,269	12,060,269
Quality Restaurant	128.32	126.24	126.24	1,056,295	1,056,295
Total	1,568.64	1,571.15	1,571.15	13,190,326	13,190,326

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Arena	41.30	55.00	55.00	0.00	81.00	19.00	0.66	0.28	0.6
Hotel	41.30	55.00	55.00	19.40	61.60	19.00	58	38	4
Quality Restaurant	41.30	55.00	55.00	12.00	69.00	19.00	38	18	44

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.471403	0.066929	0.152676	0.151738	0.056590	0.006768	0.023176	0.056544	0.001000	0.001364	0.008404	0.000498	0.002911

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.1867	1.6971	1.4255	0.0102		0.1290	0.1290		0.1290	0.1290		2,036.4659	2,036.4659	0.0390	0.0373	2,048.8595
NaturalGas Unmitigated	0.3270	2.9727	2.4970	0.0178		0.2259	0.2259		0.2259	0.2259		3,567.1913	3,567.1913	0.0684	0.0654	3,588.9007

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Arena	717.242	7.7300e-003	0.0703	0.0591	4.2000e-004		5.3400e-003	5.3400e-003		5.3400e-003	5.3400e-003		84.3815	84.3815	1.6200e-003	1.5500e-003	84.8950
Hotel	26708.4	0.2880	2.6185	2.1995	0.0157		0.1990	0.1990		0.1990	0.1990		3,142.1680	3,142.1680	0.0602	0.0576	3,161.2907
Quality Restaurant	2895.46	0.0312	0.2839	0.2385	1.7000e-003		0.0216	0.0216		0.0216	0.0216		340.6419	340.6419	6.5300e-003	6.2500e-003	342.7150
Total		**0.3270**	**2.9727**	**2.4970**	**0.0178**		**0.2259**	**0.2259**		**0.2259**	**0.2259**		**3,567.1913**	**3,567.1913**	**0.0684**	**0.0654**	**3,588.9007**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Hotel	14.5362	0.1568	1.4251	1.1971	8.5500e-003		0.1083	0.1083		0.1083	0.1083		1,710.1397	1,710.1397	0.0328	0.0314	1,720.5474
Quality Restaurant	2.38545	0.0257	0.2339	0.1965	1.4000e-003		0.0178	0.0178		0.0178	0.0178		280.6414	280.6414	5.3800e-003	5.1500e-003	282.3493
Arena	0.38832	4.1900e-003	0.0381	0.0320	2.3000e-004		2.8900e-003	2.8900e-003		2.8900e-003	2.8900e-003		45.6848	45.6848	8.8000e-004	8.4000e-004	45.9628
Total		**0.1867**	**1.6971**	**1.4255**	**0.0102**		**0.1290**	**0.1290**		**0.1290**	**0.1290**		**2,036.4659**	**2,036.4659**	**0.0390**	**0.0373**	**2,048.8595**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	9.3228	4.6000e-004	0.0497	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		0.1055	0.1055	2.9000e-004		0.1115
Unmitigated	9.3228	4.6000e-004	0.0497	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		0.1055	0.1055	2.9000e-004		0.1115

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.4081					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.9100					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.7100e-003	4.6000e-004	0.0497	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		0.1055	0.1055	2.9000e-004		0.1115
Total	**9.3228**	**4.6000e-004**	**0.0497**	**0.0000**		**1.8000e-004**	**1.8000e-004**		**1.8000e-004**	**1.8000e-004**		**0.1055**	**0.1055**	**2.9000e-004**		**0.1115**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.4081					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.9100					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.7100e-003	4.6000e-004	0.0497	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		0.1055	0.1055	2.9000e-004		0.1115
Total	**9.3228**	**4.6000e-004**	**0.0497**	**0.0000**		**1.8000e-004**	**1.8000e-004**		**1.8000e-004**	**1.8000e-004**		**0.1055**	**0.1055**	**2.9000e-004**		**0.1115**

7.0 Water Detail

7.1 Mitigation Measures Water

Use Reclaimed Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Cache Creek Hotel Expansion Project

Yolo/Solano AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Arena	13.35	1000sqft	0.31	13,350.00	0
Hotel	459.00	Room	7.96	346,801.00	0
Quality Restaurant	9.47	1000sqft	0.22	9,475.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	6.8	**Precipitation Freq (Days)**	55
Climate Zone	2			**Operational Year**	2019
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Refer to CalEEMod Tables

Construction Phase - CalEEMod defaults used for equipment and phase time proportion. Total time from Project Description.

Trips and VMT -

Grading -

Architectural Coating -

Area Coating -

Water And Wastewater - Refer to CalEEMod tables

Solid Waste -

Construction Off-road Equipment Mitigation - Refer to CalEEMod Tables

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Table Name	Column Name	Default Value	New Value
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tblConstEquipMitigation	DPF	No Change	Level 3
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tblConstEquipMitigation	DPF	No Change	Level 3
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tblConstructionPhase	NumDays	20.00	25.00
tblConstructionPhase	NumDays	230.00	375.00
tblConstructionPhase	NumDays	20.00	25.00
tblConstructionPhase	NumDays	20.00	37.00
tblConstructionPhase	NumDays	20.00	25.00
tblConstructionPhase	NumDays	10.00	13.00
tblConstructionPhase	PhaseEndDate	2/3/2017	2/5/2017
tblConstructionPhase	PhaseEndDate	4/14/2017	4/15/2017
tblConstructionPhase	PhaseEndDate	10/26/2018	10/25/2018
tblConstructionPhase	PhaseStartDate	9/22/2018	9/21/2018
tblLandUse	LandUseSquareFeet	666,468.00	346,801.00
tblLandUse	LandUseSquareFeet	9,470.00	9,475.00
tblLandUse	LotAcreage	4.29	0.31
tblLandUse	LotAcreage	15.30	7.96
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblProjectCharacteristics	OperationalYear	2014	2019
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblVehicleTrips	CC_TL	6.60	55.00
tblVehicleTrips	CC_TL	6.60	55.00
tblVehicleTrips	CC_TL	6.60	55.00
tblVehicleTrips	CNW_TL	6.60	55.00
tblVehicleTrips	CNW_TL	6.60	55.00
tblVehicleTrips	CNW_TL	6.60	55.00
tblVehicleTrips	CW_TL	14.70	41.30
tblVehicleTrips	CW_TL	14.70	41.30
tblVehicleTrips	CW_TL	14.70	41.30
tblVehicleTrips	ST_TR	10.71	37.75

tblVehicleTrips	ST_TR	8.19	2.05
tblVehicleTrips	ST_TR	94.36	13.33
tblVehicleTrips	SU_TR	10.71	37.75
tblVehicleTrips	SU_TR	5.95	2.05
tblVehicleTrips	SU_TR	72.16	13.33
tblVehicleTrips	WD_TR	10.71	37.75
tblVehicleTrips	WD_TR	8.17	2.04
tblVehicleTrips	WD_TR	89.95	13.55
tblWater	IndoorWaterUseRate	5,750,781.07	0.00
tblWater	IndoorWaterUseRate	11,643,347.43	46,720,000.00
tblWater	IndoorWaterUseRate	2,874,464.26	0.00
tblWater	OutdoorWaterUseRate	367,071.13	0.00
tblWater	OutdoorWaterUseRate	1,293,705.27	0.00
tblWater	OutdoorWaterUseRate	183,476.44	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	6.1750	69.7497	48.1406	0.0647	267.7342	3.3190	269.6038	27.0934	3.0534	28.8477	0.0000	6,549.1496	6,549.1496	1.9476	0.0000	6,590.0489
2018	205.9873	46.0683	54.3300	0.0875	290.1692	2.5164	292.6855	29.3622	2.3451	31.7073	0.0000	8,065.1608	8,065.1608	1.4517	0.0000	8,095.6472
Total	**212.1623**	**115.8180**	**102.4706**	**0.1522**	**557.9033**	**5.8353**	**562.2893**	**56.4555**	**5.3986**	**60.5549**	**0.0000**	**14,614.3104**	**14,614.3104**	**3.3993**	**0.0000**	**14,685.6961**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	3.4534	48.3936	43.7835	0.0647	241.1837	1.4293	241.4074	24.4442	1.3243	24.6607	0.0000	6,549.1496	6,549.1496	1.9476	0.0000	6,590.0489
2018	205.7481	30.8832	57.0461	0.0875	261.3933	0.3084	261.7018	26.4909	0.3018	26.7927	0.0000	8,065.1608	8,065.1608	1.4517	0.0000	8,095.6472
Total	**209.2015**	**79.2768**	**100.8296**	**0.1522**	**502.5770**	**1.7377**	**503.1091**	**50.9351**	**1.6261**	**51.4534**	**0.0000**	**14,614.3104**	**14,614.3104**	**3.3993**	**0.0000**	**14,685.6961**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.40**	**31.55**	**1.60**	**0.00**	**9.92**	**70.22**	**10.52**	**9.78**	**69.88**	**15.03**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	9.3228	4.6000e-004	0.0497	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		0.1055	0.1055	2.9000e-004		0.1115
Energy	0.3270	2.9727	2.4970	0.0178		0.2259	0.2259		0.2259	0.2259		3,567.1913	3,567.1913	0.0684	0.0654	3,588.9007
Mobile	10.6748	50.3734	165.5291	0.4267	1,651.0124	0.7517	1,651.7642	168.9205	0.6924	169.6129		34,968.6329	34,968.6329	1.2505		34,994.8924
Total	**20.3246**	**53.3465**	**168.0758**	**0.4445**	**1,651.0124**	**0.9778**	**1,651.9903**	**168.9205**	**0.9185**	**169.8390**		**38,535.9297**	**38,535.9297**	**1.3191**	**0.0654**	**38,583.9045**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	9.3228	4.6000e-004	0.0497	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		0.1055	0.1055	2.9000e-004		0.1115
Energy	0.1867	1.6971	1.4255	0.0102		0.1290	0.1290		0.1290	0.1290		2,036.4659	2,036.4659	0.0390	0.0373	2,048.8595
Mobile	10.6748	50.3734	165.5291	0.4267	1,651.0124	0.7517	1,651.7642	168.9205	0.6924	169.6129		34,968.6329	34,968.6329	1.2505		34,994.8924
Total	**20.1843**	**52.0709**	**167.0043**	**0.4369**	**1,651.0124**	**0.8809**	**1,651.8933**	**168.9205**	**0.8215**	**169.7421**		**37,005.2042**	**37,005.2042**	**1.2898**	**0.0373**	**37,043.8633**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.69	2.39	0.64	1.72	0.00	9.91	0.01	0.00	10.55	0.06	0.00	3.97	3.97	2.22	42.91	3.99

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2017	2/5/2017	5	25	
2	Site Preparation	Site Preparation	2/6/2017	2/22/2017	5	13	
3	Grading	Grading	2/23/2017	4/15/2017	5	37	
4	Building Construction	Building Construction	4/16/2017	9/21/2018	5	375	
5	Paving	Paving	9/21/2018	10/25/2018	5	25	
6	Architectural Coating	Architectural Coating	10/26/2018	11/29/2018	5	25	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 92.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 554,439; Non-Residential Outdoor: 184,813 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	162	0.38
Demolition	Rubber Tired Dozers	2	8.00	255	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Scrapers	2	8.00	361	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	2	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	155.00	61.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	31.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

3.2 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.0482	42.6971	33.8934	0.0399		2.1252	2.1252		1.9797	1.9797		4,036.4674	4,036.4674	1.1073		4,059.7211
Total	**4.0482**	**42.6971**	**33.8934**	**0.0399**		**2.1252**	**2.1252**		**1.9797**	**1.9797**		**4,036.4674**	**4,036.4674**	**1.1073**		**4,059.7211**

3.2 Demolition - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0569	0.1183	1.0017	2.2200e-003	22.4350	1.3200e-003	22.4364	2.2688	1.2200e-003	2.2700		176.8354	176.8354	9.8900e-003		177.0430
Total	**0.0569**	**0.1183**	**1.0017**	**2.2200e-003**	**22.4350**	**1.3200e-003**	**22.4364**	**2.2688**	**1.2200e-003**	**2.2700**		**176.8354**	**176.8354**	**9.8900e-003**		**177.0430**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9478	18.7614	25.2649	0.0399		0.1323	0.1323		0.1323	0.1323	0.0000	4,036.4674	4,036.4674	1.1073		4,059.7211
Total	**0.9478**	**18.7614**	**25.2649**	**0.0399**		**0.1323**	**0.1323**		**0.1323**	**0.1323**	**0.0000**	**4,036.4674**	**4,036.4674**	**1.1073**		**4,059.7211**

3.2 Demolition - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0569	0.1183	1.0017	2.2200e-003	20.2097	1.3200e-003	20.2110	2.0468	1.2200e-003	2.0480		176.8354	176.8354	9.8900e-003		177.0430
Total	**0.0569**	**0.1183**	**1.0017**	**2.2200e-003**	**20.2097**	**1.3200e-003**	**20.2110**	**2.0468**	**1.2200e-003**	**2.0480**		**176.8354**	**176.8354**	**9.8900e-003**		**177.0430**

3.3 Site Preparation - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.8382	51.7535	39.3970	0.0391		2.7542	2.7542		2.5339	2.5339		4,003.0859	4,003.0859	1.2265		4,028.8432
Total	**4.8382**	**51.7535**	**39.3970**	**0.0391**	**18.0663**	**2.7542**	**20.8205**	**9.9307**	**2.5339**	**12.4646**		**4,003.0859**	**4,003.0859**	**1.2265**		**4,028.8432**

3.3 Site Preparation - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0683	0.1420	1.2020	2.6600e-003	26.9221	1.5900e-003	26.9236	2.7226	1.4600e-003	2.7240		212.2025	212.2025	0.0119		212.4516
Total	**0.0683**	**0.1420**	**1.2020**	**2.6600e-003**	**26.9221**	**1.5900e-003**	**26.9236**	**2.7226**	**1.4600e-003**	**2.7240**		**212.2025**	**212.2025**	**0.0119**		**212.4516**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	0.9515	19.4584	23.4003	0.0391		0.1442	0.1442		0.1442	0.1442	0.0000	4,003.0859	4,003.0859	1.2265		4,028.8432
Total	**0.9515**	**19.4584**	**23.4003**	**0.0391**	**8.1298**	**0.1442**	**8.2740**	**4.4688**	**0.1442**	**4.6130**	**0.0000**	**4,003.0859**	**4,003.0859**	**1.2265**		**4,028.8432**

3.3 Site Preparation - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0683	0.1420	1.2020	2.6600e-003	24.2516	1.5900e-003	24.2532	2.4561	1.4600e-003	2.4576		212.2025	212.2025	0.0119		212.4516
Total	**0.0683**	**0.1420**	**1.2020**	**2.6600e-003**	**24.2516**	**1.5900e-003**	**24.2532**	**2.4561**	**1.4600e-003**	**2.4576**		**212.2025**	**212.2025**	**0.0119**		**212.4516**

3.4 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	6.0991	69.5920	46.8050	0.0617		3.3172	3.3172		3.0518	3.0518		6,313.3690	6,313.3690	1.9344		6,353.9915
Total	**6.0991**	**69.5920**	**46.8050**	**0.0617**	**8.6733**	**3.3172**	**11.9905**	**3.5965**	**3.0518**	**6.6483**		**6,313.3690**	**6,313.3690**	**1.9344**		**6,353.9915**

3.4 Grading - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0759	0.1577	1.3356	2.9600e-003	29.9134	1.7600e-003	29.9152	3.0251	1.6200e-003	3.0267		235.7806	235.7806	0.0132		236.0574
Total	**0.0759**	**0.1577**	**1.3356**	**2.9600e-003**	**29.9134**	**1.7600e-003**	**29.9152**	**3.0251**	**1.6200e-003**	**3.0267**		**235.7806**	**235.7806**	**0.0132**		**236.0574**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.9030	0.0000	3.9030	1.6184	0.0000	1.6184			0.0000			0.0000
Off-Road	3.3775	48.2358	42.4479	0.0617		1.4275	1.4275		1.3227	1.3227	0.0000	6,313.3690	6,313.3690	1.9344		6,353.9915
Total	**3.3775**	**48.2358**	**42.4479**	**0.0617**	**3.9030**	**1.4275**	**5.3305**	**1.6184**	**1.3227**	**2.9412**	**0.0000**	**6,313.3690**	**6,313.3690**	**1.9344**		**6,353.9915**

3.4 Grading - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0759	0.1577	1.3356	2.9600e-003	26.9463	1.7600e-003	26.9480	2.7290	1.6200e-003	2.7306		235.7806	235.7806	0.0132		236.0574
Total	**0.0759**	**0.1577**	**1.3356**	**2.9600e-003**	**26.9463**	**1.7600e-003**	**26.9480**	**2.7290**	**1.6200e-003**	**2.7306**		**235.7806**	**235.7806**	**0.0132**		**236.0574**

3.5 Building Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.1024	26.4057	18.1291	0.0268		1.7812	1.7812		1.6730	1.6730		2,639.8053	2,639.8053	0.6497		2,653.4490
Total	**3.1024**	**26.4057**	**18.1291**	**0.0268**		**1.7812**	**1.7812**		**1.6730**	**1.6730**		**2,639.8053**	**2,639.8053**	**0.6497**		**2,653.4490**

3.5 Building Construction - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.9006	4.9256	12.9538	0.0133	35.9054	0.0748	35.9802	3.6491	0.0688	3.7178		1,304.1709	1,304.1709	0.0103		1,304.3877
Worker	0.5880	1.2223	10.3508	0.0229	231.8288	0.0137	231.8424	23.4443	0.0126	23.4569		1,827.2993	1,827.2993	0.1022		1,829.4445
Total	**1.4885**	**6.1479**	**23.3046**	**0.0362**	**267.7342**	**0.0885**	**267.8226**	**27.0934**	**0.0813**	**27.1747**		**3,131.4702**	**3,131.4702**	**0.1125**		**3,133.8322**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6712	14.1741	17.8156	0.0268		0.1352	0.1352		0.1352	0.1352	0.0000	2,639.8053	2,639.8053	0.6497		2,653.4490
Total	**0.6712**	**14.1741**	**17.8156**	**0.0268**		**0.1352**	**0.1352**		**0.1352**	**0.1352**	**0.0000**	**2,639.8053**	**2,639.8053**	**0.6497**		**2,653.4490**

3.5 Building Construction - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.9006	4.9256	12.9538	0.0133	32.3501	0.0748	32.4249	3.2943	0.0688	3.3631		1,304.1709	1,304.1709	0.0103		1,304.3877
Worker	0.5880	1.2223	10.3508	0.0229	208.8335	0.0137	208.8472	21.1498	0.0126	21.1624		1,827.2993	1,827.2993	0.1022		1,829.4445
Total	**1.4885**	**6.1479**	**23.3046**	**0.0362**	**241.1837**	**0.0885**	**241.2721**	**24.4442**	**0.0813**	**24.5255**		**3,131.4702**	**3,131.4702**	**0.1125**		**3,133.8322**

3.5 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6687	23.2608	17.5327	0.0268		1.4943	1.4943		1.4048	1.4048		2,609.9390	2,609.9390	0.6387		2,623.3517
Total	**2.6687**	**23.2608**	**17.5327**	**0.0268**		**1.4943**	**1.4943**		**1.4048**	**1.4048**		**2,609.9390**	**2,609.9390**	**0.6387**		**2,623.3517**

3.5 Building Construction - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.7859	4.4294	12.1777	0.0133	35.9054	0.0689	35.9742	3.6491	0.0633	3.7124		1,281.2440	1,281.2440	0.0101		1,281.4556
Worker	0.5134	1.1080	9.2318	0.0229	231.8288	0.0133	231.8421	23.4443	0.0123	23.4566		1,758.5283	1,758.5283	0.0948		1,760.5190
Total	**1.2993**	**5.5374**	**21.4095**	**0.0362**	**267.7341**	**0.0822**	**267.8163**	**27.0934**	**0.0756**	**27.1689**		**3,039.7723**	**3,039.7723**	**0.1049**		**3,041.9746**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6712	14.1741	17.8156	0.0268		0.1352	0.1352		0.1352	0.1352	0.0000	2,609.9389	2,609.9389	0.6387		2,623.3517
Total	**0.6712**	**14.1741**	**17.8156**	**0.0268**		**0.1352**	**0.1352**		**0.1352**	**0.1352**	**0.0000**	**2,609.9389**	**2,609.9389**	**0.6387**		**2,623.3517**

3.5 Building Construction - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.7859	4.4294	12.1777	0.0133	32.3501	0.0689	32.4190	3.2943	0.0633	3.3576		1,281.2440	1,281.2440	0.0101		1,281.4556
Worker	0.5134	1.1080	9.2318	0.0229	208.8335	0.0133	208.8469	21.1498	0.0123	21.1621		1,758.5283	1,758.5283	0.0948		1,760.5190
Total	**1.2993**	**5.5374**	**21.4095**	**0.0362**	**241.1837**	**0.0822**	**241.2658**	**24.4441**	**0.0756**	**24.5197**		**3,039.7723**	**3,039.7723**	**0.1049**		**3,041.9746**

3.6 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6114	17.1628	14.4944	0.0223		0.9386	0.9386		0.8635	0.8635		2,245.2695	2,245.2695	0.6990		2,259.9481
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.6114**	**17.1628**	**14.4944**	**0.0223**		**0.9386**	**0.9386**		**0.8635**	**0.8635**		**2,245.2695**	**2,245.2695**	**0.6990**		**2,259.9481**

3.6 Paving - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0497	0.1072	0.8934	2.2200e-003	22.4350	1.2900e-003	22.4363	2.2688	1.1900e-003	2.2700		170.1802	170.1802	9.1700e-003		170.3728
Total	**0.0497**	**0.1072**	**0.8934**	**2.2200e-003**	**22.4350**	**1.2900e-003**	**22.4363**	**2.2688**	**1.1900e-003**	**2.2700**		**170.1802**	**170.1802**	**9.1700e-003**		**170.3728**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5490	11.0645	16.9276	0.0223		0.0897	0.0897		0.0897	0.0897	0.0000	2,245.2695	2,245.2695	0.6990		2,259.9481
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.5490**	**11.0645**	**16.9276**	**0.0223**		**0.0897**	**0.0897**		**0.0897**	**0.0897**	**0.0000**	**2,245.2695**	**2,245.2695**	**0.6990**		**2,259.9481**

3.6 Paving - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0497	0.1072	0.8934	2.2200e-003	20.2097	1.2900e-003	20.2110	2.0468	1.1900e-003	2.0480		170.1802	170.1802	9.1700e-003		170.3728
Total	**0.0497**	**0.1072**	**0.8934**	**2.2200e-003**	**20.2097**	**1.2900e-003**	**20.2110**	**2.0468**	**1.1900e-003**	**2.0480**		**170.1802**	**170.1802**	**9.1700e-003**		**170.3728**

3.7 Architectural Coating - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	205.5860					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2986	2.0058	1.8542	2.9700e-003		0.1506	0.1506		0.1506	0.1506		281.4485	281.4485	0.0267		282.0102
Total	**205.8846**	**2.0058**	**1.8542**	**2.9700e-003**		**0.1506**	**0.1506**		**0.1506**	**0.1506**		**281.4485**	**281.4485**	**0.0267**		**282.0102**

3.7 Architectural Coating - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1027	0.2216	1.8464	4.5800e-003	46.3658	2.6600e-003	46.3684	4.6889	2.4600e-003	4.6913		351.7057	351.7057	0.0190		352.1038
Total	**0.1027**	**0.2216**	**1.8464**	**4.5800e-003**	**46.3658**	**2.6600e-003**	**46.3684**	**4.6889**	**2.4600e-003**	**4.6913**		**351.7057**	**351.7057**	**0.0190**		**352.1038**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	205.5860					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0594	1.3570	1.8324	2.9700e-003		0.0143	0.0143		0.0143	0.0143	0.0000	281.4485	281.4485	0.0267		282.0102
Total	**205.6454**	**1.3570**	**1.8324**	**2.9700e-003**		**0.0143**	**0.0143**		**0.0143**	**0.0143**	**0.0000**	**281.4485**	**281.4485**	**0.0267**		**282.0102**

3.7 Architectural Coating - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1027	0.2216	1.8464	4.5800e-003	41.7667	2.6600e-003	41.7694	4.2300	2.4600e-003	4.2324		351.7057	351.7057	0.0190		352.1038
Total	**0.1027**	**0.2216**	**1.8464**	**4.5800e-003**	**41.7667**	**2.6600e-003**	**41.7694**	**4.2300**	**2.4600e-003**	**4.2324**		**351.7057**	**351.7057**	**0.0190**		**352.1038**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	10.6748	50.3734	165.5291	0.4267	1,651.0124	0.7517	1,651.7642	168.9205	0.6924	169.6129		34,968.6329	34,968.6329	1.2505		34,994.8924
Unmitigated	10.6748	50.3734	165.5291	0.4267	1,651.0124	0.7517	1,651.7642	168.9205	0.6924	169.6129		34,968.6329	34,968.6329	1.2505		34,994.8924

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Arena	503.96	503.96	503.96	73,762	73,762
Hotel	936.36	940.95	940.95	12,060,269	12,060,269
Quality Restaurant	128.32	126.24	126.24	1,056,295	1,056,295
Total	1,568.64	1,571.15	1,571.15	13,190,326	13,190,326

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Arena	41.30	55.00	55.00	0.00	81.00	19.00	0.66	0.28	0.6
Hotel	41.30	55.00	55.00	19.40	61.60	19.00	58	38	4
Quality Restaurant	41.30	55.00	55.00	12.00	69.00	19.00	38	18	44

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.471403	0.066929	0.152676	0.151738	0.056590	0.006768	0.023176	0.056544	0.001000	0.001364	0.008404	0.000498	0.002911

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.1867	1.6971	1.4255	0.0102		0.1290	0.1290		0.1290	0.1290		2,036.4659	2,036.4659	0.0390	0.0373	2,048.8595
NaturalGas Unmitigated	0.3270	2.9727	2.4970	0.0178		0.2259	0.2259		0.2259	0.2259		3,567.1913	3,567.1913	0.0684	0.0654	3,588.9007

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Arena	717.242	7.7300e-003	0.0703	0.0591	4.2000e-004		5.3400e-003	5.3400e-003		5.3400e-003	5.3400e-003		84.3815	84.3815	1.6200e-003	1.5500e-003	84.8950
Hotel	26708.4	0.2880	2.6185	2.1995	0.0157		0.1990	0.1990		0.1990	0.1990		3,142.1680	3,142.1680	0.0602	0.0576	3,161.2907
Quality Restaurant	2895.46	0.0312	0.2839	0.2385	1.7000e-003		0.0216	0.0216		0.0216	0.0216		340.6419	340.6419	6.5300e-003	6.2500e-003	342.7150
Total		**0.3270**	**2.9727**	**2.4970**	**0.0178**		**0.2259**	**0.2259**		**0.2259**	**0.2259**		**3,567.1913**	**3,567.1913**	**0.0684**	**0.0654**	**3,588.9007**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Hotel	14.5362	0.1568	1.4251	1.1971	8.5500e-003		0.1083	0.1083		0.1083	0.1083		1,710.1397	1,710.1397	0.0328	0.0314	1,720.5474
Quality Restaurant	2.38545	0.0257	0.2339	0.1965	1.4000e-003		0.0178	0.0178		0.0178	0.0178		280.6414	280.6414	5.3800e-003	5.1500e-003	282.3493
Arena	0.38832	4.1900e-003	0.0381	0.0320	2.3000e-004		2.8900e-003	2.8900e-003		2.8900e-003	2.8900e-003		45.6848	45.6848	8.8000e-004	8.4000e-004	45.9628
Total		**0.1867**	**1.6971**	**1.4255**	**0.0102**		**0.1290**	**0.1290**		**0.1290**	**0.1290**		**2,036.4659**	**2,036.4659**	**0.0390**	**0.0373**	**2,048.8595**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	9.3228	4.6000e-004	0.0497	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		0.1055	0.1055	2.9000e-004		0.1115
Unmitigated	9.3228	4.6000e-004	0.0497	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		0.1055	0.1055	2.9000e-004		0.1115

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.4081					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.9100					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.7100e-003	4.6000e-004	0.0497	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		0.1055	0.1055	2.9000e-004		0.1115
Total	**9.3228**	**4.6000e-004**	**0.0497**	**0.0000**		**1.8000e-004**	**1.8000e-004**		**1.8000e-004**	**1.8000e-004**		**0.1055**	**0.1055**	**2.9000e-004**		**0.1115**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.4081					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.9100					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.7100e-003	4.6000e-004	0.0497	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		0.1055	0.1055	2.9000e-004		0.1115
Total	**9.3228**	**4.6000e-004**	**0.0497**	**0.0000**		**1.8000e-004**	**1.8000e-004**		**1.8000e-004**	**1.8000e-004**		**0.1055**	**0.1055**	**2.9000e-004**		**0.1115**

7.0 Water Detail

7.1 Mitigation Measures Water

Use Reclaimed Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Cache Creek Hotel Expansion Project

Yolo/Solano AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Arena	13.35	1000sqft	0.31	13,350.00	0
Hotel	459.00	Room	7.96	346,801.00	0
Quality Restaurant	9.47	1000sqft	0.22	9,475.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	6.8	**Precipitation Freq (Days)**	55
Climate Zone	2			**Operational Year**	2019
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Refer to CalEEMod Tables

Construction Phase - CalEEMod defaults used for equipment and phase time proportion. Total time from Project Description.

Trips and VMT -

Grading -

Architectural Coating -

Area Coating -

Water And Wastewater - Refer to CalEEMod tables

Solid Waste -

Construction Off-road Equipment Mitigation - Refer to CalEEMod Tables

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3

tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3

tblConstructionPhase	NumDays	20.00	25.00
tblConstructionPhase	NumDays	230.00	375.00
tblConstructionPhase	NumDays	20.00	25.00
tblConstructionPhase	NumDays	20.00	37.00
tblConstructionPhase	NumDays	20.00	25.00
tblConstructionPhase	NumDays	10.00	13.00
tblConstructionPhase	PhaseEndDate	2/3/2017	2/5/2017
tblConstructionPhase	PhaseEndDate	4/14/2017	4/15/2017
tblConstructionPhase	PhaseEndDate	10/26/2018	10/25/2018
tblConstructionPhase	PhaseStartDate	9/22/2018	9/21/2018
tblLandUse	LandUseSquareFeet	666,468.00	346,801.00
tblLandUse	LandUseSquareFeet	9,470.00	9,475.00
tblLandUse	LotAcreage	4.29	0.31
tblLandUse	LotAcreage	15.30	7.96
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblProjectCharacteristics	OperationalYear	2014	2019
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblVehicleTrips	CC_TL	6.60	55.00
tblVehicleTrips	CC_TL	6.60	55.00
tblVehicleTrips	CC_TL	6.60	55.00
tblVehicleTrips	CNW_TL	6.60	55.00
tblVehicleTrips	CNW_TL	6.60	55.00
tblVehicleTrips	CNW_TL	6.60	55.00
tblVehicleTrips	CW_TL	14.70	41.30
tblVehicleTrips	CW_TL	14.70	41.30
tblVehicleTrips	CW_TL	14.70	41.30
tblVehicleTrips	ST_TR	10.71	37.75

tblVehicleTrips	ST_TR	8.19	2.05
tblVehicleTrips	ST_TR	94.36	13.33
tblVehicleTrips	SU_TR	10.71	37.75
tblVehicleTrips	SU_TR	5.95	2.05
tblVehicleTrips	SU_TR	72.16	13.33
tblVehicleTrips	WD_TR	10.71	37.75
tblVehicleTrips	WD_TR	8.17	2.04
tblVehicleTrips	WD_TR	89.95	13.55
tblWater	IndoorWaterUseRate	5,750,781.07	0.00
tblWater	IndoorWaterUseRate	11,643,347.43	46,720,000.00
tblWater	IndoorWaterUseRate	2,874,464.26	0.00
tblWater	OutdoorWaterUseRate	367,071.13	0.00
tblWater	OutdoorWaterUseRate	1,293,705.27	0.00
tblWater	OutdoorWaterUseRate	183,476.44	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.6060	5.1531	5.0732	7.8800e-003	22.1939	0.2788	22.4727	2.3533	0.2600	2.6132	0.0000	671.5014	671.5014	0.1166	0.0000	673.9501
2018	2.9589	2.9602	3.5974	6.4400e-003	22.3586	0.1634	22.5220	2.2671	0.1533	2.4204	0.0000	526.0694	526.0694	0.0726	0.0000	527.5944
Total	**3.5649**	**8.1134**	**8.6706**	**0.0143**	**44.5525**	**0.4422**	**44.9946**	**4.6204**	**0.4133**	**5.0336**	**0.0000**	**1,197.5709**	**1,197.5709**	**0.1892**	**0.0000**	**1,201.5444**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.2667	3.1175	4.7517	7.8800e-003	19.8702	0.0497	19.9199	2.0646	0.0471	2.1117	0.0000	671.5010	671.5010	0.1166	0.0000	673.9496
2018	2.7529	2.0126	3.6544	6.4400e-003	20.1439	0.0220	20.1659	2.0461	0.0213	2.0674	0.0000	526.0691	526.0691	0.0726	0.0000	527.5941
Total	**3.0196**	**5.1302**	**8.4061**	**0.0143**	**40.0141**	**0.0717**	**40.0858**	**4.1107**	**0.0684**	**4.1791**	**0.0000**	**1,197.5701**	**1,197.5701**	**0.1892**	**0.0000**	**1,201.5436**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**15.30**	**36.77**	**3.05**	**0.00**	**10.19**	**83.80**	**10.91**	**11.03**	**83.44**	**16.98**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.7010	4.0000e-005	4.4700e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.6100e-003	8.6100e-003	2.0000e-005	0.0000	9.1000e-003
Energy	0.0597	0.5425	0.4557	3.2600e-003		0.0412	0.0412		0.0412	0.0412	0.0000	1,477.7576	1,477.7576	0.0514	0.0191	1,484.7672
Mobile	1.8506	8.6981	27.8070	0.0786	299.2609	0.1360	299.3969	30.5963	0.1253	30.7215	0.0000	5,839.8731	5,839.8731	0.2054	0.0000	5,844.1868
Waste						0.0000	0.0000		0.0000	0.0000	52.8406	0.0000	52.8406	3.1228	0.0000	118.4191
Water						0.0000	0.0000		0.0000	0.0000	14.8221	73.5430	88.3651	1.5257	0.0366	131.7614
Total	**3.6113**	**9.2406**	**28.2672**	**0.0819**	**299.2609**	**0.1773**	**299.4382**	**30.5963**	**0.1665**	**30.7628**	**67.6627**	**7,391.1823**	**7,458.8450**	**4.9054**	**0.0558**	**7,579.1436**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.7010	4.0000e-005	4.4700e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.6100e-003	8.6100e-003	2.0000e-005	0.0000	9.1000e-003
Energy	0.0341	0.3097	0.2602	1.8600e-003		0.0235	0.0235		0.0235	0.0235	0.0000	1,105.0616	1,105.0616	0.0412	0.0134	1,110.0697
Mobile	1.8506	8.6981	27.8070	0.0786	299.2609	0.1360	299.3969	30.5963	0.1253	30.7215	0.0000	5,839.8731	5,839.8731	0.2054	0.0000	5,844.1868
Waste						0.0000	0.0000		0.0000	0.0000	52.8406	0.0000	52.8406	3.1228	0.0000	118.4191
Water						0.0000	0.0000		0.0000	0.0000	-1,070.9144	-5,313.5678	-6,384.4822	-110.2134	-2.6427	-9,518.2111
Total	**3.5857**	**9.0078**	**28.0717**	**0.0805**	**299.2609**	**0.1596**	**299.4205**	**30.5963**	**0.1488**	**30.7451**	**-1,018.0739**	**1,631.3755**	**613.3016**	**-106.8440**	**-2.6294**	**-2,445.5265**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.71**	**2.52**	**0.69**	**1.71**	**0.00**	**9.98**	**0.01**	**0.00**	**10.62**	**0.06**	**1,604.63**	**77.93**	**91.78**	**2,278.11**	**4,815.51**	**132.27**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2017	2/5/2017	5	25	
2	Site Preparation	Site Preparation	2/6/2017	2/22/2017	5	13	
3	Grading	Grading	2/23/2017	4/15/2017	5	37	
4	Building Construction	Building Construction	4/16/2017	9/21/2018	5	375	
5	Paving	Paving	9/21/2018	10/25/2018	5	25	
6	Architectural Coating	Architectural Coating	10/26/2018	11/29/2018	5	25	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 92.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 554,439; Non-Residential Outdoor: 184,813 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	162	0.38
Demolition	Rubber Tired Dozers	2	8.00	255	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Scrapers	2	8.00	361	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	2	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	155.00	61.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	31.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

3.2 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0506	0.5337	0.4237	5.0000e-004		0.0266	0.0266		0.0248	0.0248	0.0000	45.7728	45.7728	0.0126	0.0000	46.0365
Total	**0.0506**	**0.5337**	**0.4237**	**5.0000e-004**		**0.0266**	**0.0266**		**0.0248**	**0.0248**	**0.0000**	**45.7728**	**45.7728**	**0.0126**	**0.0000**	**46.0365**

3.2 Demolition - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.8000e-004	1.3100e-003	0.0122	3.0000e-005	0.2385	2.0000e-005	0.2385	0.0242	2.0000e-005	0.0242	0.0000	2.0568	2.0568	1.1000e-004	0.0000	2.0592
Total	**6.8000e-004**	**1.3100e-003**	**0.0122**	**3.0000e-005**	**0.2385**	**2.0000e-005**	**0.2385**	**0.0242**	**2.0000e-005**	**0.0242**	**0.0000**	**2.0568**	**2.0568**	**1.1000e-004**	**0.0000**	**2.0592**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0119	0.2345	0.3158	5.0000e-004		1.6500e-003	1.6500e-003		1.6500e-003	1.6500e-003	0.0000	45.7727	45.7727	0.0126	0.0000	46.0364
Total	**0.0119**	**0.2345**	**0.3158**	**5.0000e-004**		**1.6500e-003**	**1.6500e-003**		**1.6500e-003**	**1.6500e-003**	**0.0000**	**45.7727**	**45.7727**	**0.0126**	**0.0000**	**46.0364**

3.2 Demolition - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.8000e-004	1.3100e-003	0.0122	3.0000e-005	0.2148	2.0000e-005	0.2148	0.0218	2.0000e-005	0.0218	0.0000	2.0568	2.0568	1.1000e-004	0.0000	2.0592
Total	**6.8000e-004**	**1.3100e-003**	**0.0122**	**3.0000e-005**	**0.2148**	**2.0000e-005**	**0.2148**	**0.0218**	**2.0000e-005**	**0.0218**	**0.0000**	**2.0568**	**2.0568**	**1.1000e-004**	**0.0000**	**2.0592**

3.3 Site Preparation - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1174	0.0000	0.1174	0.0646	0.0000	0.0646	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0315	0.3364	0.2561	2.5000e-004		0.0179	0.0179		0.0165	0.0165	0.0000	23.6050	23.6050	7.2300e-003	0.0000	23.7569
Total	**0.0315**	**0.3364**	**0.2561**	**2.5000e-004**	**0.1174**	**0.0179**	**0.1353**	**0.0646**	**0.0165**	**0.0810**	**0.0000**	**23.6050**	**23.6050**	**7.2300e-003**	**0.0000**	**23.7569**

3.3 Site Preparation - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.3000e-004	8.2000e-004	7.6200e-003	2.0000e-005	0.1488	1.0000e-005	0.1488	0.0151	1.0000e-005	0.0151	0.0000	1.2835	1.2835	7.0000e-005	0.0000	1.2849
Total	**4.3000e-004**	**8.2000e-004**	**7.6200e-003**	**2.0000e-005**	**0.1488**	**1.0000e-005**	**0.1488**	**0.0151**	**1.0000e-005**	**0.0151**	**0.0000**	**1.2835**	**1.2835**	**7.0000e-005**	**0.0000**	**1.2849**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0528	0.0000	0.0528	0.0291	0.0000	0.0291	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.1800e-003	0.1265	0.1521	2.5000e-004		9.4000e-004	9.4000e-004		9.4000e-004	9.4000e-004	0.0000	23.6050	23.6050	7.2300e-003	0.0000	23.7569
Total	**6.1800e-003**	**0.1265**	**0.1521**	**2.5000e-004**	**0.0528**	**9.4000e-004**	**0.0538**	**0.0291**	**9.4000e-004**	**0.0300**	**0.0000**	**23.6050**	**23.6050**	**7.2300e-003**	**0.0000**	**23.7569**

3.3 Site Preparation - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.3000e-004	8.2000e-004	7.6200e-003	2.0000e-005	0.1341	1.0000e-005	0.1341	0.0136	1.0000e-005	0.0136	0.0000	1.2835	1.2835	7.0000e-005	0.0000	1.2849
Total	**4.3000e-004**	**8.2000e-004**	**7.6200e-003**	**2.0000e-005**	**0.1341**	**1.0000e-005**	**0.1341**	**0.0136**	**1.0000e-005**	**0.0136**	**0.0000**	**1.2835**	**1.2835**	**7.0000e-005**	**0.0000**	**1.2849**

3.4 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1605	0.0000	0.1605	0.0665	0.0000	0.0665	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1128	1.2875	0.8659	1.1400e-003		0.0614	0.0614		0.0565	0.0565	0.0000	105.9568	105.9568	0.0325	0.0000	106.6385
Total	**0.1128**	**1.2875**	**0.8659**	**1.1400e-003**	**0.1605**	**0.0614**	**0.2218**	**0.0665**	**0.0565**	**0.1230**	**0.0000**	**105.9568**	**105.9568**	**0.0325**	**0.0000**	**106.6385**

3.4 Grading - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3500e-003	2.5900e-003	0.0241	6.0000e-005	0.4705	3.0000e-005	0.4706	0.0477	3.0000e-005	0.0477	0.0000	4.0588	4.0588	2.2000e-004	0.0000	4.0634
Total	**1.3500e-003**	**2.5900e-003**	**0.0241**	**6.0000e-005**	**0.4705**	**3.0000e-005**	**0.4706**	**0.0477**	**3.0000e-005**	**0.0477**	**0.0000**	**4.0588**	**4.0588**	**2.2000e-004**	**0.0000**	**4.0634**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0722	0.0000	0.0722	0.0299	0.0000	0.0299	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0625	0.8924	0.7853	1.1400e-003		0.0264	0.0264		0.0245	0.0245	0.0000	105.9566	105.9566	0.0325	0.0000	106.6384
Total	**0.0625**	**0.8924**	**0.7853**	**1.1400e-003**	**0.0722**	**0.0264**	**0.0986**	**0.0299**	**0.0245**	**0.0544**	**0.0000**	**105.9566**	**105.9566**	**0.0325**	**0.0000**	**106.6384**

3.4 Grading - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3500e-003	2.5900e-003	0.0241	6.0000e-005	0.4239	3.0000e-005	0.4240	0.0430	3.0000e-005	0.0431	0.0000	4.0588	4.0588	2.2000e-004	0.0000	4.0634
Total	**1.3500e-003**	**2.5900e-003**	**0.0241**	**6.0000e-005**	**0.4239**	**3.0000e-005**	**0.4240**	**0.0430**	**3.0000e-005**	**0.0431**	**0.0000**	**4.0588**	**4.0588**	**2.2000e-004**	**0.0000**	**4.0634**

3.5 Building Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2870	2.4425	1.6770	2.4800e-003		0.1648	0.1648		0.1548	0.1548	0.0000	221.5182	221.5182	0.0545	0.0000	222.6631
Total	**0.2870**	**2.4425**	**1.6770**	**2.4800e-003**		**0.1648**	**0.1648**		**0.1548**	**0.1548**	**0.0000**	**221.5182**	**221.5182**	**0.0545**	**0.0000**	**222.6631**

3.5 Building Construction - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0694	0.4480	0.8731	1.2300e-003	2.8248	6.8700e-003	2.8317	0.2879	6.3100e-003	0.2942	0.0000	109.9720	109.9720	8.5000e-004	0.0000	109.9899
Worker	0.0523	0.1003	0.9336	2.1700e-003	18.2334	1.2600e-003	18.2346	1.8474	1.1600e-003	1.8486	0.0000	157.2777	157.2777	8.5700e-003	0.0000	157.4577
Total	**0.1216**	**0.5483**	**1.8067**	**3.4000e-003**	**21.0582**	**8.1300e-003**	**21.0663**	**2.1353**	**7.4700e-003**	**2.1428**	**0.0000**	**267.2497**	**267.2497**	**9.4200e-003**	**0.0000**	**267.4476**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0621	1.3111	1.6479	2.4800e-003		0.0125	0.0125		0.0125	0.0125	0.0000	221.5179	221.5179	0.0545	0.0000	222.6628
Total	**0.0621**	**1.3111**	**1.6479**	**2.4800e-003**		**0.0125**	**0.0125**		**0.0125**	**0.0125**	**0.0000**	**221.5179**	**221.5179**	**0.0545**	**0.0000**	**222.6628**

3.5 Building Construction - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0694	0.4480	0.8731	1.2300e-003	2.5455	6.8700e-003	2.5524	0.2600	6.3100e-003	0.2663	0.0000	109.9720	109.9720	8.5000e-004	0.0000	109.9899
Worker	0.0523	0.1003	0.9336	2.1700e-003	16.4268	1.2600e-003	16.4281	1.6672	1.1600e-003	1.6683	0.0000	157.2777	157.2777	8.5700e-003	0.0000	157.4577
Total	**0.1216**	**0.5483**	**1.8067**	**3.4000e-003**	**18.9724**	**8.1300e-003**	**18.9805**	**1.9272**	**7.4700e-003**	**1.9346**	**0.0000**	**267.2497**	**267.2497**	**9.4200e-003**	**0.0000**	**267.4476**

3.5 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2535	2.2098	1.6656	2.5500e-003		0.1420	0.1420		0.1335	0.1335	0.0000	224.9312	224.9312	0.0551	0.0000	226.0871
Total	**0.2535**	**2.2098**	**1.6656**	**2.5500e-003**		**0.1420**	**0.1420**		**0.1335**	**0.1335**	**0.0000**	**224.9312**	**224.9312**	**0.0551**	**0.0000**	**226.0871**

3.5 Building Construction - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0627	0.4138	0.8336	1.2600e-003	2.9012	6.4900e-003	2.9077	0.2957	5.9700e-003	0.3016	0.0000	110.9604	110.9604	8.5000e-004	0.0000	110.9783
Worker	0.0472	0.0934	0.8602	2.2300e-003	18.7262	1.2600e-003	18.7274	1.8973	1.1700e-003	1.8985	0.0000	155.4549	155.4549	8.1700e-003	0.0000	155.6265
Total	**0.1099**	**0.5072**	**1.6938**	**3.4900e-003**	**21.6273**	**7.7500e-003**	**21.6351**	**2.1930**	**7.1400e-003**	**2.2001**	**0.0000**	**266.4153**	**266.4153**	**9.0200e-003**	**0.0000**	**266.6048**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0638	1.3465	1.6925	2.5500e-003		0.0129	0.0129		0.0129	0.0129	0.0000	224.9309	224.9309	0.0550	0.0000	226.0869
Total	**0.0638**	**1.3465**	**1.6925**	**2.5500e-003**		**0.0129**	**0.0129**		**0.0129**	**0.0129**	**0.0000**	**224.9309**	**224.9309**	**0.0550**	**0.0000**	**226.0869**

3.5 Building Construction - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0627	0.4138	0.8336	1.2600e-003	2.6143	6.4900e-003	2.6208	0.2670	5.9700e-003	0.2730	0.0000	110.9604	110.9604	8.5000e-004	0.0000	110.9783
Worker	0.0472	0.0934	0.8602	2.2300e-003	16.8708	1.2600e-003	16.8721	1.7122	1.1700e-003	1.7134	0.0000	155.4549	155.4549	8.1700e-003	0.0000	155.6265
Total	**0.1099**	**0.5072**	**1.6938**	**3.4900e-003**	**19.4851**	**7.7500e-003**	**19.4929**	**1.9792**	**7.1400e-003**	**1.9864**	**0.0000**	**266.4153**	**266.4153**	**9.0200e-003**	**0.0000**	**266.6048**

3.6 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0201	0.2145	0.1812	2.8000e-004		0.0117	0.0117		0.0108	0.0108	0.0000	25.4609	25.4609	7.9300e-003	0.0000	25.6274
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0201**	**0.2145**	**0.1812**	**2.8000e-004**		**0.0117**	**0.0117**		**0.0108**	**0.0108**	**0.0000**	**25.4609**	**25.4609**	**7.9300e-003**	**0.0000**	**25.6274**

3.6 Paving - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-004	1.1900e-003	0.0110	3.0000e-005	0.2385	2.0000e-005	0.2385	0.0242	1.0000e-005	0.0242	0.0000	1.9795	1.9795	1.0000e-004	0.0000	1.9817
Total	**6.0000e-004**	**1.1900e-003**	**0.0110**	**3.0000e-005**	**0.2385**	**2.0000e-005**	**0.2385**	**0.0242**	**1.0000e-005**	**0.0242**	**0.0000**	**1.9795**	**1.9795**	**1.0000e-004**	**0.0000**	**1.9817**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.8600e-003	0.1383	0.2116	2.8000e-004		1.1200e-003	1.1200e-003		1.1200e-003	1.1200e-003	0.0000	25.4609	25.4609	7.9300e-003	0.0000	25.6274
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.8600e-003**	**0.1383**	**0.2116**	**2.8000e-004**		**1.1200e-003**	**1.1200e-003**		**1.1200e-003**	**1.1200e-003**	**0.0000**	**25.4609**	**25.4609**	**7.9300e-003**	**0.0000**	**25.6274**

3.6 Paving - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-004	1.1900e-003	0.0110	3.0000e-005	0.2148	2.0000e-005	0.2148	0.0218	1.0000e-005	0.0218	0.0000	1.9795	1.9795	1.0000e-004	0.0000	1.9817
Total	**6.0000e-004**	**1.1900e-003**	**0.0110**	**3.0000e-005**	**0.2148**	**2.0000e-005**	**0.2148**	**0.0218**	**1.0000e-005**	**0.0218**	**0.0000**	**1.9795**	**1.9795**	**1.0000e-004**	**0.0000**	**1.9817**

3.7 Architectural Coating - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.5698					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.7300e-003	0.0251	0.0232	4.0000e-005		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	3.1916	3.1916	3.0000e-004	0.0000	3.1979
Total	**2.5736**	**0.0251**	**0.0232**	**4.0000e-005**		**1.8800e-003**	**1.8800e-003**		**1.8800e-003**	**1.8800e-003**	**0.0000**	**3.1916**	**3.1916**	**3.0000e-004**	**0.0000**	**3.1979**

3.7 Architectural Coating - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2400e-003	2.4600e-003	0.0226	6.0000e-005	0.4928	3.0000e-005	0.4928	0.0499	3.0000e-005	0.0500	0.0000	4.0909	4.0909	2.1000e-004	0.0000	4.0954
Total	**1.2400e-003**	**2.4600e-003**	**0.0226**	**6.0000e-005**	**0.4928**	**3.0000e-005**	**0.4928**	**0.0499**	**3.0000e-005**	**0.0500**	**0.0000**	**4.0909**	**4.0909**	**2.1000e-004**	**0.0000**	**4.0954**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.5698					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.4000e-004	0.0170	0.0229	4.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	3.1916	3.1916	3.0000e-004	0.0000	3.1979
Total	**2.5706**	**0.0170**	**0.0229**	**4.0000e-005**		**1.8000e-004**	**1.8000e-004**		**1.8000e-004**	**1.8000e-004**	**0.0000**	**3.1916**	**3.1916**	**3.0000e-004**	**0.0000**	**3.1979**

3.7 Architectural Coating - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2400e-003	2.4600e-003	0.0226	6.0000e-005	0.4440	3.0000e-005	0.4440	0.0451	3.0000e-005	0.0451	0.0000	4.0909	4.0909	2.1000e-004	0.0000	4.0954
Total	**1.2400e-003**	**2.4600e-003**	**0.0226**	**6.0000e-005**	**0.4440**	**3.0000e-005**	**0.4440**	**0.0451**	**3.0000e-005**	**0.0451**	**0.0000**	**4.0909**	**4.0909**	**2.1000e-004**	**0.0000**	**4.0954**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.8506	8.6981	27.8070	0.0786	299.2609	0.1360	299.3969	30.5963	0.1253	30.7215	0.0000	5,839.8731	5,839.8731	0.2054	0.0000	5,844.1868
Unmitigated	1.8506	8.6981	27.8070	0.0786	299.2609	0.1360	299.3969	30.5963	0.1253	30.7215	0.0000	5,839.8731	5,839.8731	0.2054	0.0000	5,844.1868

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Arena	503.96	503.96	503.96	73,762	73,762
Hotel	936.36	940.95	940.95	12,060,269	12,060,269
Quality Restaurant	128.32	126.24	126.24	1,056,295	1,056,295
Total	1,568.64	1,571.15	1,571.15	13,190,326	13,190,326

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Arena	41.30	55.00	55.00	0.00	81.00	19.00	0.66	0.28	0.6
Hotel	41.30	55.00	55.00	19.40	61.60	19.00	58	38	4
Quality Restaurant	41.30	55.00	55.00	12.00	69.00	19.00	38	18	44

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.471403	0.066929	0.152676	0.151738	0.056590	0.006768	0.023176	0.056544	0.001000	0.001364	0.008404	0.000498	0.002911

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	767.9018	767.9018	0.0347	7.1800e-003	770.8580
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	887.1691	887.1691	0.0401	8.3000e-003	890.5844
NaturalGas Mitigated	0.0341	0.3097	0.2602	1.8600e-003		0.0235	0.0235		0.0235	0.0235	0.0000	337.1598	337.1598	6.4600e-003	6.1800e-003	339.2117
NaturalGas Unmitigated	0.0597	0.5425	0.4557	3.2600e-003		0.0412	0.0412		0.0412	0.0412	0.0000	590.5885	590.5885	0.0113	0.0108	594.1828

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Arena	261794	1.4100e-003	0.0128	0.0108	8.0000e-005		9.8000e-004	9.8000e-004		9.8000e-004	9.8000e-004	0.0000	13.9703	13.9703	2.7000e-004	2.6000e-004	14.0553
Hotel	9.74858e+006	0.0526	0.4779	0.4014	2.8700e-003		0.0363	0.0363		0.0363	0.0363	0.0000	520.2212	520.2212	9.9700e-003	9.5400e-003	523.3871
Quality Restaurant	1.05684e+006	5.7000e-003	0.0518	0.0435	3.1000e-004		3.9400e-003	3.9400e-003		3.9400e-003	3.9400e-003	0.0000	56.3971	56.3971	1.0800e-003	1.0300e-003	56.7403
Total		**0.0597**	**0.5425**	**0.4557**	**3.2600e-003**		**0.0412**	**0.0412**		**0.0412**	**0.0412**	**0.0000**	**590.5885**	**590.5885**	**0.0113**	**0.0108**	**594.1828**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Hotel	5.30571e+006	0.0286	0.2601	0.2185	1.5600e-003		0.0198	0.0198		0.0198	0.0198	0.0000	283.1328	283.1328	5.4300e-003	5.1900e-003	284.8559
Quality Restaurant	870690	4.6900e-003	0.0427	0.0359	2.6000e-004		3.2400e-003	3.2400e-003		3.2400e-003	3.2400e-003	0.0000	46.4633	46.4633	8.9000e-004	8.5000e-004	46.7461
Arena	141737	7.6000e-004	6.9500e-003	5.8400e-003	4.0000e-005		5.3000e-004	5.3000e-004		5.3000e-004	5.3000e-004	0.0000	7.5636	7.5636	1.4000e-004	1.4000e-004	7.6097
Total		**0.0341**	**0.3097**	**0.2602**	**1.8600e-003**		**0.0235**	**0.0235**		**0.0235**	**0.0235**	**0.0000**	**337.1598**	**337.1598**	**6.4600e-003**	**6.1800e-003**	**339.2117**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Arena	123221	35.8463	1.6200e-003	3.4000e-004	35.9843
Hotel	2.60794e+006	758.6807	0.0343	7.1000e-003	761.6014
Quality Restaurant	318455	92.6421	4.1900e-003	8.7000e-004	92.9988
Total		**887.1691**	**0.0401**	**8.3100e-003**	**890.5844**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Arena	110816	32.2376	1.4600e-003	3.0000e-004	32.3617
Hotel	2.24262e+006	652.4049	0.0295	6.1000e-003	654.9164
Quality Restaurant	286202	83.2594	3.7600e-003	7.8000e-004	83.5799
Total		**767.9018**	**0.0347**	**7.1800e-003**	**770.8580**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.7010	4.0000e-005	4.4700e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.6100e-003	8.6100e-003	2.0000e-005	0.0000	9.1000e-003
Unmitigated	1.7010	4.0000e-005	4.4700e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.6100e-003	8.6100e-003	2.0000e-005	0.0000	9.1000e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2570					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.4436					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.2000e-004	4.0000e-005	4.4700e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.6100e-003	8.6100e-003	2.0000e-005	0.0000	9.1000e-003
Total	**1.7010**	**4.0000e-005**	**4.4700e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**8.6100e-003**	**8.6100e-003**	**2.0000e-005**	**0.0000**	**9.1000e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2570					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.4436					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.2000e-004	4.0000e-005	4.4700e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.6100e-003	8.6100e-003	2.0000e-005	0.0000	9.1000e-003
Total	**1.7010**	**4.0000e-005**	**4.4700e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**8.6100e-003**	**8.6100e-003**	**2.0000e-005**	**0.0000**	**9.1000e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Use Reclaimed Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	-6,384.4822	-110.2134	-2.6427	-9,518.2111
Unmitigated	88.3651	1.5257	0.0366	131.7614

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Arena	0 / 0	0.0000	0.0000	0.0000	0.0000
Hotel	46.72 / 0	88.3651	1.5257	0.0366	131.7614
Quality Restaurant	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**88.3651**	**1.5257**	**0.0366**	**131.7614**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Arena	-0 / 0	0.0000	0.0000	0.0000	0.0000
Hotel	-3375.58 / 0	-6,384.4822	-110.2134	-2.6427	-9,518.2111
Quality Restaurant	-0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**-6,384.4822**	**-110.2134**	**-2.6427**	**-9,518.2111**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	52.8406	3.1228	0.0000	118.4191
Unmitigated	52.8406	3.1228	0.0000	118.4191

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Arena	0.37	0.0751	4.4400e-003	0.0000	0.1683
Hotel	251.3	51.0116	3.0147	0.0000	114.3204
Quality Restaurant	8.64	1.7538	0.1037	0.0000	3.9305
Total		**52.8406**	**3.1228**	**0.0000**	**118.4191**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Arena	0.37	0.0751	4.4400e-003	0.0000	0.1683
Hotel	251.3	51.0116	3.0147	0.0000	114.3204
Quality Restaurant	8.64	1.7538	0.1037	0.0000	3.9305
Total		**52.8406**	**3.1228**	**0.0000**	**118.4191**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Cache Creek Hotel Expansion Project

Yolo/Solano AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Arena	13.35	1000sqft	0.31	13,350.00	0
Hotel	459.00	Room	7.96	346,801.00	0
Quality Restaurant	9.47	1000sqft	0.22	9,475.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	6.8	**Precipitation Freq (Days)**	55
Climate Zone	2			**Operational Year**	2019
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Refer to CalEEMod Tables

Construction Phase - CalEEMod defaults used for equipment and phase time proportion. Total time from Project Description.

Trips and VMT -

Grading -

Architectural Coating -

Area Coating -

Water And Wastewater - Refer to CalEEMod tables

Solid Waste -

Construction Off-road Equipment Mitigation - Refer to CalEEMod Tables

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Table Name	Column Name	Default Value	New Value
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tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
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tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
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tblConstEquipMitigation	DPF	No Change	Level 3
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tblConstEquipMitigation	Tier	No Change	Tier 3

tblConstructionPhase	NumDays	20.00	25.00
tblConstructionPhase	NumDays	230.00	375.00
tblConstructionPhase	NumDays	20.00	25.00
tblConstructionPhase	NumDays	20.00	37.00
tblConstructionPhase	NumDays	20.00	25.00
tblConstructionPhase	NumDays	10.00	13.00
tblConstructionPhase	PhaseEndDate	2/3/2017	2/5/2017
tblConstructionPhase	PhaseEndDate	4/14/2017	4/15/2017
tblConstructionPhase	PhaseEndDate	10/26/2018	10/25/2018
tblConstructionPhase	PhaseStartDate	9/22/2018	9/21/2018
tblLandUse	LandUseSquareFeet	666,468.00	346,801.00
tblLandUse	LandUseSquareFeet	9,470.00	9,475.00
tblLandUse	LotAcreage	4.29	0.31
tblLandUse	LotAcreage	15.30	7.96
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblProjectCharacteristics	OperationalYear	2014	2019
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblVehicleTrips	CC_TL	6.60	55.00
tblVehicleTrips	CC_TL	6.60	55.00
tblVehicleTrips	CC_TL	6.60	55.00
tblVehicleTrips	CNW_TL	6.60	55.00
tblVehicleTrips	CNW_TL	6.60	55.00
tblVehicleTrips	CNW_TL	6.60	55.00
tblVehicleTrips	CW_TL	14.70	41.30
tblVehicleTrips	CW_TL	14.70	41.30
tblVehicleTrips	CW_TL	14.70	41.30
tblVehicleTrips	ST_TR	10.71	37.75

tblVehicleTrips	ST_TR	8.19	2.05
tblVehicleTrips	ST_TR	94.36	13.33
tblVehicleTrips	SU_TR	10.71	37.75
tblVehicleTrips	SU_TR	5.95	2.05
tblVehicleTrips	SU_TR	72.16	13.33
tblVehicleTrips	WD_TR	10.71	37.75
tblVehicleTrips	WD_TR	8.17	2.04
tblVehicleTrips	WD_TR	89.95	13.55
tblWater	IndoorWaterUseRate	5,750,781.07	0.00
tblWater	IndoorWaterUseRate	11,643,347.43	46,720,000.00
tblWater	IndoorWaterUseRate	2,874,464.26	0.00
tblWater	OutdoorWaterUseRate	367,071.13	0.00
tblWater	OutdoorWaterUseRate	1,293,705.27	0.00
tblWater	OutdoorWaterUseRate	183,476.44	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	6.1834	69.7165	48.3110	0.0660	267.7342	3.3190	269.6028	27.0934	3.0534	28.8467	0.0000	6,578.9206	6,578.9206	1.9476	0.0000	6,619.8199
2018	206.0005	45.5380	50.1530	0.0907	290.1692	2.5155	292.6846	29.3622	2.3443	31.7064	0.0000	8,319.7747	8,319.7747	1.4514	0.0000	8,350.2546
Total	**212.1839**	**115.2545**	**98.4640**	**0.1567**	**557.9033**	**5.8344**	**562.2874**	**56.4555**	**5.3977**	**60.5532**	**0.0000**	**14,898.6953**	**14,898.6953**	**3.3990**	**0.0000**	**14,970.0744**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	3.4618	48.3603	43.9539	0.0660	241.1837	1.4293	241.4064	24.4442	1.3243	24.6598	0.0000	6,578.9206	6,578.9206	1.9476	0.0000	6,619.8199
2018	205.7613	30.3530	52.8691	0.0907	261.3933	0.3075	261.7009	26.4909	0.3009	26.7918	0.0000	8,319.7747	8,319.7747	1.4514	0.0000	8,350.2546
Total	**209.2231**	**78.7133**	**96.8230**	**0.1567**	**502.5770**	**1.7368**	**503.1072**	**50.9351**	**1.6253**	**51.4516**	**0.0000**	**14,898.6952**	**14,898.6952**	**3.3990**	**0.0000**	**14,970.0744**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.40**	**31.70**	**1.67**	**0.00**	**9.92**	**70.23**	**10.52**	**9.78**	**69.89**	**15.03**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	9.3228	4.6000e-004	0.0497	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		0.1055	0.1055	2.9000e-004		0.1115
Energy	0.3270	2.9727	2.4970	0.0178		0.2259	0.2259		0.2259	0.2259		3,567.1913	3,567.1913	0.0684	0.0654	3,588.9007
Mobile	10.7506	44.5279	164.9494	0.4633	1,651.0124	0.7502	1,651.7626	168.9205	0.6910	169.6115		37,729.9412	37,729.9412	1.2497		37,756.1840
Total	**20.4004**	**47.5010**	**167.4961**	**0.4811**	**1,651.0124**	**0.9763**	**1,651.9887**	**168.9205**	**0.9171**	**169.8376**		**41,297.2380**	**41,297.2380**	**1.3183**	**0.0654**	**41,345.1961**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	9.3228	4.6000e-004	0.0497	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		0.1055	0.1055	2.9000e-004		0.1115
Energy	0.1867	1.6971	1.4255	0.0102		0.1290	0.1290		0.1290	0.1290		2,036.4659	2,036.4659	0.0390	0.0373	2,048.8595
Mobile	10.7506	44.5279	164.9494	0.4633	1,651.0124	0.7502	1,651.7626	168.9205	0.6910	169.6115		37,729.9412	37,729.9412	1.2497		37,756.1840
Total	**20.2601**	**46.2254**	**166.4246**	**0.4734**	**1,651.0124**	**0.8794**	**1,651.8918**	**168.9205**	**0.8201**	**169.7407**		**39,766.5125**	**39,766.5125**	**1.2890**	**0.0373**	**39,805.1549**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.69**	**2.69**	**0.64**	**1.59**	**0.00**	**9.93**	**0.01**	**0.00**	**10.57**	**0.06**	**0.00**	**3.71**	**3.71**	**2.23**	**42.91**	**3.72**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2017	2/5/2017	5	25	
2	Site Preparation	Site Preparation	2/6/2017	2/22/2017	5	13	
3	Grading	Grading	2/23/2017	4/15/2017	5	37	
4	Building Construction	Building Construction	4/16/2017	9/21/2018	5	375	
5	Paving	Paving	9/21/2018	10/25/2018	5	25	
6	Architectural Coating	Architectural Coating	10/26/2018	11/29/2018	5	25	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 92.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 554,439; Non-Residential Outdoor: 184,813 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	162	0.38
Demolition	Rubber Tired Dozers	2	8.00	255	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Scrapers	2	8.00	361	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	2	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	155.00	61.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	31.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

3.2 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.0482	42.6971	33.8934	0.0399		2.1252	2.1252		1.9797	1.9797		4,036.4674	4,036.4674	1.1073		4,059.7211
Total	**4.0482**	**42.6971**	**33.8934**	**0.0399**		**2.1252**	**2.1252**		**1.9797**	**1.9797**		**4,036.4674**	**4,036.4674**	**1.1073**		**4,059.7211**

3.2 Demolition - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0632	0.0934	1.1295	2.5000e-003	22.4350	1.3200e-003	22.4364	2.2688	1.2200e-003	2.2700		199.1637	199.1637	9.8900e-003		199.3713
Total	**0.0632**	**0.0934**	**1.1295**	**2.5000e-003**	**22.4350**	**1.3200e-003**	**22.4364**	**2.2688**	**1.2200e-003**	**2.2700**		**199.1637**	**199.1637**	**9.8900e-003**		**199.3713**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9478	18.7614	25.2649	0.0399		0.1323	0.1323		0.1323	0.1323	0.0000	4,036.4674	4,036.4674	1.1073		4,059.7211
Total	**0.9478**	**18.7614**	**25.2649**	**0.0399**		**0.1323**	**0.1323**		**0.1323**	**0.1323**	**0.0000**	**4,036.4674**	**4,036.4674**	**1.1073**		**4,059.7211**

3.2 Demolition - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0632	0.0934	1.1295	2.5000e-003	20.2097	1.3200e-003	20.2110	2.0468	1.2200e-003	2.0480		199.1637	199.1637	9.8900e-003		199.3713
Total	**0.0632**	**0.0934**	**1.1295**	**2.5000e-003**	**20.2097**	**1.3200e-003**	**20.2110**	**2.0468**	**1.2200e-003**	**2.0480**		**199.1637**	**199.1637**	**9.8900e-003**		**199.3713**

3.3 Site Preparation - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.8382	51.7535	39.3970	0.0391		2.7542	2.7542		2.5339	2.5339		4,003.0859	4,003.0859	1.2265		4,028.8432
Total	**4.8382**	**51.7535**	**39.3970**	**0.0391**	**18.0663**	**2.7542**	**20.8205**	**9.9307**	**2.5339**	**12.4646**		**4,003.0859**	**4,003.0859**	**1.2265**		**4,028.8432**

3.3 Site Preparation - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0759	0.1120	1.3554	3.0000e-003	26.9221	1.5900e-003	26.9236	2.7226	1.4600e-003	2.7240		238.9964	238.9964	0.0119		239.2455
Total	**0.0759**	**0.1120**	**1.3554**	**3.0000e-003**	**26.9221**	**1.5900e-003**	**26.9236**	**2.7226**	**1.4600e-003**	**2.7240**		**238.9964**	**238.9964**	**0.0119**		**239.2455**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	0.9515	19.4584	23.4003	0.0391		0.1442	0.1442		0.1442	0.1442	0.0000	4,003.0859	4,003.0859	1.2265		4,028.8432
Total	**0.9515**	**19.4584**	**23.4003**	**0.0391**	**8.1298**	**0.1442**	**8.2740**	**4.4688**	**0.1442**	**4.6130**	**0.0000**	**4,003.0859**	**4,003.0859**	**1.2265**		**4,028.8432**

3.3 Site Preparation - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0759	0.1120	1.3554	3.0000e-003	24.2516	1.5900e-003	24.2532	2.4561	1.4600e-003	2.4576		238.9964	238.9964	0.0119		239.2455
Total	**0.0759**	**0.1120**	**1.3554**	**3.0000e-003**	**24.2516**	**1.5900e-003**	**24.2532**	**2.4561**	**1.4600e-003**	**2.4576**		**238.9964**	**238.9964**	**0.0119**		**239.2455**

3.4 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	6.0991	69.5920	46.8050	0.0617		3.3172	3.3172		3.0518	3.0518		6,313.3690	6,313.3690	1.9344		6,353.9915
Total	**6.0991**	**69.5920**	**46.8050**	**0.0617**	**8.6733**	**3.3172**	**11.9905**	**3.5965**	**3.0518**	**6.6483**		**6,313.3690**	**6,313.3690**	**1.9344**		**6,353.9915**

3.4 Grading - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0843	0.1245	1.5060	3.3300e-003	29.9134	1.7600e-003	29.9152	3.0251	1.6200e-003	3.0267		265.5516	265.5516	0.0132		265.8284
Total	**0.0843**	**0.1245**	**1.5060**	**3.3300e-003**	**29.9134**	**1.7600e-003**	**29.9152**	**3.0251**	**1.6200e-003**	**3.0267**		**265.5516**	**265.5516**	**0.0132**		**265.8284**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.9030	0.0000	3.9030	1.6184	0.0000	1.6184			0.0000			0.0000
Off-Road	3.3775	48.2358	42.4479	0.0617		1.4275	1.4275		1.3227	1.3227	0.0000	6,313.3690	6,313.3690	1.9344		6,353.9915
Total	**3.3775**	**48.2358**	**42.4479**	**0.0617**	**3.9030**	**1.4275**	**5.3305**	**1.6184**	**1.3227**	**2.9412**	**0.0000**	**6,313.3690**	**6,313.3690**	**1.9344**		**6,353.9915**

3.4 Grading - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0843	0.1245	1.5060	3.3300e-003	26.9463	1.7600e-003	26.9480	2.7290	1.6200e-003	2.7306		265.5516	265.5516	0.0132		265.8284
Total	**0.0843**	**0.1245**	**1.5060**	**3.3300e-003**	**26.9463**	**1.7600e-003**	**26.9480**	**2.7290**	**1.6200e-003**	**2.7306**		**265.5516**	**265.5516**	**0.0132**		**265.8284**

3.5 Building Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.1024	26.4057	18.1291	0.0268		1.7812	1.7812		1.6730	1.6730		2,639.8053	2,639.8053	0.6497		2,653.4490
Total	**3.1024**	**26.4057**	**18.1291**	**0.0268**		**1.7812**	**1.7812**		**1.6730**	**1.6730**		**2,639.8053**	**2,639.8053**	**0.6497**		**2,653.4490**

3.5 Building Construction - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.6696	4.6164	7.2226	0.0133	35.9054	0.0738	35.9792	3.6491	0.0678	3.7169		1,315.1236	1,315.1236	0.0100		1,315.3341
Worker	0.6533	0.9647	11.6715	0.0258	231.8288	0.0137	231.8424	23.4443	0.0126	23.4569		2,058.0246	2,058.0246	0.1022		2,060.1698
Total	**1.3229**	**5.5811**	**18.8941**	**0.0392**	**267.7342**	**0.0875**	**267.8216**	**27.0934**	**0.0804**	**27.1738**		**3,373.1482**	**3,373.1482**	**0.1122**		**3,375.5039**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6712	14.1741	17.8156	0.0268		0.1352	0.1352		0.1352	0.1352	0.0000	2,639.8053	2,639.8053	0.6497		2,653.4490
Total	**0.6712**	**14.1741**	**17.8156**	**0.0268**		**0.1352**	**0.1352**		**0.1352**	**0.1352**	**0.0000**	**2,639.8053**	**2,639.8053**	**0.6497**		**2,653.4490**

3.5 Building Construction - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.6696	4.6164	7.2226	0.0133	32.3501	0.0738	32.4239	3.2943	0.0678	3.3622		1,315.1236	1,315.1236	0.0100		1,315.3341
Worker	0.6533	0.9647	11.6715	0.0258	208.8335	0.0137	208.8472	21.1498	0.0126	21.1624		2,058.0246	2,058.0246	0.1022		2,060.1698
Total	**1.3229**	**5.5811**	**18.8941**	**0.0392**	**241.1837**	**0.0875**	**241.2711**	**24.4442**	**0.0804**	**24.5246**		**3,373.1482**	**3,373.1482**	**0.1122**		**3,375.5039**

3.5 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6687	23.2608	17.5327	0.0268		1.4943	1.4943		1.4048	1.4048		2,609.9390	2,609.9390	0.6387		2,623.3517
Total	**2.6687**	**23.2608**	**17.5327**	**0.0268**		**1.4943**	**1.4943**		**1.4048**	**1.4048**		**2,609.9390**	**2,609.9390**	**0.6387**		**2,623.3517**

3.5 Building Construction - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5909	4.1548	6.5848	0.0133	35.9054	0.0679	35.9733	3.6491	0.0625	3.7115		1,292.0378	1,292.0378	9.7700e-003		1,292.2429
Worker	0.5794	0.8750	10.5228	0.0258	231.8288	0.0133	231.8421	23.4443	0.0123	23.4566		1,980.8347	1,980.8347	0.0948		1,982.8255
Total	**1.1703**	**5.0298**	**17.1076**	**0.0391**	**267.7341**	**0.0813**	**267.8154**	**27.0934**	**0.0748**	**27.1681**		**3,272.8726**	**3,272.8726**	**0.1046**		**3,275.0684**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6712	14.1741	17.8156	0.0268		0.1352	0.1352		0.1352	0.1352	0.0000	2,609.9389	2,609.9389	0.6387		2,623.3517
Total	**0.6712**	**14.1741**	**17.8156**	**0.0268**		**0.1352**	**0.1352**		**0.1352**	**0.1352**	**0.0000**	**2,609.9389**	**2,609.9389**	**0.6387**		**2,623.3517**

3.5 Building Construction - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5909	4.1548	6.5848	0.0133	32.3501	0.0679	32.4181	3.2943	0.0625	3.3568		1,292.0378	1,292.0378	9.7700e-003		1,292.2429
Worker	0.5794	0.8750	10.5228	0.0258	208.8335	0.0133	208.8469	21.1498	0.0123	21.1621		1,980.8347	1,980.8347	0.0948		1,982.8255
Total	**1.1703**	**5.0298**	**17.1076**	**0.0391**	**241.1837**	**0.0813**	**241.2649**	**24.4441**	**0.0748**	**24.5189**		**3,272.8726**	**3,272.8726**	**0.1046**		**3,275.0684**

3.6 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6114	17.1628	14.4944	0.0223		0.9386	0.9386		0.8635	0.8635		2,245.2695	2,245.2695	0.6990		2,259.9481
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.6114**	**17.1628**	**14.4944**	**0.0223**		**0.9386**	**0.9386**		**0.8635**	**0.8635**		**2,245.2695**	**2,245.2695**	**0.6990**		**2,259.9481**

3.6 Paving - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0561	0.0847	1.0183	2.5000e-003	22.4350	1.2900e-003	22.4363	2.2688	1.1900e-003	2.2700		191.6937	191.6937	9.1700e-003		191.8863
Total	**0.0561**	**0.0847**	**1.0183**	**2.5000e-003**	**22.4350**	**1.2900e-003**	**22.4363**	**2.2688**	**1.1900e-003**	**2.2700**		**191.6937**	**191.6937**	**9.1700e-003**		**191.8863**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5490	11.0645	16.9276	0.0223		0.0897	0.0897		0.0897	0.0897	0.0000	2,245.2695	2,245.2695	0.6990		2,259.9481
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.5490**	**11.0645**	**16.9276**	**0.0223**		**0.0897**	**0.0897**		**0.0897**	**0.0897**	**0.0000**	**2,245.2695**	**2,245.2695**	**0.6990**		**2,259.9481**

3.6 Paving - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0561	0.0847	1.0183	2.5000e-003	20.2097	1.2900e-003	20.2110	2.0468	1.1900e-003	2.0480		191.6937	191.6937	9.1700e-003		191.8863
Total	**0.0561**	**0.0847**	**1.0183**	**2.5000e-003**	**20.2097**	**1.2900e-003**	**20.2110**	**2.0468**	**1.1900e-003**	**2.0480**		**191.6937**	**191.6937**	**9.1700e-003**		**191.8863**

3.7 Architectural Coating - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	205.5860					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2986	2.0058	1.8542	2.9700e-003		0.1506	0.1506		0.1506	0.1506		281.4485	281.4485	0.0267		282.0102
Total	**205.8846**	**2.0058**	**1.8542**	**2.9700e-003**		**0.1506**	**0.1506**		**0.1506**	**0.1506**		**281.4485**	**281.4485**	**0.0267**		**282.0102**

3.7 Architectural Coating - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1159	0.1750	2.1046	5.1600e-003	46.3658	2.6600e-003	46.3684	4.6889	2.4600e-003	4.6913		396.1670	396.1670	0.0190		396.5651
Total	**0.1159**	**0.1750**	**2.1046**	**5.1600e-003**	**46.3658**	**2.6600e-003**	**46.3684**	**4.6889**	**2.4600e-003**	**4.6913**		**396.1670**	**396.1670**	**0.0190**		**396.5651**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	205.5860					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0594	1.3570	1.8324	2.9700e-003		0.0143	0.0143		0.0143	0.0143	0.0000	281.4485	281.4485	0.0267		282.0102
Total	**205.6454**	**1.3570**	**1.8324**	**2.9700e-003**		**0.0143**	**0.0143**		**0.0143**	**0.0143**	**0.0000**	**281.4485**	**281.4485**	**0.0267**		**282.0102**

3.7 Architectural Coating - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1159	0.1750	2.1046	5.1600e-003	41.7667	2.6600e-003	41.7694	4.2300	2.4600e-003	4.2324		396.1670	396.1670	0.0190		396.5651
Total	**0.1159**	**0.1750**	**2.1046**	**5.1600e-003**	**41.7667**	**2.6600e-003**	**41.7694**	**4.2300**	**2.4600e-003**	**4.2324**		**396.1670**	**396.1670**	**0.0190**		**396.5651**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	10.7506	44.5279	164.9494	0.4633	1,651.0124	0.7502	1,651.7626	168.9205	0.6910	169.6115		37,729.9412	37,729.9412	1.2497		37,756.1840
Unmitigated	10.7506	44.5279	164.9494	0.4633	1,651.0124	0.7502	1,651.7626	168.9205	0.6910	169.6115		37,729.9412	37,729.9412	1.2497		37,756.1840

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Arena	503.96	503.96	503.96	73,762	73,762
Hotel	936.36	940.95	940.95	12,060,269	12,060,269
Quality Restaurant	128.32	126.24	126.24	1,056,295	1,056,295
Total	1,568.64	1,571.15	1,571.15	13,190,326	13,190,326

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Arena	41.30	55.00	55.00	0.00	81.00	19.00	0.66	0.28	0.6
Hotel	41.30	55.00	55.00	19.40	61.60	19.00	58	38	4
Quality Restaurant	41.30	55.00	55.00	12.00	69.00	19.00	38	18	44

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.471403	0.066929	0.152676	0.151738	0.056590	0.006768	0.023176	0.056544	0.001000	0.001364	0.008404	0.000498	0.002911

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.1867	1.6971	1.4255	0.0102		0.1290	0.1290		0.1290	0.1290		2,036.4659	2,036.4659	0.0390	0.0373	2,048.8595
NaturalGas Unmitigated	0.3270	2.9727	2.4970	0.0178		0.2259	0.2259		0.2259	0.2259		3,567.1913	3,567.1913	0.0684	0.0654	3,588.9007

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Arena	717.242	7.7300e-003	0.0703	0.0591	4.2000e-004		5.3400e-003	5.3400e-003		5.3400e-003	5.3400e-003		84.3815	84.3815	1.6200e-003	1.5500e-003	84.8950
Hotel	26708.4	0.2880	2.6185	2.1995	0.0157		0.1990	0.1990		0.1990	0.1990		3,142.1680	3,142.1680	0.0602	0.0576	3,161.2907
Quality Restaurant	2895.46	0.0312	0.2839	0.2385	1.7000e-003		0.0216	0.0216		0.0216	0.0216		340.6419	340.6419	6.5300e-003	6.2500e-003	342.7150
Total		**0.3270**	**2.9727**	**2.4970**	**0.0178**		**0.2259**	**0.2259**		**0.2259**	**0.2259**		**3,567.1913**	**3,567.1913**	**0.0684**	**0.0654**	**3,588.9007**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Hotel	14.5362	0.1568	1.4251	1.1971	8.5500e-003		0.1083	0.1083		0.1083	0.1083		1,710.1397	1,710.1397	0.0328	0.0314	1,720.5474
Quality Restaurant	2.38545	0.0257	0.2339	0.1965	1.4000e-003		0.0178	0.0178		0.0178	0.0178		280.6414	280.6414	5.3800e-003	5.1500e-003	282.3493
Arena	0.38832	4.1900e-003	0.0381	0.0320	2.3000e-004		2.8900e-003	2.8900e-003		2.8900e-003	2.8900e-003		45.6848	45.6848	8.8000e-004	8.4000e-004	45.9628
Total		**0.1867**	**1.6971**	**1.4255**	**0.0102**		**0.1290**	**0.1290**		**0.1290**	**0.1290**		**2,036.4659**	**2,036.4659**	**0.0390**	**0.0373**	**2,048.8595**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	9.3228	4.6000e-004	0.0497	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		0.1055	0.1055	2.9000e-004		0.1115
Unmitigated	9.3228	4.6000e-004	0.0497	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		0.1055	0.1055	2.9000e-004		0.1115

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.4081					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.9100					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.7100e-003	4.6000e-004	0.0497	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		0.1055	0.1055	2.9000e-004		0.1115
Total	**9.3228**	**4.6000e-004**	**0.0497**	**0.0000**		**1.8000e-004**	**1.8000e-004**		**1.8000e-004**	**1.8000e-004**		**0.1055**	**0.1055**	**2.9000e-004**		**0.1115**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.4081					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.9100					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.7100e-003	4.6000e-004	0.0497	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		0.1055	0.1055	2.9000e-004		0.1115
Total	**9.3228**	**4.6000e-004**	**0.0497**	**0.0000**		**1.8000e-004**	**1.8000e-004**		**1.8000e-004**	**1.8000e-004**		**0.1055**	**0.1055**	**2.9000e-004**		**0.1115**

7.0 Water Detail

7.1 Mitigation Measures Water

Use Reclaimed Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Cache Creek Hotel Expansion Project

Yolo/Solano AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Arena	13.35	1000sqft	0.31	13,350.00	0
Hotel	459.00	Room	7.96	346,801.00	0
Quality Restaurant	9.47	1000sqft	0.22	9,475.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	6.8	**Precipitation Freq (Days)**	55
Climate Zone	2			**Operational Year**	2019
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Refer to CalEEMod Tables

Construction Phase - CalEEMod defaults used for equipment and phase time proportion. Total time from Project Description.

Trips and VMT -

Grading -

Architectural Coating -

Area Coating -

Water And Wastewater - Refer to CalEEMod tables

Solid Waste -

Construction Off-road Equipment Mitigation - Refer to CalEEMod Tables

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
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tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3

tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3

tblConstructionPhase	NumDays	20.00	25.00
tblConstructionPhase	NumDays	230.00	375.00
tblConstructionPhase	NumDays	20.00	25.00
tblConstructionPhase	NumDays	20.00	37.00
tblConstructionPhase	NumDays	20.00	25.00
tblConstructionPhase	NumDays	10.00	13.00
tblConstructionPhase	PhaseEndDate	2/3/2017	2/5/2017
tblConstructionPhase	PhaseEndDate	4/14/2017	4/15/2017
tblConstructionPhase	PhaseEndDate	10/26/2018	10/25/2018
tblConstructionPhase	PhaseStartDate	9/22/2018	9/21/2018
tblLandUse	LandUseSquareFeet	666,468.00	346,801.00
tblLandUse	LandUseSquareFeet	9,470.00	9,475.00
tblLandUse	LotAcreage	4.29	0.31
tblLandUse	LotAcreage	15.30	7.96
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblProjectCharacteristics	OperationalYear	2014	2019
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblVehicleTrips	CC_TL	6.60	55.00
tblVehicleTrips	CC_TL	6.60	55.00
tblVehicleTrips	CC_TL	6.60	55.00
tblVehicleTrips	CNW_TL	6.60	55.00
tblVehicleTrips	CNW_TL	6.60	55.00
tblVehicleTrips	CNW_TL	6.60	55.00
tblVehicleTrips	CW_TL	14.70	41.30
tblVehicleTrips	CW_TL	14.70	41.30
tblVehicleTrips	CW_TL	14.70	41.30
tblVehicleTrips	ST_TR	10.71	37.75

tblVehicleTrips	ST_TR	8.19	2.05
tblVehicleTrips	ST_TR	94.36	13.33
tblVehicleTrips	SU_TR	10.71	37.75
tblVehicleTrips	SU_TR	5.95	2.05
tblVehicleTrips	SU_TR	72.16	13.33
tblVehicleTrips	WD_TR	10.71	37.75
tblVehicleTrips	WD_TR	8.17	2.04
tblVehicleTrips	WD_TR	89.95	13.55
tblWater	IndoorWaterUseRate	5,750,781.07	0.00
tblWater	IndoorWaterUseRate	11,643,347.43	46,720,000.00
tblWater	IndoorWaterUseRate	2,874,464.26	0.00
tblWater	OutdoorWaterUseRate	367,071.13	0.00
tblWater	OutdoorWaterUseRate	1,293,705.27	0.00
tblWater	OutdoorWaterUseRate	183,476.44	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	6.1750	69.7497	48.1406	0.0647	267.7342	3.3190	269.6038	27.0934	3.0534	28.8477	0.0000	6,549.1496	6,549.1496	1.9476	0.0000	6,590.0489
2018	205.9873	46.0683	54.3300	0.0875	290.1692	2.5164	292.6855	29.3622	2.3451	31.7073	0.0000	8,065.1608	8,065.1608	1.4517	0.0000	8,095.6472
Total	**212.1623**	**115.8180**	**102.4706**	**0.1522**	**557.9033**	**5.8353**	**562.2893**	**56.4555**	**5.3986**	**60.5549**	**0.0000**	**14,614.3104**	**14,614.3104**	**3.3993**	**0.0000**	**14,685.6961**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	3.4534	48.3936	43.7835	0.0647	241.1837	1.4293	241.4074	24.4442	1.3243	24.6607	0.0000	6,549.1496	6,549.1496	1.9476	0.0000	6,590.0489
2018	205.7481	30.8832	57.0461	0.0875	261.3933	0.3084	261.7018	26.4909	0.3018	26.7927	0.0000	8,065.1608	8,065.1608	1.4517	0.0000	8,095.6472
Total	**209.2015**	**79.2768**	**100.8296**	**0.1522**	**502.5770**	**1.7377**	**503.1091**	**50.9351**	**1.6261**	**51.4534**	**0.0000**	**14,614.3104**	**14,614.3104**	**3.3993**	**0.0000**	**14,685.6961**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.40**	**31.55**	**1.60**	**0.00**	**9.92**	**70.22**	**10.52**	**9.78**	**69.88**	**15.03**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	9.3228	4.6000e-004	0.0497	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		0.1055	0.1055	2.9000e-004		0.1115
Energy	0.3270	2.9727	2.4970	0.0178		0.2259	0.2259		0.2259	0.2259		3,567.1913	3,567.1913	0.0684	0.0654	3,588.9007
Mobile	10.6748	50.3734	165.5291	0.4267	1,651.0124	0.7517	1,651.7642	168.9205	0.6924	169.6129		34,968.6329	34,968.6329	1.2505		34,994.8924
Total	**20.3246**	**53.3465**	**168.0758**	**0.4445**	**1,651.0124**	**0.9778**	**1,651.9903**	**168.9205**	**0.9185**	**169.8390**		**38,535.9297**	**38,535.9297**	**1.3191**	**0.0654**	**38,583.9045**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	9.3228	4.6000e-004	0.0497	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		0.1055	0.1055	2.9000e-004		0.1115
Energy	0.1867	1.6971	1.4255	0.0102		0.1290	0.1290		0.1290	0.1290		2,036.4659	2,036.4659	0.0390	0.0373	2,048.8595
Mobile	10.6748	50.3734	165.5291	0.4267	1,651.0124	0.7517	1,651.7642	168.9205	0.6924	169.6129		34,968.6329	34,968.6329	1.2505		34,994.8924
Total	**20.1843**	**52.0709**	**167.0043**	**0.4369**	**1,651.0124**	**0.8809**	**1,651.8933**	**168.9205**	**0.8215**	**169.7421**		**37,005.2042**	**37,005.2042**	**1.2898**	**0.0373**	**37,043.8633**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.69**	**2.39**	**0.64**	**1.72**	**0.00**	**9.91**	**0.01**	**0.00**	**10.55**	**0.06**	**0.00**	**3.97**	**3.97**	**2.22**	**42.91**	**3.99**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2017	2/5/2017	5	25	
2	Site Preparation	Site Preparation	2/6/2017	2/22/2017	5	13	
3	Grading	Grading	2/23/2017	4/15/2017	5	37	
4	Building Construction	Building Construction	4/16/2017	9/21/2018	5	375	
5	Paving	Paving	9/21/2018	10/25/2018	5	25	
6	Architectural Coating	Architectural Coating	10/26/2018	11/29/2018	5	25	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 92.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 554,439; Non-Residential Outdoor: 184,813 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	162	0.38
Demolition	Rubber Tired Dozers	2	8.00	255	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Scrapers	2	8.00	361	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	2	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	155.00	61.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	31.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

3.2 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.0482	42.6971	33.8934	0.0399		2.1252	2.1252		1.9797	1.9797		4,036.4674	4,036.4674	1.1073		4,059.7211
Total	**4.0482**	**42.6971**	**33.8934**	**0.0399**		**2.1252**	**2.1252**		**1.9797**	**1.9797**		**4,036.4674**	**4,036.4674**	**1.1073**		**4,059.7211**

3.2 Demolition - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0569	0.1183	1.0017	2.2200e-003	22.4350	1.3200e-003	22.4364	2.2688	1.2200e-003	2.2700		176.8354	176.8354	9.8900e-003		177.0430
Total	**0.0569**	**0.1183**	**1.0017**	**2.2200e-003**	**22.4350**	**1.3200e-003**	**22.4364**	**2.2688**	**1.2200e-003**	**2.2700**		**176.8354**	**176.8354**	**9.8900e-003**		**177.0430**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9478	18.7614	25.2649	0.0399		0.1323	0.1323		0.1323	0.1323	0.0000	4,036.4674	4,036.4674	1.1073		4,059.7211
Total	**0.9478**	**18.7614**	**25.2649**	**0.0399**		**0.1323**	**0.1323**		**0.1323**	**0.1323**	**0.0000**	**4,036.4674**	**4,036.4674**	**1.1073**		**4,059.7211**

3.2 Demolition - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0569	0.1183	1.0017	2.2200e-003	20.2097	1.3200e-003	20.2110	2.0468	1.2200e-003	2.0480		176.8354	176.8354	9.8900e-003		177.0430
Total	**0.0569**	**0.1183**	**1.0017**	**2.2200e-003**	**20.2097**	**1.3200e-003**	**20.2110**	**2.0468**	**1.2200e-003**	**2.0480**		**176.8354**	**176.8354**	**9.8900e-003**		**177.0430**

3.3 Site Preparation - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.8382	51.7535	39.3970	0.0391		2.7542	2.7542		2.5339	2.5339		4,003.0859	4,003.0859	1.2265		4,028.8432
Total	**4.8382**	**51.7535**	**39.3970**	**0.0391**	**18.0663**	**2.7542**	**20.8205**	**9.9307**	**2.5339**	**12.4646**		**4,003.0859**	**4,003.0859**	**1.2265**		**4,028.8432**

3.3 Site Preparation - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0683	0.1420	1.2020	2.6600e-003	26.9221	1.5900e-003	26.9236	2.7226	1.4600e-003	2.7240		212.2025	212.2025	0.0119		212.4516
Total	**0.0683**	**0.1420**	**1.2020**	**2.6600e-003**	**26.9221**	**1.5900e-003**	**26.9236**	**2.7226**	**1.4600e-003**	**2.7240**		**212.2025**	**212.2025**	**0.0119**		**212.4516**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	0.9515	19.4584	23.4003	0.0391		0.1442	0.1442		0.1442	0.1442	0.0000	4,003.0859	4,003.0859	1.2265		4,028.8432
Total	**0.9515**	**19.4584**	**23.4003**	**0.0391**	**8.1298**	**0.1442**	**8.2740**	**4.4688**	**0.1442**	**4.6130**	**0.0000**	**4,003.0859**	**4,003.0859**	**1.2265**		**4,028.8432**

3.3 Site Preparation - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0683	0.1420	1.2020	2.6600e-003	24.2516	1.5900e-003	24.2532	2.4561	1.4600e-003	2.4576		212.2025	212.2025	0.0119		212.4516
Total	**0.0683**	**0.1420**	**1.2020**	**2.6600e-003**	**24.2516**	**1.5900e-003**	**24.2532**	**2.4561**	**1.4600e-003**	**2.4576**		**212.2025**	**212.2025**	**0.0119**		**212.4516**

3.4 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	6.0991	69.5920	46.8050	0.0617		3.3172	3.3172		3.0518	3.0518		6,313.3690	6,313.3690	1.9344		6,353.9915
Total	**6.0991**	**69.5920**	**46.8050**	**0.0617**	**8.6733**	**3.3172**	**11.9905**	**3.5965**	**3.0518**	**6.6483**		**6,313.3690**	**6,313.3690**	**1.9344**		**6,353.9915**

3.4 Grading - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0759	0.1577	1.3356	2.9600e-003	29.9134	1.7600e-003	29.9152	3.0251	1.6200e-003	3.0267		235.7806	235.7806	0.0132		236.0574
Total	**0.0759**	**0.1577**	**1.3356**	**2.9600e-003**	**29.9134**	**1.7600e-003**	**29.9152**	**3.0251**	**1.6200e-003**	**3.0267**		**235.7806**	**235.7806**	**0.0132**		**236.0574**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.9030	0.0000	3.9030	1.6184	0.0000	1.6184			0.0000			0.0000
Off-Road	3.3775	48.2358	42.4479	0.0617		1.4275	1.4275		1.3227	1.3227	0.0000	6,313.3690	6,313.3690	1.9344		6,353.9915
Total	**3.3775**	**48.2358**	**42.4479**	**0.0617**	**3.9030**	**1.4275**	**5.3305**	**1.6184**	**1.3227**	**2.9412**	**0.0000**	**6,313.3690**	**6,313.3690**	**1.9344**		**6,353.9915**

3.4 Grading - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0759	0.1577	1.3356	2.9600e-003	26.9463	1.7600e-003	26.9480	2.7290	1.6200e-003	2.7306		235.7806	235.7806	0.0132		236.0574
Total	**0.0759**	**0.1577**	**1.3356**	**2.9600e-003**	**26.9463**	**1.7600e-003**	**26.9480**	**2.7290**	**1.6200e-003**	**2.7306**		**235.7806**	**235.7806**	**0.0132**		**236.0574**

3.5 Building Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.1024	26.4057	18.1291	0.0268		1.7812	1.7812		1.6730	1.6730		2,639.8053	2,639.8053	0.6497		2,653.4490
Total	**3.1024**	**26.4057**	**18.1291**	**0.0268**		**1.7812**	**1.7812**		**1.6730**	**1.6730**		**2,639.8053**	**2,639.8053**	**0.6497**		**2,653.4490**

3.5 Building Construction - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.9006	4.9256	12.9538	0.0133	35.9054	0.0748	35.9802	3.6491	0.0688	3.7178		1,304.1709	1,304.1709	0.0103		1,304.3877
Worker	0.5880	1.2223	10.3508	0.0229	231.8288	0.0137	231.8424	23.4443	0.0126	23.4569		1,827.2993	1,827.2993	0.1022		1,829.4445
Total	**1.4885**	**6.1479**	**23.3046**	**0.0362**	**267.7342**	**0.0885**	**267.8226**	**27.0934**	**0.0813**	**27.1747**		**3,131.4702**	**3,131.4702**	**0.1125**		**3,133.8322**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6712	14.1741	17.8156	0.0268		0.1352	0.1352		0.1352	0.1352	0.0000	2,639.8053	2,639.8053	0.6497		2,653.4490
Total	**0.6712**	**14.1741**	**17.8156**	**0.0268**		**0.1352**	**0.1352**		**0.1352**	**0.1352**	**0.0000**	**2,639.8053**	**2,639.8053**	**0.6497**		**2,653.4490**

3.5 Building Construction - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.9006	4.9256	12.9538	0.0133	32.3501	0.0748	32.4249	3.2943	0.0688	3.3631		1,304.1709	1,304.1709	0.0103		1,304.3877
Worker	0.5880	1.2223	10.3508	0.0229	208.8335	0.0137	208.8472	21.1498	0.0126	21.1624		1,827.2993	1,827.2993	0.1022		1,829.4445
Total	**1.4885**	**6.1479**	**23.3046**	**0.0362**	**241.1837**	**0.0885**	**241.2721**	**24.4442**	**0.0813**	**24.5255**		**3,131.4702**	**3,131.4702**	**0.1125**		**3,133.8322**

3.5 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6687	23.2608	17.5327	0.0268		1.4943	1.4943		1.4048	1.4048		2,609.9390	2,609.9390	0.6387		2,623.3517
Total	**2.6687**	**23.2608**	**17.5327**	**0.0268**		**1.4943**	**1.4943**		**1.4048**	**1.4048**		**2,609.9390**	**2,609.9390**	**0.6387**		**2,623.3517**

3.5 Building Construction - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.7859	4.4294	12.1777	0.0133	35.9054	0.0689	35.9742	3.6491	0.0633	3.7124		1,281.2440	1,281.2440	0.0101		1,281.4556
Worker	0.5134	1.1080	9.2318	0.0229	231.8288	0.0133	231.8421	23.4443	0.0123	23.4566		1,758.5283	1,758.5283	0.0948		1,760.5190
Total	**1.2993**	**5.5374**	**21.4095**	**0.0362**	**267.7341**	**0.0822**	**267.8163**	**27.0934**	**0.0756**	**27.1689**		**3,039.7723**	**3,039.7723**	**0.1049**		**3,041.9746**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6712	14.1741	17.8156	0.0268		0.1352	0.1352		0.1352	0.1352	0.0000	2,609.9389	2,609.9389	0.6387		2,623.3517
Total	**0.6712**	**14.1741**	**17.8156**	**0.0268**		**0.1352**	**0.1352**		**0.1352**	**0.1352**	**0.0000**	**2,609.9389**	**2,609.9389**	**0.6387**		**2,623.3517**

3.5 Building Construction - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.7859	4.4294	12.1777	0.0133	32.3501	0.0689	32.4190	3.2943	0.0633	3.3576		1,281.2440	1,281.2440	0.0101		1,281.4556
Worker	0.5134	1.1080	9.2318	0.0229	208.8335	0.0133	208.8469	21.1498	0.0123	21.1621		1,758.5283	1,758.5283	0.0948		1,760.5190
Total	**1.2993**	**5.5374**	**21.4095**	**0.0362**	**241.1837**	**0.0822**	**241.2658**	**24.4441**	**0.0756**	**24.5197**		**3,039.7723**	**3,039.7723**	**0.1049**		**3,041.9746**

3.6 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6114	17.1628	14.4944	0.0223		0.9386	0.9386		0.8635	0.8635		2,245.2695	2,245.2695	0.6990		2,259.9481
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.6114**	**17.1628**	**14.4944**	**0.0223**		**0.9386**	**0.9386**		**0.8635**	**0.8635**		**2,245.2695**	**2,245.2695**	**0.6990**		**2,259.9481**

3.6 Paving - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0497	0.1072	0.8934	2.2200e-003	22.4350	1.2900e-003	22.4363	2.2688	1.1900e-003	2.2700		170.1802	170.1802	9.1700e-003		170.3728
Total	**0.0497**	**0.1072**	**0.8934**	**2.2200e-003**	**22.4350**	**1.2900e-003**	**22.4363**	**2.2688**	**1.1900e-003**	**2.2700**		**170.1802**	**170.1802**	**9.1700e-003**		**170.3728**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5490	11.0645	16.9276	0.0223		0.0897	0.0897		0.0897	0.0897	0.0000	2,245.2695	2,245.2695	0.6990		2,259.9481
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.5490**	**11.0645**	**16.9276**	**0.0223**		**0.0897**	**0.0897**		**0.0897**	**0.0897**	**0.0000**	**2,245.2695**	**2,245.2695**	**0.6990**		**2,259.9481**

3.6 Paving - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0497	0.1072	0.8934	2.2200e-003	20.2097	1.2900e-003	20.2110	2.0468	1.1900e-003	2.0480		170.1802	170.1802	9.1700e-003		170.3728
Total	**0.0497**	**0.1072**	**0.8934**	**2.2200e-003**	**20.2097**	**1.2900e-003**	**20.2110**	**2.0468**	**1.1900e-003**	**2.0480**		**170.1802**	**170.1802**	**9.1700e-003**		**170.3728**

3.7 Architectural Coating - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	205.5860					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2986	2.0058	1.8542	2.9700e-003		0.1506	0.1506		0.1506	0.1506		281.4485	281.4485	0.0267		282.0102
Total	**205.8846**	**2.0058**	**1.8542**	**2.9700e-003**		**0.1506**	**0.1506**		**0.1506**	**0.1506**		**281.4485**	**281.4485**	**0.0267**		**282.0102**

3.7 Architectural Coating - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1027	0.2216	1.8464	4.5800e-003	46.3658	2.6600e-003	46.3684	4.6889	2.4600e-003	4.6913		351.7057	351.7057	0.0190		352.1038
Total	**0.1027**	**0.2216**	**1.8464**	**4.5800e-003**	**46.3658**	**2.6600e-003**	**46.3684**	**4.6889**	**2.4600e-003**	**4.6913**		**351.7057**	**351.7057**	**0.0190**		**352.1038**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	205.5860					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0594	1.3570	1.8324	2.9700e-003		0.0143	0.0143		0.0143	0.0143	0.0000	281.4485	281.4485	0.0267		282.0102
Total	**205.6454**	**1.3570**	**1.8324**	**2.9700e-003**		**0.0143**	**0.0143**		**0.0143**	**0.0143**	**0.0000**	**281.4485**	**281.4485**	**0.0267**		**282.0102**

3.7 Architectural Coating - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1027	0.2216	1.8464	4.5800e-003	41.7667	2.6600e-003	41.7694	4.2300	2.4600e-003	4.2324		351.7057	351.7057	0.0190		352.1038
Total	**0.1027**	**0.2216**	**1.8464**	**4.5800e-003**	**41.7667**	**2.6600e-003**	**41.7694**	**4.2300**	**2.4600e-003**	**4.2324**		**351.7057**	**351.7057**	**0.0190**		**352.1038**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	10.6748	50.3734	165.5291	0.4267	1,651.0124	0.7517	1,651.7642	168.9205	0.6924	169.6129		34,968.6329	34,968.6329	1.2505		34,994.8924
Unmitigated	10.6748	50.3734	165.5291	0.4267	1,651.0124	0.7517	1,651.7642	168.9205	0.6924	169.6129		34,968.6329	34,968.6329	1.2505		34,994.8924

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Arena	503.96	503.96	503.96	73,762	73,762
Hotel	936.36	940.95	940.95	12,060,269	12,060,269
Quality Restaurant	128.32	126.24	126.24	1,056,295	1,056,295
Total	1,568.64	1,571.15	1,571.15	13,190,326	13,190,326

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Arena	41.30	55.00	55.00	0.00	81.00	19.00	0.66	0.28	0.6
Hotel	41.30	55.00	55.00	19.40	61.60	19.00	58	38	4
Quality Restaurant	41.30	55.00	55.00	12.00	69.00	19.00	38	18	44

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.471403	0.066929	0.152676	0.151738	0.056590	0.006768	0.023176	0.056544	0.001000	0.001364	0.008404	0.000498	0.002911

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.1867	1.6971	1.4255	0.0102		0.1290	0.1290		0.1290	0.1290		2,036.4659	2,036.4659	0.0390	0.0373	2,048.8595
NaturalGas Unmitigated	0.3270	2.9727	2.4970	0.0178		0.2259	0.2259		0.2259	0.2259		3,567.1913	3,567.1913	0.0684	0.0654	3,588.9007

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Arena	717.242	7.7300e-003	0.0703	0.0591	4.2000e-004		5.3400e-003	5.3400e-003		5.3400e-003	5.3400e-003		84.3815	84.3815	1.6200e-003	1.5500e-003	84.8950
Hotel	26708.4	0.2880	2.6185	2.1995	0.0157		0.1990	0.1990		0.1990	0.1990		3,142.1680	3,142.1680	0.0602	0.0576	3,161.2907
Quality Restaurant	2895.46	0.0312	0.2839	0.2385	1.7000e-003		0.0216	0.0216		0.0216	0.0216		340.6419	340.6419	6.5300e-003	6.2500e-003	342.7150
Total		**0.3270**	**2.9727**	**2.4970**	**0.0178**		**0.2259**	**0.2259**		**0.2259**	**0.2259**		**3,567.1913**	**3,567.1913**	**0.0684**	**0.0654**	**3,588.9007**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Hotel	14.5362	0.1568	1.4251	1.1971	8.5500e-003		0.1083	0.1083		0.1083	0.1083		1,710.1397	1,710.1397	0.0328	0.0314	1,720.5474
Quality Restaurant	2.38545	0.0257	0.2339	0.1965	1.4000e-003		0.0178	0.0178		0.0178	0.0178		280.6414	280.6414	5.3800e-003	5.1500e-003	282.3493
Arena	0.38832	4.1900e-003	0.0381	0.0320	2.3000e-004		2.8900e-003	2.8900e-003		2.8900e-003	2.8900e-003		45.6848	45.6848	8.8000e-004	8.4000e-004	45.9628
Total		**0.1867**	**1.6971**	**1.4255**	**0.0102**		**0.1290**	**0.1290**		**0.1290**	**0.1290**		**2,036.4659**	**2,036.4659**	**0.0390**	**0.0373**	**2,048.8595**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	9.3228	4.6000e-004	0.0497	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		0.1055	0.1055	2.9000e-004		0.1115
Unmitigated	9.3228	4.6000e-004	0.0497	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		0.1055	0.1055	2.9000e-004		0.1115

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.4081					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.9100					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.7100e-003	4.6000e-004	0.0497	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		0.1055	0.1055	2.9000e-004		0.1115
Total	**9.3228**	**4.6000e-004**	**0.0497**	**0.0000**		**1.8000e-004**	**1.8000e-004**		**1.8000e-004**	**1.8000e-004**		**0.1055**	**0.1055**	**2.9000e-004**		**0.1115**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.4081					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.9100					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.7100e-003	4.6000e-004	0.0497	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		0.1055	0.1055	2.9000e-004		0.1115
Total	**9.3228**	**4.6000e-004**	**0.0497**	**0.0000**		**1.8000e-004**	**1.8000e-004**		**1.8000e-004**	**1.8000e-004**		**0.1055**	**0.1055**	**2.9000e-004**		**0.1115**

7.0 Water Detail

7.1 Mitigation Measures Water

Use Reclaimed Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Cache Creek Hotel Expansion Project

Yolo/Solano AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Arena	13.35	1000sqft	0.31	13,350.00	0
Hotel	459.00	Room	7.96	346,801.00	0
Quality Restaurant	9.47	1000sqft	0.22	9,475.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	6.8	**Precipitation Freq (Days)**	55
Climate Zone	2			**Operational Year**	2035
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Refer to CalEEMod Tables

Construction Phase - CalEEMod defaults used for equipment and phase time proportion. Total time from Project Description.

Trips and VMT -

Grading -

Architectural Coating -

Area Coating -

Water And Wastewater - Refer to CalEEMod tables

Solid Waste -

Construction Off-road Equipment Mitigation - Refer to CalEEMod Tables

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Table Name	Column Name	Default Value	New Value
tblLandUse	LandUseSquareFeet	666,468.00	346,801.00
tblLandUse	LandUseSquareFeet	9,470.00	9,475.00
tblLandUse	LotAcreage	4.29	0.31
tblLandUse	LotAcreage	15.30	7.96
tblProjectCharacteristics	OperationalYear	2014	2035
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblVehicleTrips	CC_TL	6.60	55.00
tblVehicleTrips	CC_TL	6.60	55.00
tblVehicleTrips	CC_TL	6.60	55.00
tblVehicleTrips	CNW_TL	6.60	55.00
tblVehicleTrips	CNW_TL	6.60	55.00
tblVehicleTrips	CNW_TL	6.60	55.00
tblVehicleTrips	CW_TL	14.70	41.30
tblVehicleTrips	CW_TL	14.70	41.30
tblVehicleTrips	CW_TL	14.70	41.30

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.5645	4.4433	4.7695	7.6300e-003	24.5557	0.2517	24.8074	2.5574	0.2354	2.7928	0.0000	641.4833	641.4833	0.0969	0.0000	643.5180
2018	2.6287	0.4806	0.5440	9.6000e-004	2.8616	0.0267	2.8883	0.2901	0.0250	0.3151	0.0000	79.4990	79.4990	0.0136	0.0000	79.7842
Total	**3.1931**	**4.9239**	**5.3135**	**8.5900e-003**	**27.4173**	**0.2784**	**27.6957**	**2.8475**	**0.2604**	**3.1079**	**0.0000**	**720.9823**	**720.9823**	**0.1105**	**0.0000**	**723.3022**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.5645	4.4433	4.7695	7.6300e-003	22.0532	0.2517	22.3049	2.2704	0.2354	2.5058	0.0000	641.4829	641.4829	0.0969	0.0000	643.5176
2018	2.6287	0.4806	0.5440	9.6000e-004	2.5781	0.0267	2.6048	0.2618	0.0250	0.2868	0.0000	79.4990	79.4990	0.0136	0.0000	79.7842
Total	**3.1931**	**4.9239**	**5.3135**	**8.5900e-003**	**24.6313**	**0.2784**	**24.9096**	**2.5323**	**0.2604**	**2.7926**	**0.0000**	**720.9819**	**720.9819**	**0.1105**	**0.0000**	**723.3017**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**10.16**	**0.00**	**10.06**	**11.07**	**0.00**	**10.14**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.7010	4.0000e-005	4.4000e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.6100e-003	8.6100e-003	2.0000e-005	0.0000	9.0800e-003
Energy	0.0597	0.5425	0.4557	3.2600e-003		0.0412	0.0412		0.0412	0.0412	0.0000	1,477.7576	1,477.7576	0.0514	0.0191	1,484.7672
Mobile	4.6213	18.0757	69.0996	0.3230	1,209.1505	0.4919	1,209.6423	123.6327	0.4534	124.0861	0.0000	21,746.5253	21,746.5253	0.5493	0.0000	21,758.0601
Waste						0.0000	0.0000		0.0000	0.0000	52.8406	0.0000	52.8406	3.1228	0.0000	118.4191
Water						0.0000	0.0000		0.0000	0.0000	6.4303	33.7830	40.2133	0.6620	0.0159	59.0472
Total	**6.3820**	**18.6182**	**69.5597**	**0.3262**	**1,209.1505**	**0.5331**	**1,209.6836**	**123.6327**	**0.4946**	**124.1273**	**59.2709**	**23,258.0746**	**23,317.3455**	**4.3855**	**0.0350**	**23,420.3027**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.7010	4.0000e-005	4.4000e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.6100e-003	8.6100e-003	2.0000e-005	0.0000	9.0800e-003
Energy	0.0341	0.3097	0.2602	1.8600e-003		0.0235	0.0235		0.0235	0.0235	0.0000	1,105.0616	1,105.0616	0.0412	0.0134	1,110.0697
Mobile	4.6213	18.0757	69.0996	0.3230	1,209.1505	0.4919	1,209.6423	123.6327	0.4534	124.0861	0.0000	21,746.5253	21,746.5253	0.5493	0.0000	21,758.0601
Waste						0.0000	0.0000		0.0000	0.0000	52.8406	0.0000	52.8406	3.1228	0.0000	118.4191
Water						0.0000	0.0000		0.0000	0.0000	-464.5961	-2,303.3136	-2,767.9097	-47.8139	-1.1465	-4,127.4118
Total	**6.3564**	**18.3854**	**69.3641**	**0.3248**	**1,209.1505**	**0.5154**	**1,209.6659**	**123.6327**	**0.4769**	**124.1096**	**-411.7555**	**20,548.2819**	**20,136.5265**	**-44.1006**	**-1.1331**	**18,859.1462**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.40**	**1.25**	**0.28**	**0.43**	**0.00**	**3.32**	**0.00**	**0.00**	**3.58**	**0.01**	**794.70**	**11.65**	**13.64**	**1,105.60**	**3,333.76**	**19.48**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2017	1/27/2017	5	20	
2	Site Preparation	Site Preparation	1/28/2017	2/10/2017	5	10	
3	Grading	Grading	2/11/2017	3/10/2017	5	20	
4	Building Construction	Building Construction	3/11/2017	1/26/2018	5	230	
5	Paving	Paving	1/27/2018	2/23/2018	5	20	
6	Architectural Coating	Architectural Coating	2/24/2018	3/23/2018	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 554,439; Non-Residential Outdoor: 184,813 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	162	0.38
Demolition	Rubber Tired Dozers	2	8.00	255	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	2	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	155.00	61.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	31.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Soil Stabilizer

Water Exposed Area

3.2 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0405	0.4270	0.3389	4.0000e-004		0.0213	0.0213		0.0198	0.0198	0.0000	36.6182	36.6182	0.0101	0.0000	36.8292
Total	**0.0405**	**0.4270**	**0.3389**	**4.0000e-004**		**0.0213**	**0.0213**		**0.0198**	**0.0198**	**0.0000**	**36.6182**	**36.6182**	**0.0101**	**0.0000**	**36.8292**

3.2 Demolition - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5000e-004	1.0500e-003	9.7700e-003	2.0000e-005	0.1908	1.0000e-005	0.1908	0.0193	1.0000e-005	0.0193	0.0000	1.6455	1.6455	9.0000e-005	0.0000	1.6473
Total	**5.5000e-004**	**1.0500e-003**	**9.7700e-003**	**2.0000e-005**	**0.1908**	**1.0000e-005**	**0.1908**	**0.0193**	**1.0000e-005**	**0.0193**	**0.0000**	**1.6455**	**1.6455**	**9.0000e-005**	**0.0000**	**1.6473**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0405	0.4270	0.3389	4.0000e-004		0.0213	0.0213		0.0198	0.0198	0.0000	36.6182	36.6182	0.0101	0.0000	36.8291
Total	**0.0405**	**0.4270**	**0.3389**	**4.0000e-004**		**0.0213**	**0.0213**		**0.0198**	**0.0198**	**0.0000**	**36.6182**	**36.6182**	**0.0101**	**0.0000**	**36.8291**

3.2 Demolition - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5000e-004	1.0500e-003	9.7700e-003	2.0000e-005	0.1719	1.0000e-005	0.1719	0.0174	1.0000e-005	0.0175	0.0000	1.6455	1.6455	9.0000e-005	0.0000	1.6473
Total	**5.5000e-004**	**1.0500e-003**	**9.7700e-003**	**2.0000e-005**	**0.1719**	**1.0000e-005**	**0.1719**	**0.0174**	**1.0000e-005**	**0.0175**	**0.0000**	**1.6455**	**1.6455**	**9.0000e-005**	**0.0000**	**1.6473**

3.3 Site Preparation - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0242	0.2588	0.1970	2.0000e-004		0.0138	0.0138		0.0127	0.0127	0.0000	18.1577	18.1577	5.5600e-003	0.0000	18.2745
Total	**0.0242**	**0.2588**	**0.1970**	**2.0000e-004**	**0.0903**	**0.0138**	**0.1041**	**0.0497**	**0.0127**	**0.0623**	**0.0000**	**18.1577**	**18.1577**	**5.5600e-003**	**0.0000**	**18.2745**

3.3 Site Preparation - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	6.3000e-004	5.8600e-003	1.0000e-005	0.1145	1.0000e-005	0.1145	0.0116	1.0000e-005	0.0116	0.0000	0.9873	0.9873	5.0000e-005	0.0000	0.9884
Total	**3.3000e-004**	**6.3000e-004**	**5.8600e-003**	**1.0000e-005**	**0.1145**	**1.0000e-005**	**0.1145**	**0.0116**	**1.0000e-005**	**0.0116**	**0.0000**	**0.9873**	**0.9873**	**5.0000e-005**	**0.0000**	**0.9884**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0407	0.0000	0.0407	0.0223	0.0000	0.0223	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0242	0.2588	0.1970	2.0000e-004		0.0138	0.0138		0.0127	0.0127	0.0000	18.1577	18.1577	5.5600e-003	0.0000	18.2745
Total	**0.0242**	**0.2588**	**0.1970**	**2.0000e-004**	**0.0407**	**0.0138**	**0.0544**	**0.0223**	**0.0127**	**0.0350**	**0.0000**	**18.1577**	**18.1577**	**5.5600e-003**	**0.0000**	**18.2745**

3.3 Site Preparation - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	6.3000e-004	5.8600e-003	1.0000e-005	0.1031	1.0000e-005	0.1031	0.0105	1.0000e-005	0.0105	0.0000	0.9873	0.9873	5.0000e-005	0.0000	0.9884
Total	**3.3000e-004**	**6.3000e-004**	**5.8600e-003**	**1.0000e-005**	**0.1031**	**1.0000e-005**	**0.1031**	**0.0105**	**1.0000e-005**	**0.0105**	**0.0000**	**0.9873**	**0.9873**	**5.0000e-005**	**0.0000**	**0.9884**

3.4 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0655	0.0000	0.0655	0.0337	0.0000	0.0337	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0346	0.3598	0.2538	3.0000e-004		0.0204	0.0204		0.0188	0.0188	0.0000	27.6117	27.6117	8.4600e-003	0.0000	27.7893
Total	**0.0346**	**0.3598**	**0.2538**	**3.0000e-004**	**0.0655**	**0.0204**	**0.0859**	**0.0337**	**0.0188**	**0.0524**	**0.0000**	**27.6117**	**27.6117**	**8.4600e-003**	**0.0000**	**27.7893**

3.4 Grading - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5000e-004	1.0500e-003	9.7700e-003	2.0000e-005	0.1908	1.0000e-005	0.1908	0.0193	1.0000e-005	0.0193	0.0000	1.6455	1.6455	9.0000e-005	0.0000	1.6473
Total	**5.5000e-004**	**1.0500e-003**	**9.7700e-003**	**2.0000e-005**	**0.1908**	**1.0000e-005**	**0.1908**	**0.0193**	**1.0000e-005**	**0.0193**	**0.0000**	**1.6455**	**1.6455**	**9.0000e-005**	**0.0000**	**1.6473**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0295	0.0000	0.0295	0.0152	0.0000	0.0152	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0346	0.3598	0.2538	3.0000e-004		0.0204	0.0204		0.0188	0.0188	0.0000	27.6117	27.6117	8.4600e-003	0.0000	27.7893
Total	**0.0346**	**0.3598**	**0.2538**	**3.0000e-004**	**0.0295**	**0.0204**	**0.0499**	**0.0152**	**0.0188**	**0.0339**	**0.0000**	**27.6117**	**27.6117**	**8.4600e-003**	**0.0000**	**27.7893**

3.4 Grading - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5000e-004	1.0500e-003	9.7700e-003	2.0000e-005	0.1719	1.0000e-005	0.1719	0.0174	1.0000e-005	0.0175	0.0000	1.6455	1.6455	9.0000e-005	0.0000	1.6473
Total	**5.5000e-004**	**1.0500e-003**	**9.7700e-003**	**2.0000e-005**	**0.1719**	**1.0000e-005**	**0.1719**	**0.0174**	**1.0000e-005**	**0.0175**	**0.0000**	**1.6455**	**1.6455**	**9.0000e-005**	**0.0000**	**1.6473**

3.5 Building Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3258	2.7726	1.9036	2.8100e-003		0.1870	0.1870		0.1757	0.1757	0.0000	251.4531	251.4531	0.0619	0.0000	252.7527
Total	**0.3258**	**2.7726**	**1.9036**	**2.8100e-003**		**0.1870**	**0.1870**		**0.1757**	**0.1757**	**0.0000**	**251.4531**	**251.4531**	**0.0619**	**0.0000**	**252.7527**

3.5 Building Construction - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0788	0.5086	0.9911	1.4000e-003	3.2066	7.7900e-003	3.2144	0.3268	7.1600e-003	0.3340	0.0000	124.8331	124.8331	9.7000e-004	0.0000	124.8534
Worker	0.0593	0.1139	1.0597	2.4700e-003	20.6973	1.4300e-003	20.6988	2.0971	1.3200e-003	2.0984	0.0000	178.5314	178.5314	9.7300e-003	0.0000	178.7357
Total	**0.1381**	**0.6224**	**2.0508**	**3.8700e-003**	**23.9039**	**9.2200e-003**	**23.9131**	**2.4238**	**8.4800e-003**	**2.4323**	**0.0000**	**303.3645**	**303.3645**	**0.0107**	**0.0000**	**303.5892**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3258	2.7726	1.9036	2.8100e-003		0.1870	0.1870		0.1757	0.1757	0.0000	251.4528	251.4528	0.0619	0.0000	252.7524
Total	**0.3258**	**2.7726**	**1.9036**	**2.8100e-003**		**0.1870**	**0.1870**		**0.1757**	**0.1757**	**0.0000**	**251.4528**	**251.4528**	**0.0619**	**0.0000**	**252.7524**

3.5 Building Construction - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0788	0.5086	0.9911	1.4000e-003	2.8895	7.7900e-003	2.8973	0.2952	7.1600e-003	0.3023	0.0000	124.8331	124.8331	9.7000e-004	0.0000	124.8534
Worker	0.0593	0.1139	1.0597	2.4700e-003	18.6467	1.4300e-003	18.6481	1.8924	1.3200e-003	1.8938	0.0000	178.5314	178.5314	9.7300e-003	0.0000	178.7357
Total	**0.1381**	**0.6224**	**2.0508**	**3.8700e-003**	**21.5362**	**9.2200e-003**	**21.5454**	**2.1876**	**8.4800e-003**	**2.1961**	**0.0000**	**303.3645**	**303.3645**	**0.0107**	**0.0000**	**303.5892**

3.5 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0267	0.2326	0.1753	2.7000e-004		0.0149	0.0149		0.0141	0.0141	0.0000	23.6770	23.6770	5.7900e-003	0.0000	23.7987
Total	**0.0267**	**0.2326**	**0.1753**	**2.7000e-004**		**0.0149**	**0.0149**		**0.0141**	**0.0141**	**0.0000**	**23.6770**	**23.6770**	**5.7900e-003**	**0.0000**	**23.7987**

3.5 Building Construction - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.6000e-003	0.0436	0.0878	1.3000e-004	0.3054	6.8000e-004	0.3061	0.0311	6.3000e-004	0.0318	0.0000	11.6800	11.6800	9.0000e-005	0.0000	11.6819
Worker	4.9600e-003	9.8300e-003	0.0906	2.3000e-004	1.9712	1.3000e-004	1.9713	0.1997	1.2000e-004	0.1998	0.0000	16.3637	16.3637	8.6000e-004	0.0000	16.3817
Total	**0.0116**	**0.0534**	**0.1783**	**3.6000e-004**	**2.2766**	**8.1000e-004**	**2.2774**	**0.2308**	**7.5000e-004**	**0.2316**	**0.0000**	**28.0437**	**28.0437**	**9.5000e-004**	**0.0000**	**28.0637**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0267	0.2326	0.1753	2.7000e-004		0.0149	0.0149		0.0141	0.0141	0.0000	23.6769	23.6769	5.7900e-003	0.0000	23.7986
Total	**0.0267**	**0.2326**	**0.1753**	**2.7000e-004**		**0.0149**	**0.0149**		**0.0141**	**0.0141**	**0.0000**	**23.6769**	**23.6769**	**5.7900e-003**	**0.0000**	**23.7986**

3.5 Building Construction - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.6000e-003	0.0436	0.0878	1.3000e-004	0.2752	6.8000e-004	0.2759	0.0281	6.3000e-004	0.0287	0.0000	11.6800	11.6800	9.0000e-005	0.0000	11.6819
Worker	4.9600e-003	9.8300e-003	0.0906	2.3000e-004	1.7759	1.3000e-004	1.7760	0.1802	1.2000e-004	0.1804	0.0000	16.3637	16.3637	8.6000e-004	0.0000	16.3817
Total	**0.0116**	**0.0534**	**0.1783**	**3.6000e-004**	**2.0511**	**8.1000e-004**	**2.0519**	**0.2083**	**7.5000e-004**	**0.2091**	**0.0000**	**28.0437**	**28.0437**	**9.5000e-004**	**0.0000**	**28.0637**

3.6 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0161	0.1716	0.1449	2.2000e-004		9.3900e-003	9.3900e-003		8.6400e-003	8.6400e-003	0.0000	20.3687	20.3687	6.3400e-003	0.0000	20.5019
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0161**	**0.1716**	**0.1449**	**2.2000e-004**		**9.3900e-003**	**9.3900e-003**		**8.6400e-003**	**8.6400e-003**	**0.0000**	**20.3687**	**20.3687**	**6.3400e-003**	**0.0000**	**20.5019**

3.6 Paving - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8000e-004	9.5000e-004	8.7600e-003	2.0000e-005	0.1908	1.0000e-005	0.1908	0.0193	1.0000e-005	0.0193	0.0000	1.5836	1.5836	8.0000e-005	0.0000	1.5853
Total	**4.8000e-004**	**9.5000e-004**	**8.7600e-003**	**2.0000e-005**	**0.1908**	**1.0000e-005**	**0.1908**	**0.0193**	**1.0000e-005**	**0.0193**	**0.0000**	**1.5836**	**1.5836**	**8.0000e-005**	**0.0000**	**1.5853**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0161	0.1716	0.1449	2.2000e-004		9.3900e-003	9.3900e-003		8.6400e-003	8.6400e-003	0.0000	20.3687	20.3687	6.3400e-003	0.0000	20.5019
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0161**	**0.1716**	**0.1449**	**2.2000e-004**		**9.3900e-003**	**9.3900e-003**		**8.6400e-003**	**8.6400e-003**	**0.0000**	**20.3687**	**20.3687**	**6.3400e-003**	**0.0000**	**20.5019**

3.6 Paving - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8000e-004	9.5000e-004	8.7600e-003	2.0000e-005	0.1719	1.0000e-005	0.1719	0.0174	1.0000e-005	0.0175	0.0000	1.5836	1.5836	8.0000e-005	0.0000	1.5853
Total	**4.8000e-004**	**9.5000e-004**	**8.7600e-003**	**2.0000e-005**	**0.1719**	**1.0000e-005**	**0.1719**	**0.0174**	**1.0000e-005**	**0.0175**	**0.0000**	**1.5836**	**1.5836**	**8.0000e-005**	**0.0000**	**1.5853**

3.7 Architectural Coating - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.5698					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.9900e-003	0.0201	0.0185	3.0000e-005		1.5100e-003	1.5100e-003		1.5100e-003	1.5100e-003	0.0000	2.5533	2.5533	2.4000e-004	0.0000	2.5584
Total	**2.5728**	**0.0201**	**0.0185**	**3.0000e-005**		**1.5100e-003**	**1.5100e-003**		**1.5100e-003**	**1.5100e-003**	**0.0000**	**2.5533**	**2.5533**	**2.4000e-004**	**0.0000**	**2.5584**

3.7 Architectural Coating - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.9000e-004	1.9700e-003	0.0181	5.0000e-005	0.3942	3.0000e-005	0.3943	0.0399	2.0000e-005	0.0400	0.0000	3.2727	3.2727	1.7000e-004	0.0000	3.2764
Total	**9.9000e-004**	**1.9700e-003**	**0.0181**	**5.0000e-005**	**0.3942**	**3.0000e-005**	**0.3943**	**0.0399**	**2.0000e-005**	**0.0400**	**0.0000**	**3.2727**	**3.2727**	**1.7000e-004**	**0.0000**	**3.2764**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.5698					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.9900e-003	0.0201	0.0185	3.0000e-005		1.5100e-003	1.5100e-003		1.5100e-003	1.5100e-003	0.0000	2.5533	2.5533	2.4000e-004	0.0000	2.5584
Total	**2.5728**	**0.0201**	**0.0185**	**3.0000e-005**		**1.5100e-003**	**1.5100e-003**		**1.5100e-003**	**1.5100e-003**	**0.0000**	**2.5533**	**2.5533**	**2.4000e-004**	**0.0000**	**2.5584**

3.7 Architectural Coating - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.9000e-004	1.9700e-003	0.0181	5.0000e-005	0.3552	3.0000e-005	0.3552	0.0361	2.0000e-005	0.0361	0.0000	3.2727	3.2727	1.7000e-004	0.0000	3.2764
Total	**9.9000e-004**	**1.9700e-003**	**0.0181**	**5.0000e-005**	**0.3552**	**3.0000e-005**	**0.3552**	**0.0361**	**2.0000e-005**	**0.0361**	**0.0000**	**3.2727**	**3.2727**	**1.7000e-004**	**0.0000**	**3.2764**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.6213	18.0757	69.0996	0.3230	1,209.1505	0.4919	1,209.6423	123.6327	0.4534	124.0861	0.0000	21,746.5253	21,746.5253	0.5493	0.0000	21,758.0601
Unmitigated	4.6213	18.0757	69.0996	0.3230	1,209.1505	0.4919	1,209.6423	123.6327	0.4534	124.0861	0.0000	21,746.5253	21,746.5253	0.5493	0.0000	21,758.0601

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Arena	142.98	142.98	142.98	20,927	20,927
Hotel	3,750.03	3,759.21	2731.05	46,377,214	46,377,214
Quality Restaurant	851.83	893.59	683.36	6,895,066	6,895,066
Total	4,744.84	4,795.78	3,557.38	53,293,207	53,293,207

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Arena	41.30	55.00	55.00	0.00	81.00	19.00	0.66	0.28	0.6
Hotel	41.30	55.00	55.00	19.40	61.60	19.00	58	38	4
Quality Restaurant	41.30	55.00	55.00	12.00	69.00	19.00	38	18	44

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.472386	0.067706	0.148876	0.143449	0.055135	0.006430	0.025978	0.066258	0.001000	0.001302	0.008345	0.000427	0.002709

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	767.9018	767.9018	0.0347	7.1800e-003	770.8580
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	887.1691	887.1691	0.0401	8.3000e-003	890.5844
NaturalGas Mitigated	0.0341	0.3097	0.2602	1.8600e-003		0.0235	0.0235		0.0235	0.0235	0.0000	337.1598	337.1598	6.4600e-003	6.1800e-003	339.2117
NaturalGas Unmitigated	0.0597	0.5425	0.4557	3.2600e-003		0.0412	0.0412		0.0412	0.0412	0.0000	590.5885	590.5885	0.0113	0.0108	594.1828

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Arena	261794	1.4100e-003	0.0128	0.0108	8.0000e-005		9.8000e-004	9.8000e-004		9.8000e-004	9.8000e-004	0.0000	13.9703	13.9703	2.7000e-004	2.6000e-004	14.0553
Hotel	9.74858e+006	0.0526	0.4779	0.4014	2.8700e-003		0.0363	0.0363		0.0363	0.0363	0.0000	520.2212	520.2212	9.9700e-003	9.5400e-003	523.3871
Quality Restaurant	1.05684e+006	5.7000e-003	0.0518	0.0435	3.1000e-004		3.9400e-003	3.9400e-003		3.9400e-003	3.9400e-003	0.0000	56.3971	56.3971	1.0800e-003	1.0300e-003	56.7403
Total		**0.0597**	**0.5425**	**0.4557**	**3.2600e-003**		**0.0412**	**0.0412**		**0.0412**	**0.0412**	**0.0000**	**590.5885**	**590.5885**	**0.0113**	**0.0108**	**594.1828**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Hotel	5.30571e+006	0.0286	0.2601	0.2185	1.5600e-003		0.0198	0.0198		0.0198	0.0198	0.0000	283.1328	283.1328	5.4300e-003	5.1900e-003	284.8559
Quality Restaurant	870690	4.6900e-003	0.0427	0.0359	2.6000e-004		3.2400e-003	3.2400e-003		3.2400e-003	3.2400e-003	0.0000	46.4633	46.4633	8.9000e-004	8.5000e-004	46.7461
Arena	141737	7.6000e-004	6.9500e-003	5.8400e-003	4.0000e-005		5.3000e-004	5.3000e-004		5.3000e-004	5.3000e-004	0.0000	7.5636	7.5636	1.4000e-004	1.4000e-004	7.6097
Total		**0.0341**	**0.3097**	**0.2602**	**1.8600e-003**		**0.0235**	**0.0235**		**0.0235**	**0.0235**	**0.0000**	**337.1598**	**337.1598**	**6.4600e-003**	**6.1800e-003**	**339.2117**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Arena	123221	35.8463	1.6200e-003	3.4000e-004	35.9843
Hotel	2.60794e+006	758.6807	0.0343	7.1000e-003	761.6014
Quality Restaurant	318455	92.6421	4.1900e-003	8.7000e-004	92.9988
Total		**887.1691**	**0.0401**	**8.3100e-003**	**890.5844**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Arena	110816	32.2376	1.4600e-003	3.0000e-004	32.3617
Hotel	2.24262e+006	652.4049	0.0295	6.1000e-003	654.9164
Quality Restaurant	286202	83.2594	3.7600e-003	7.8000e-004	83.5799
Total		**767.9018**	**0.0347**	**7.1800e-003**	**770.8580**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.7010	4.0000e-005	4.4000e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.6100e-003	8.6100e-003	2.0000e-005	0.0000	9.0800e-003
Unmitigated	1.7010	4.0000e-005	4.4000e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.6100e-003	8.6100e-003	2.0000e-005	0.0000	9.0800e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2570					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.4436					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.0000e-004	4.0000e-005	4.4000e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.6100e-003	8.6100e-003	2.0000e-005	0.0000	9.0800e-003
Total	**1.7010**	**4.0000e-005**	**4.4000e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**8.6100e-003**	**8.6100e-003**	**2.0000e-005**	**0.0000**	**9.0800e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2570					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.4436					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.0000e-004	4.0000e-005	4.4000e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.6100e-003	8.6100e-003	2.0000e-005	0.0000	9.0800e-003
Total	**1.7010**	**4.0000e-005**	**4.4000e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**8.6100e-003**	**8.6100e-003**	**2.0000e-005**	**0.0000**	**9.0800e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Use Reclaimed Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	-2,767.9097	-47.8139	-1.1465	-4,127.4118
Unmitigated	40.2133	0.6620	0.0159	59.0472

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Arena	5.75078 / 0.367071	11.2506	0.1878	4.5100e-003	16.5938
Hotel	11.6433 / 1.29371	23.3392	0.3803	9.1400e-003	34.1593
Quality Restaurant	2.87446 / 0.183476	5.6235	0.0939	2.2600e-003	8.2942
Total		**40.2133**	**0.6620**	**0.0159**	**59.0472**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Arena	-415.501 / 0.367071	-785.4944	-13.5662	-0.3253	-1,171.2247
Hotel	-841.246 / 1.29371	-1,589.7946	-27.4668	-0.6586	-2,370.7633
Quality Restaurant	-207.683 / 0.183476	-392.6207	-6.7809	-0.1626	-585.4237
Total		**-2,767.9097**	**-47.8139**	**-1.1465**	**-4,127.4118**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	52.8406	3.1228	0.0000	118.4191
Unmitigated	52.8406	3.1228	0.0000	118.4191

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Arena	0.37	0.0751	4.4400e-003	0.0000	0.1683
Hotel	251.3	51.0116	3.0147	0.0000	114.3204
Quality Restaurant	8.64	1.7538	0.1037	0.0000	3.9305
Total		**52.8406**	**3.1228**	**0.0000**	**118.4191**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Arena	0.37	0.0751	4.4400e-003	0.0000	0.1683
Hotel	251.3	51.0116	3.0147	0.0000	114.3204
Quality Restaurant	8.64	1.7538	0.1037	0.0000	3.9305
Total		**52.8406**	**3.1228**	**0.0000**	**118.4191**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Cache Creek Hotel Expansion Project

Yolo/Solano AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Arena	13.35	1000sqft	0.31	13,350.00	0
Hotel	459.00	Room	7.96	346,801.00	0
Quality Restaurant	9.47	1000sqft	0.22	9,475.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	6.8	**Precipitation Freq (Days)**	55
Climate Zone	2			**Operational Year**	2035
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Refer to CalEEMod Tables

Construction Phase - CalEEMod defaults used for equipment and phase time proportion. Total time from Project Description.

Trips and VMT -

Grading -

Architectural Coating -

Area Coating -

Water And Wastewater - Refer to CalEEMod tables

Solid Waste -

Construction Off-road Equipment Mitigation - Refer to CalEEMod Tables

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Table Name	Column Name	Default Value	New Value
tblLandUse	LandUseSquareFeet	666,468.00	346,801.00
tblLandUse	LandUseSquareFeet	9,470.00	9,475.00
tblLandUse	LotAcreage	4.29	0.31
tblLandUse	LotAcreage	15.30	7.96
tblProjectCharacteristics	OperationalYear	2014	2035
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblVehicleTrips	CC_TL	6.60	55.00
tblVehicleTrips	CC_TL	6.60	55.00
tblVehicleTrips	CC_TL	6.60	55.00
tblVehicleTrips	CNW_TL	6.60	55.00
tblVehicleTrips	CNW_TL	6.60	55.00
tblVehicleTrips	CNW_TL	6.60	55.00
tblVehicleTrips	CW_TL	14.70	41.30
tblVehicleTrips	CW_TL	14.70	41.30
tblVehicleTrips	CW_TL	14.70	41.30

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	4.9141	51.8655	40.7524	0.0660	267.7342	2.7558	269.6028	27.0934	2.5353	28.8467	0.0000	6,012.9535	6,012.9535	1.2384	0.0000	6,038.9599
2018	257.3970	28.2906	34.6402	0.0659	267.7341	1.5755	269.3097	27.0933	1.4796	28.5729	0.0000	5,882.8115	5,882.8115	0.7433	0.0000	5,898.4201
Total	**262.3110**	**80.1561**	**75.3927**	**0.1319**	**535.4683**	**4.3313**	**538.9125**	**54.1867**	**4.0149**	**57.4196**	**0.0000**	**11,895.7650**	**11,895.7650**	**1.9817**	**0.0000**	**11,937.3800**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	4.9141	51.8655	40.7524	0.0660	241.1837	2.7558	243.0524	24.4442	2.5353	26.1975	0.0000	6,012.9535	6,012.9535	1.2384	0.0000	6,038.9599
2018	257.3970	28.2906	34.6402	0.0659	241.1837	1.5755	242.7592	24.4441	1.4796	25.9237	0.0000	5,882.8115	5,882.8115	0.7433	0.0000	5,898.4201
Total	**262.3110**	**80.1561**	**75.3927**	**0.1319**	**482.3673**	**4.3313**	**485.8115**	**48.8883**	**4.0149**	**52.1212**	**0.0000**	**11,895.7650**	**11,895.7650**	**1.9817**	**0.0000**	**11,937.3800**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**9.92**	**0.00**	**9.85**	**9.78**	**0.00**	**9.23**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	9.3226	4.4000e-004	0.0489	0.0000		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004		0.1055	0.1055	2.7000e-004		0.1112
Energy	0.3270	2.9727	2.4970	0.0178		0.2259	0.2259		0.2259	0.2259		3,567.1913	3,567.1913	0.0684	0.0654	3,588.9007
Mobile	27.7330	96.6166	431.8343	1.9807	6,955.0106	2.8299	6,957.8405	711.6466	2.6083	714.2549		145,750.8593	145,750.8593	3.4837		145,824.0176
Total	**37.3826**	**99.5897**	**434.3802**	**1.9986**	**6,955.0106**	**3.0560**	**6,958.0666**	**711.6466**	**2.8344**	**714.4810**		**149,318.1560**	**149,318.1560**	**3.5524**	**0.0654**	**149,413.0294**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	9.3226	4.4000e-004	0.0489	0.0000		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004		0.1055	0.1055	2.7000e-004		0.1112
Energy	0.1867	1.6971	1.4255	0.0102		0.1290	0.1290		0.1290	0.1290		2,036.4659	2,036.4659	0.0390	0.0373	2,048.8595
Mobile	27.7330	96.6166	431.8343	1.9807	6,955.0106	2.8299	6,957.8405	711.6466	2.6083	714.2549		145,750.8593	145,750.8593	3.4837		145,824.0176
Total	**37.2423**	**98.3141**	**433.3087**	**1.9909**	**6,955.0106**	**2.9590**	**6,957.9696**	**711.6466**	**2.7375**	**714.3840**		**147,787.4306**	**147,787.4306**	**3.5230**	**0.0373**	**147,872.9883**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.38	1.28	0.25	0.38	0.00	3.17	0.00	0.00	3.42	0.01	0.00	1.03	1.03	0.83	42.91	1.03

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2017	1/27/2017	5	20	
2	Site Preparation	Site Preparation	1/28/2017	2/10/2017	5	10	
3	Grading	Grading	2/11/2017	3/10/2017	5	20	
4	Building Construction	Building Construction	3/11/2017	1/26/2018	5	230	
5	Paving	Paving	1/27/2018	2/23/2018	5	20	
6	Architectural Coating	Architectural Coating	2/24/2018	3/23/2018	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 554,439; Non-Residential Outdoor: 184,813 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	162	0.38
Demolition	Rubber Tired Dozers	2	8.00	255	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	2	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	155.00	61.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	31.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Soil Stabilizer

Water Exposed Area

3.2 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.0482	42.6971	33.8934	0.0399		2.1252	2.1252		1.9797	1.9797		4,036.4674	4,036.4674	1.1073		4,059.7211
Total	**4.0482**	**42.6971**	**33.8934**	**0.0399**		**2.1252**	**2.1252**		**1.9797**	**1.9797**		**4,036.4674**	**4,036.4674**	**1.1073**		**4,059.7211**

3.2 Demolition - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0632	0.0934	1.1295	2.5000e-003	22.4350	1.3200e-003	22.4364	2.2688	1.2200e-003	2.2700		199.1637	199.1637	9.8900e-003		199.3713
Total	**0.0632**	**0.0934**	**1.1295**	**2.5000e-003**	**22.4350**	**1.3200e-003**	**22.4364**	**2.2688**	**1.2200e-003**	**2.2700**		**199.1637**	**199.1637**	**9.8900e-003**		**199.3713**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.0482	42.6971	33.8934	0.0399		2.1252	2.1252		1.9797	1.9797	0.0000	4,036.4674	4,036.4674	1.1073		4,059.7211
Total	**4.0482**	**42.6971**	**33.8934**	**0.0399**		**2.1252**	**2.1252**		**1.9797**	**1.9797**	**0.0000**	**4,036.4674**	**4,036.4674**	**1.1073**		**4,059.7211**

3.2 Demolition - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0632	0.0934	1.1295	2.5000e-003	20.2097	1.3200e-003	20.2110	2.0468	1.2200e-003	2.0480		199.1637	199.1637	9.8900e-003		199.3713
Total	**0.0632**	**0.0934**	**1.1295**	**2.5000e-003**	**20.2097**	**1.3200e-003**	**20.2110**	**2.0468**	**1.2200e-003**	**2.0480**		**199.1637**	**199.1637**	**9.8900e-003**		**199.3713**

3.3 Site Preparation - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.8382	51.7535	39.3970	0.0391		2.7542	2.7542		2.5339	2.5339		4,003.0859	4,003.0859	1.2265		4,028.8432
Total	**4.8382**	**51.7535**	**39.3970**	**0.0391**	**18.0663**	**2.7542**	**20.8205**	**9.9307**	**2.5339**	**12.4646**		**4,003.0859**	**4,003.0859**	**1.2265**		**4,028.8432**

3.3 Site Preparation - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0759	0.1120	1.3554	3.0000e-003	26.9221	1.5900e-003	26.9236	2.7226	1.4600e-003	2.7240		238.9964	238.9964	0.0119		239.2455
Total	**0.0759**	**0.1120**	**1.3554**	**3.0000e-003**	**26.9221**	**1.5900e-003**	**26.9236**	**2.7226**	**1.4600e-003**	**2.7240**		**238.9964**	**238.9964**	**0.0119**		**239.2455**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	4.8382	51.7535	39.3970	0.0391		2.7542	2.7542		2.5339	2.5339	0.0000	4,003.0859	4,003.0859	1.2265		4,028.8432
Total	**4.8382**	**51.7535**	**39.3970**	**0.0391**	**8.1298**	**2.7542**	**10.8840**	**4.4688**	**2.5339**	**7.0027**	**0.0000**	**4,003.0859**	**4,003.0859**	**1.2265**		**4,028.8432**

3.3 Site Preparation - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0759	0.1120	1.3554	3.0000e-003	24.2516	1.5900e-003	24.2532	2.4561	1.4600e-003	2.4576		238.9964	238.9964	0.0119		239.2455
Total	**0.0759**	**0.1120**	**1.3554**	**3.0000e-003**	**24.2516**	**1.5900e-003**	**24.2532**	**2.4561**	**1.4600e-003**	**2.4576**		**238.9964**	**238.9964**	**0.0119**		**239.2455**

3.4 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	3.4555	35.9825	25.3812	0.0297		2.0388	2.0388		1.8757	1.8757		3,043.6667	3,043.6667	0.9326		3,063.2507
Total	**3.4555**	**35.9825**	**25.3812**	**0.0297**	**6.5523**	**2.0388**	**8.5912**	**3.3675**	**1.8757**	**5.2432**		**3,043.6667**	**3,043.6667**	**0.9326**		**3,063.2507**

3.4 Grading - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0632	0.0934	1.1295	2.5000e-003	22.4350	1.3200e-003	22.4364	2.2688	1.2200e-003	2.2700		199.1637	199.1637	9.8900e-003		199.3713
Total	**0.0632**	**0.0934**	**1.1295**	**2.5000e-003**	**22.4350**	**1.3200e-003**	**22.4364**	**2.2688**	**1.2200e-003**	**2.2700**		**199.1637**	**199.1637**	**9.8900e-003**		**199.3713**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.9486	0.0000	2.9486	1.5154	0.0000	1.5154			0.0000			0.0000
Off-Road	3.4555	35.9825	25.3812	0.0297		2.0388	2.0388		1.8757	1.8757	0.0000	3,043.6667	3,043.6667	0.9326		3,063.2507
Total	**3.4555**	**35.9825**	**25.3812**	**0.0297**	**2.9486**	**2.0388**	**4.9874**	**1.5154**	**1.8757**	**3.3911**	**0.0000**	**3,043.6667**	**3,043.6667**	**0.9326**		**3,063.2507**

3.4 Grading - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0632	0.0934	1.1295	2.5000e-003	20.2097	1.3200e-003	20.2110	2.0468	1.2200e-003	2.0480		199.1637	199.1637	9.8900e-003		199.3713
Total	**0.0632**	**0.0934**	**1.1295**	**2.5000e-003**	**20.2097**	**1.3200e-003**	**20.2110**	**2.0468**	**1.2200e-003**	**2.0480**		**199.1637**	**199.1637**	**9.8900e-003**		**199.3713**

3.5 Building Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.1024	26.4057	18.1291	0.0268		1.7812	1.7812		1.6730	1.6730		2,639.8053	2,639.8053	0.6497		2,653.4490
Total	**3.1024**	**26.4057**	**18.1291**	**0.0268**		**1.7812**	**1.7812**		**1.6730**	**1.6730**		**2,639.8053**	**2,639.8053**	**0.6497**		**2,653.4490**

3.5 Building Construction - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.6696	4.6164	7.2226	0.0133	35.9054	0.0738	35.9792	3.6491	0.0678	3.7169		1,315.1236	1,315.1236	0.0100		1,315.3341
Worker	0.6533	0.9647	11.6715	0.0258	231.8288	0.0137	231.8424	23.4443	0.0126	23.4569		2,058.0246	2,058.0246	0.1022		2,060.1698
Total	**1.3229**	**5.5811**	**18.8941**	**0.0392**	**267.7342**	**0.0875**	**267.8216**	**27.0934**	**0.0804**	**27.1738**		**3,373.1482**	**3,373.1482**	**0.1122**		**3,375.5039**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.1024	26.4057	18.1291	0.0268		1.7812	1.7812		1.6730	1.6730	0.0000	2,639.8053	2,639.8053	0.6497		2,653.4490
Total	**3.1024**	**26.4057**	**18.1291**	**0.0268**		**1.7812**	**1.7812**		**1.6730**	**1.6730**	**0.0000**	**2,639.8053**	**2,639.8053**	**0.6497**		**2,653.4490**

3.5 Building Construction - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.6696	4.6164	7.2226	0.0133	32.3501	0.0738	32.4239	3.2943	0.0678	3.3622		1,315.1236	1,315.1236	0.0100		1,315.3341
Worker	0.6533	0.9647	11.6715	0.0258	208.8335	0.0137	208.8472	21.1498	0.0126	21.1624		2,058.0246	2,058.0246	0.1022		2,060.1698
Total	**1.3229**	**5.5811**	**18.8941**	**0.0392**	**241.1837**	**0.0875**	**241.2711**	**24.4442**	**0.0804**	**24.5246**		**3,373.1482**	**3,373.1482**	**0.1122**		**3,375.5039**

3.5 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6687	23.2608	17.5327	0.0268		1.4943	1.4943		1.4048	1.4048		2,609.9390	2,609.9390	0.6387		2,623.3517
Total	**2.6687**	**23.2608**	**17.5327**	**0.0268**		**1.4943**	**1.4943**		**1.4048**	**1.4048**		**2,609.9390**	**2,609.9390**	**0.6387**		**2,623.3517**

3.5 Building Construction - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5909	4.1548	6.5848	0.0133	35.9054	0.0679	35.9733	3.6491	0.0625	3.7115		1,292.0378	1,292.0378	9.7700e-003		1,292.2429
Worker	0.5794	0.8750	10.5228	0.0258	231.8288	0.0133	231.8421	23.4443	0.0123	23.4566		1,980.8347	1,980.8347	0.0948		1,982.8255
Total	**1.1703**	**5.0298**	**17.1076**	**0.0391**	**267.7341**	**0.0813**	**267.8154**	**27.0934**	**0.0748**	**27.1681**		**3,272.8726**	**3,272.8726**	**0.1046**		**3,275.0684**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6687	23.2608	17.5327	0.0268		1.4943	1.4943		1.4048	1.4048	0.0000	2,609.9389	2,609.9389	0.6387		2,623.3517
Total	**2.6687**	**23.2608**	**17.5327**	**0.0268**		**1.4943**	**1.4943**		**1.4048**	**1.4048**	**0.0000**	**2,609.9389**	**2,609.9389**	**0.6387**		**2,623.3517**

3.5 Building Construction - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5909	4.1548	6.5848	0.0133	32.3501	0.0679	32.4181	3.2943	0.0625	3.3568		1,292.0378	1,292.0378	9.7700e-003		1,292.2429
Worker	0.5794	0.8750	10.5228	0.0258	208.8335	0.0133	208.8469	21.1498	0.0123	21.1621		1,980.8347	1,980.8347	0.0948		1,982.8255
Total	**1.1703**	**5.0298**	**17.1076**	**0.0391**	**241.1837**	**0.0813**	**241.2649**	**24.4441**	**0.0748**	**24.5189**		**3,272.8726**	**3,272.8726**	**0.1046**		**3,275.0684**

3.6 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6114	17.1628	14.4944	0.0223		0.9386	0.9386		0.8635	0.8635		2,245.2695	2,245.2695	0.6990		2,259.9481
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.6114**	**17.1628**	**14.4944**	**0.0223**		**0.9386**	**0.9386**		**0.8635**	**0.8635**		**2,245.2695**	**2,245.2695**	**0.6990**		**2,259.9481**

3.6 Paving - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0561	0.0847	1.0183	2.5000e-003	22.4350	1.2900e-003	22.4363	2.2688	1.1900e-003	2.2700		191.6937	191.6937	9.1700e-003		191.8863
Total	**0.0561**	**0.0847**	**1.0183**	**2.5000e-003**	**22.4350**	**1.2900e-003**	**22.4363**	**2.2688**	**1.1900e-003**	**2.2700**		**191.6937**	**191.6937**	**9.1700e-003**		**191.8863**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6114	17.1628	14.4944	0.0223		0.9386	0.9386		0.8635	0.8635	0.0000	2,245.2695	2,245.2695	0.6990		2,259.9481
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.6114**	**17.1628**	**14.4944**	**0.0223**		**0.9386**	**0.9386**		**0.8635**	**0.8635**	**0.0000**	**2,245.2695**	**2,245.2695**	**0.6990**		**2,259.9481**

3.6 Paving - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0561	0.0847	1.0183	2.5000e-003	20.2097	1.2900e-003	20.2110	2.0468	1.1900e-003	2.0480		191.6937	191.6937	9.1700e-003		191.8863
Total	**0.0561**	**0.0847**	**1.0183**	**2.5000e-003**	**20.2097**	**1.2900e-003**	**20.2110**	**2.0468**	**1.1900e-003**	**2.0480**		**191.6937**	**191.6937**	**9.1700e-003**		**191.8863**

3.7 Architectural Coating - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	256.9825					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2986	2.0058	1.8542	2.9700e-003		0.1506	0.1506		0.1506	0.1506		281.4485	281.4485	0.0267		282.0102
Total	**257.2811**	**2.0058**	**1.8542**	**2.9700e-003**		**0.1506**	**0.1506**		**0.1506**	**0.1506**		**281.4485**	**281.4485**	**0.0267**		**282.0102**

3.7 Architectural Coating - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1159	0.1750	2.1046	5.1600e-003	46.3658	2.6600e-003	46.3684	4.6889	2.4600e-003	4.6913		396.1670	396.1670	0.0190		396.5651
Total	**0.1159**	**0.1750**	**2.1046**	**5.1600e-003**	**46.3658**	**2.6600e-003**	**46.3684**	**4.6889**	**2.4600e-003**	**4.6913**		**396.1670**	**396.1670**	**0.0190**		**396.5651**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	256.9825					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2986	2.0058	1.8542	2.9700e-003		0.1506	0.1506		0.1506	0.1506	0.0000	281.4485	281.4485	0.0267		282.0102
Total	**257.2811**	**2.0058**	**1.8542**	**2.9700e-003**		**0.1506**	**0.1506**		**0.1506**	**0.1506**	**0.0000**	**281.4485**	**281.4485**	**0.0267**		**282.0102**

3.7 Architectural Coating - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1159	0.1750	2.1046	5.1600e-003	41.7667	2.6600e-003	41.7694	4.2300	2.4600e-003	4.2324		396.1670	396.1670	0.0190		396.5651
Total	**0.1159**	**0.1750**	**2.1046**	**5.1600e-003**	**41.7667**	**2.6600e-003**	**41.7694**	**4.2300**	**2.4600e-003**	**4.2324**		**396.1670**	**396.1670**	**0.0190**		**396.5651**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	27.7330	96.6166	431.8343	1.9807	6,955.0106	2.8299	6,957.8405	711.6466	2.6083	714.2549		145,750.8593	145,750.8593	3.4837		145,824.0176
Unmitigated	27.7330	96.6166	431.8343	1.9807	6,955.0106	2.8299	6,957.8405	711.6466	2.6083	714.2549		145,750.8593	145,750.8593	3.4837		145,824.0176

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Arena	142.98	142.98	142.98	20,927	20,927
Hotel	3,750.03	3,759.21	2731.05	46,377,214	46,377,214
Quality Restaurant	851.83	893.59	683.36	6,895,066	6,895,066
Total	4,744.84	4,795.78	3,557.38	53,293,207	53,293,207

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Arena	41.30	55.00	55.00	0.00	81.00	19.00	0.66	0.28	0.6
Hotel	41.30	55.00	55.00	19.40	61.60	19.00	58	38	4
Quality Restaurant	41.30	55.00	55.00	12.00	69.00	19.00	38	18	44

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.472386	0.067706	0.148876	0.143449	0.055135	0.006430	0.025978	0.066258	0.001000	0.001302	0.008345	0.000427	0.002709

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.1867	1.6971	1.4255	0.0102		0.1290	0.1290		0.1290	0.1290		2,036.4659	2,036.4659	0.0390	0.0373	2,048.8595
NaturalGas Unmitigated	0.3270	2.9727	2.4970	0.0178		0.2259	0.2259		0.2259	0.2259		3,567.1913	3,567.1913	0.0684	0.0654	3,588.9007

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Arena	717.242	7.7300e-003	0.0703	0.0591	4.2000e-004		5.3400e-003	5.3400e-003		5.3400e-003	5.3400e-003		84.3815	84.3815	1.6200e-003	1.5500e-003	84.8950
Hotel	26708.4	0.2880	2.6185	2.1995	0.0157		0.1990	0.1990		0.1990	0.1990		3,142.1680	3,142.1680	0.0602	0.0576	3,161.2907
Quality Restaurant	2895.46	0.0312	0.2839	0.2385	1.7000e-003		0.0216	0.0216		0.0216	0.0216		340.6419	340.6419	6.5300e-003	6.2500e-003	342.7150
Total		**0.3270**	**2.9727**	**2.4970**	**0.0178**		**0.2259**	**0.2259**		**0.2259**	**0.2259**		**3,567.1913**	**3,567.1913**	**0.0684**	**0.0654**	**3,588.9007**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Hotel	14.5362	0.1568	1.4251	1.1971	8.5500e-003		0.1083	0.1083		0.1083	0.1083		1,710.1397	1,710.1397	0.0328	0.0314	1,720.5474
Quality Restaurant	2.38545	0.0257	0.2339	0.1965	1.4000e-003		0.0178	0.0178		0.0178	0.0178		280.6414	280.6414	5.3800e-003	5.1500e-003	282.3493
Arena	0.38832	4.1900e-003	0.0381	0.0320	2.3000e-004		2.8900e-003	2.8900e-003		2.8900e-003	2.8900e-003		45.6848	45.6848	8.8000e-004	8.4000e-004	45.9628
Total		**0.1867**	**1.6971**	**1.4255**	**0.0102**		**0.1290**	**0.1290**		**0.1290**	**0.1290**		**2,036.4659**	**2,036.4659**	**0.0390**	**0.0373**	**2,048.8595**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	9.3226	4.4000e-004	0.0489	0.0000		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004		0.1055	0.1055	2.7000e-004		0.1112
Unmitigated	9.3226	4.4000e-004	0.0489	0.0000		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004		0.1055	0.1055	2.7000e-004		0.1112

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.4081					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.9100					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.4700e-003	4.4000e-004	0.0489	0.0000		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004		0.1055	0.1055	2.7000e-004		0.1112
Total	**9.3226**	**4.4000e-004**	**0.0489**	**0.0000**		**1.7000e-004**	**1.7000e-004**		**1.7000e-004**	**1.7000e-004**		**0.1055**	**0.1055**	**2.7000e-004**		**0.1112**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.4081					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.9100					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.4700e-003	4.4000e-004	0.0489	0.0000		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004		0.1055	0.1055	2.7000e-004		0.1112
Total	**9.3226**	**4.4000e-004**	**0.0489**	**0.0000**		**1.7000e-004**	**1.7000e-004**		**1.7000e-004**	**1.7000e-004**		**0.1055**	**0.1055**	**2.7000e-004**		**0.1112**

7.0 Water Detail

7.1 Mitigation Measures Water

Use Reclaimed Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Cache Creek Hotel Expansion Project

Yolo/Solano AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Arena	13.35	1000sqft	0.31	13,350.00	0
Hotel	459.00	Room	7.96	346,801.00	0
Quality Restaurant	9.47	1000sqft	0.22	9,475.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	6.8	**Precipitation Freq (Days)**	55
Climate Zone	2			**Operational Year**	2035
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Refer to CalEEMod Tables

Construction Phase - CalEEMod defaults used for equipment and phase time proportion. Total time from Project Description.

Trips and VMT -

Grading -

Architectural Coating -

Area Coating -

Water And Wastewater - Refer to CalEEMod tables

Solid Waste -

Construction Off-road Equipment Mitigation - Refer to CalEEMod Tables

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Table Name	Column Name	Default Value	New Value
tblLandUse	LandUseSquareFeet	666,468.00	346,801.00
tblLandUse	LandUseSquareFeet	9,470.00	9,475.00
tblLandUse	LotAcreage	4.29	0.31
tblLandUse	LotAcreage	15.30	7.96
tblProjectCharacteristics	OperationalYear	2014	2035
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblVehicleTrips	CC_TL	6.60	55.00
tblVehicleTrips	CC_TL	6.60	55.00
tblVehicleTrips	CC_TL	6.60	55.00
tblVehicleTrips	CNW_TL	6.60	55.00
tblVehicleTrips	CNW_TL	6.60	55.00
tblVehicleTrips	CNW_TL	6.60	55.00
tblVehicleTrips	CW_TL	14.70	41.30
tblVehicleTrips	CW_TL	14.70	41.30
tblVehicleTrips	CW_TL	14.70	41.30

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	4.9065	51.8954	41.4337	0.0630	267.7342	2.7558	269.6038	27.0934	2.5353	28.8477	0.0000	5,771.2755	5,771.2755	1.2384	0.0000	5,797.2819
2018	257.3838	28.7983	38.9421	0.0630	267.7341	1.5764	269.3106	27.0933	1.4804	28.5737	0.0000	5,649.7112	5,649.7112	0.7436	0.0000	5,665.3263
Total	**262.2903**	**80.6937**	**80.3758**	**0.1260**	**535.4683**	**4.3322**	**538.9144**	**54.1867**	**4.0157**	**57.4214**	**0.0000**	**11,420.9867**	**11,420.9867**	**1.9820**	**0.0000**	**11,462.6082**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	4.9065	51.8954	41.4337	0.0630	241.1837	2.7558	243.0533	24.4442	2.5353	26.1985	0.0000	5,771.2755	5,771.2755	1.2384	0.0000	5,797.2819
2018	257.3838	28.7983	38.9421	0.0630	241.1837	1.5764	242.7601	24.4441	1.4804	25.9245	0.0000	5,649.7112	5,649.7112	0.7436	0.0000	5,665.3263
Total	**262.2903**	**80.6937**	**80.3758**	**0.1260**	**482.3673**	**4.3322**	**485.8134**	**48.8883**	**4.0157**	**52.1230**	**0.0000**	**11,420.9867**	**11,420.9867**	**1.9820**	**0.0000**	**11,462.6082**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**9.92**	**0.00**	**9.85**	**9.78**	**0.00**	**9.23**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	9.3226	4.4000e-004	0.0489	0.0000		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004		0.1055	0.1055	2.7000e-004		0.1112
Energy	0.3270	2.9727	2.4970	0.0178		0.2259	0.2259		0.2259	0.2259		3,567.1913	3,567.1913	0.0684	0.0654	3,588.9007
Mobile	27.3082	109.1447	422.8866	1.8281	6,955.0106	2.8331	6,957.8437	711.6466	2.6112	714.2578		135,951.4856	135,951.4856	3.4868		136,024.7089
Total	**36.9578**	**112.1178**	**425.4326**	**1.8459**	**6,955.0106**	**3.0592**	**6,958.0698**	**711.6466**	**2.8373**	**714.4839**		**139,518.7824**	**139,518.7824**	**3.5555**	**0.0654**	**139,613.7207**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	9.3226	4.4000e-004	0.0489	0.0000		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004		0.1055	0.1055	2.7000e-004		0.1112
Energy	0.1867	1.6971	1.4255	0.0102		0.1290	0.1290		0.1290	0.1290		2,036.4659	2,036.4659	0.0390	0.0373	2,048.8595
Mobile	27.3082	109.1447	422.8866	1.8281	6,955.0106	2.8331	6,957.8437	711.6466	2.6112	714.2578		135,951.4856	135,951.4856	3.4868		136,024.7089
Total	**36.8174**	**110.8422**	**424.3611**	**1.8383**	**6,955.0106**	**2.9622**	**6,957.9728**	**711.6466**	**2.7404**	**714.3870**		**137,988.0570**	**137,988.0570**	**3.5261**	**0.0373**	**138,073.6795**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.38**	**1.14**	**0.25**	**0.41**	**0.00**	**3.17**	**0.00**	**0.00**	**3.42**	**0.01**	**0.00**	**1.10**	**1.10**	**0.83**	**42.91**	**1.10**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2017	1/27/2017	5	20	
2	Site Preparation	Site Preparation	1/28/2017	2/10/2017	5	10	
3	Grading	Grading	2/11/2017	3/10/2017	5	20	
4	Building Construction	Building Construction	3/11/2017	1/26/2018	5	230	
5	Paving	Paving	1/27/2018	2/23/2018	5	20	
6	Architectural Coating	Architectural Coating	2/24/2018	3/23/2018	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 554,439; Non-Residential Outdoor: 184,813 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	162	0.38
Demolition	Rubber Tired Dozers	2	8.00	255	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	2	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	155.00	61.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	31.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Soil Stabilizer

Water Exposed Area

3.2 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.0482	42.6971	33.8934	0.0399		2.1252	2.1252		1.9797	1.9797		4,036.4674	4,036.4674	1.1073		4,059.7211
Total	**4.0482**	**42.6971**	**33.8934**	**0.0399**		**2.1252**	**2.1252**		**1.9797**	**1.9797**		**4,036.4674**	**4,036.4674**	**1.1073**		**4,059.7211**

3.2 Demolition - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0569	0.1183	1.0017	2.2200e-003	22.4350	1.3200e-003	22.4364	2.2688	1.2200e-003	2.2700		176.8354	176.8354	9.8900e-003		177.0430
Total	**0.0569**	**0.1183**	**1.0017**	**2.2200e-003**	**22.4350**	**1.3200e-003**	**22.4364**	**2.2688**	**1.2200e-003**	**2.2700**		**176.8354**	**176.8354**	**9.8900e-003**		**177.0430**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.0482	42.6971	33.8934	0.0399		2.1252	2.1252		1.9797	1.9797	0.0000	4,036.4674	4,036.4674	1.1073		4,059.7211
Total	**4.0482**	**42.6971**	**33.8934**	**0.0399**		**2.1252**	**2.1252**		**1.9797**	**1.9797**	**0.0000**	**4,036.4674**	**4,036.4674**	**1.1073**		**4,059.7211**

3.2 Demolition - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0569	0.1183	1.0017	2.2200e-003	20.2097	1.3200e-003	20.2110	2.0468	1.2200e-003	2.0480		176.8354	176.8354	9.8900e-003		177.0430
Total	**0.0569**	**0.1183**	**1.0017**	**2.2200e-003**	**20.2097**	**1.3200e-003**	**20.2110**	**2.0468**	**1.2200e-003**	**2.0480**		**176.8354**	**176.8354**	**9.8900e-003**		**177.0430**

3.3 Site Preparation - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.8382	51.7535	39.3970	0.0391		2.7542	2.7542		2.5339	2.5339		4,003.0859	4,003.0859	1.2265		4,028.8432
Total	**4.8382**	**51.7535**	**39.3970**	**0.0391**	**18.0663**	**2.7542**	**20.8205**	**9.9307**	**2.5339**	**12.4646**		**4,003.0859**	**4,003.0859**	**1.2265**		**4,028.8432**

3.3 Site Preparation - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0683	0.1420	1.2020	2.6600e-003	26.9221	1.5900e-003	26.9236	2.7226	1.4600e-003	2.7240		212.2025	212.2025	0.0119		212.4516
Total	**0.0683**	**0.1420**	**1.2020**	**2.6600e-003**	**26.9221**	**1.5900e-003**	**26.9236**	**2.7226**	**1.4600e-003**	**2.7240**		**212.2025**	**212.2025**	**0.0119**		**212.4516**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	4.8382	51.7535	39.3970	0.0391		2.7542	2.7542		2.5339	2.5339	0.0000	4,003.0859	4,003.0859	1.2265		4,028.8432
Total	**4.8382**	**51.7535**	**39.3970**	**0.0391**	**8.1298**	**2.7542**	**10.8840**	**4.4688**	**2.5339**	**7.0027**	**0.0000**	**4,003.0859**	**4,003.0859**	**1.2265**		**4,028.8432**

3.3 Site Preparation - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0683	0.1420	1.2020	2.6600e-003	24.2516	1.5900e-003	24.2532	2.4561	1.4600e-003	2.4576		212.2025	212.2025	0.0119		212.4516
Total	**0.0683**	**0.1420**	**1.2020**	**2.6600e-003**	**24.2516**	**1.5900e-003**	**24.2532**	**2.4561**	**1.4600e-003**	**2.4576**		**212.2025**	**212.2025**	**0.0119**		**212.4516**

3.4 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	3.4555	35.9825	25.3812	0.0297		2.0388	2.0388		1.8757	1.8757		3,043.6667	3,043.6667	0.9326		3,063.2507
Total	**3.4555**	**35.9825**	**25.3812**	**0.0297**	**6.5523**	**2.0388**	**8.5912**	**3.3675**	**1.8757**	**5.2432**		**3,043.6667**	**3,043.6667**	**0.9326**		**3,063.2507**

3.4 Grading - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0569	0.1183	1.0017	2.2200e-003	22.4350	1.3200e-003	22.4364	2.2688	1.2200e-003	2.2700		176.8354	176.8354	9.8900e-003		177.0430
Total	**0.0569**	**0.1183**	**1.0017**	**2.2200e-003**	**22.4350**	**1.3200e-003**	**22.4364**	**2.2688**	**1.2200e-003**	**2.2700**		**176.8354**	**176.8354**	**9.8900e-003**		**177.0430**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.9486	0.0000	2.9486	1.5154	0.0000	1.5154			0.0000			0.0000
Off-Road	3.4555	35.9825	25.3812	0.0297		2.0388	2.0388		1.8757	1.8757	0.0000	3,043.6667	3,043.6667	0.9326		3,063.2507
Total	**3.4555**	**35.9825**	**25.3812**	**0.0297**	**2.9486**	**2.0388**	**4.9874**	**1.5154**	**1.8757**	**3.3911**	**0.0000**	**3,043.6667**	**3,043.6667**	**0.9326**		**3,063.2507**

3.4 Grading - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0569	0.1183	1.0017	2.2200e-003	20.2097	1.3200e-003	20.2110	2.0468	1.2200e-003	2.0480		176.8354	176.8354	9.8900e-003		177.0430
Total	**0.0569**	**0.1183**	**1.0017**	**2.2200e-003**	**20.2097**	**1.3200e-003**	**20.2110**	**2.0468**	**1.2200e-003**	**2.0480**		**176.8354**	**176.8354**	**9.8900e-003**		**177.0430**

3.5 Building Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.1024	26.4057	18.1291	0.0268		1.7812	1.7812		1.6730	1.6730		2,639.8053	2,639.8053	0.6497		2,653.4490
Total	**3.1024**	**26.4057**	**18.1291**	**0.0268**		**1.7812**	**1.7812**		**1.6730**	**1.6730**		**2,639.8053**	**2,639.8053**	**0.6497**		**2,653.4490**

3.5 Building Construction - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.9006	4.9256	12.9538	0.0133	35.9054	0.0748	35.9802	3.6491	0.0688	3.7178		1,304.1709	1,304.1709	0.0103		1,304.3877
Worker	0.5880	1.2223	10.3508	0.0229	231.8288	0.0137	231.8424	23.4443	0.0126	23.4569		1,827.2993	1,827.2993	0.1022		1,829.4445
Total	**1.4885**	**6.1479**	**23.3046**	**0.0362**	**267.7342**	**0.0885**	**267.8226**	**27.0934**	**0.0813**	**27.1747**		**3,131.4702**	**3,131.4702**	**0.1125**		**3,133.8322**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.1024	26.4057	18.1291	0.0268		1.7812	1.7812		1.6730	1.6730	0.0000	2,639.8053	2,639.8053	0.6497		2,653.4490
Total	**3.1024**	**26.4057**	**18.1291**	**0.0268**		**1.7812**	**1.7812**		**1.6730**	**1.6730**	**0.0000**	**2,639.8053**	**2,639.8053**	**0.6497**		**2,653.4490**

3.5 Building Construction - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.9006	4.9256	12.9538	0.0133	32.3501	0.0748	32.4249	3.2943	0.0688	3.3631		1,304.1709	1,304.1709	0.0103		1,304.3877
Worker	0.5880	1.2223	10.3508	0.0229	208.8335	0.0137	208.8472	21.1498	0.0126	21.1624		1,827.2993	1,827.2993	0.1022		1,829.4445
Total	**1.4885**	**6.1479**	**23.3046**	**0.0362**	**241.1837**	**0.0885**	**241.2721**	**24.4442**	**0.0813**	**24.5255**		**3,131.4702**	**3,131.4702**	**0.1125**		**3,133.8322**

3.5 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6687	23.2608	17.5327	0.0268		1.4943	1.4943		1.4048	1.4048		2,609.9390	2,609.9390	0.6387		2,623.3517
Total	**2.6687**	**23.2608**	**17.5327**	**0.0268**		**1.4943**	**1.4943**		**1.4048**	**1.4048**		**2,609.9390**	**2,609.9390**	**0.6387**		**2,623.3517**

3.5 Building Construction - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.7859	4.4294	12.1777	0.0133	35.9054	0.0689	35.9742	3.6491	0.0633	3.7124		1,281.2440	1,281.2440	0.0101		1,281.4556
Worker	0.5134	1.1080	9.2318	0.0229	231.8288	0.0133	231.8421	23.4443	0.0123	23.4566		1,758.5283	1,758.5283	0.0948		1,760.5190
Total	**1.2993**	**5.5374**	**21.4095**	**0.0362**	**267.7341**	**0.0822**	**267.8163**	**27.0934**	**0.0756**	**27.1689**		**3,039.7723**	**3,039.7723**	**0.1049**		**3,041.9746**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6687	23.2608	17.5327	0.0268		1.4943	1.4943		1.4048	1.4048	0.0000	2,609.9389	2,609.9389	0.6387		2,623.3517
Total	**2.6687**	**23.2608**	**17.5327**	**0.0268**		**1.4943**	**1.4943**		**1.4048**	**1.4048**	**0.0000**	**2,609.9389**	**2,609.9389**	**0.6387**		**2,623.3517**

3.5 Building Construction - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.7859	4.4294	12.1777	0.0133	32.3501	0.0689	32.4190	3.2943	0.0633	3.3576		1,281.2440	1,281.2440	0.0101		1,281.4556
Worker	0.5134	1.1080	9.2318	0.0229	208.8335	0.0133	208.8469	21.1498	0.0123	21.1621		1,758.5283	1,758.5283	0.0948		1,760.5190
Total	**1.2993**	**5.5374**	**21.4095**	**0.0362**	**241.1837**	**0.0822**	**241.2658**	**24.4441**	**0.0756**	**24.5197**		**3,039.7723**	**3,039.7723**	**0.1049**		**3,041.9746**

3.6 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6114	17.1628	14.4944	0.0223		0.9386	0.9386		0.8635	0.8635		2,245.2695	2,245.2695	0.6990		2,259.9481
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.6114**	**17.1628**	**14.4944**	**0.0223**		**0.9386**	**0.9386**		**0.8635**	**0.8635**		**2,245.2695**	**2,245.2695**	**0.6990**		**2,259.9481**

3.6 Paving - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0497	0.1072	0.8934	2.2200e-003	22.4350	1.2900e-003	22.4363	2.2688	1.1900e-003	2.2700		170.1802	170.1802	9.1700e-003		170.3728
Total	**0.0497**	**0.1072**	**0.8934**	**2.2200e-003**	**22.4350**	**1.2900e-003**	**22.4363**	**2.2688**	**1.1900e-003**	**2.2700**		**170.1802**	**170.1802**	**9.1700e-003**		**170.3728**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6114	17.1628	14.4944	0.0223		0.9386	0.9386		0.8635	0.8635	0.0000	2,245.2695	2,245.2695	0.6990		2,259.9481
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.6114**	**17.1628**	**14.4944**	**0.0223**		**0.9386**	**0.9386**		**0.8635**	**0.8635**	**0.0000**	**2,245.2695**	**2,245.2695**	**0.6990**		**2,259.9481**

3.6 Paving - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0497	0.1072	0.8934	2.2200e-003	20.2097	1.2900e-003	20.2110	2.0468	1.1900e-003	2.0480		170.1802	170.1802	9.1700e-003		170.3728
Total	**0.0497**	**0.1072**	**0.8934**	**2.2200e-003**	**20.2097**	**1.2900e-003**	**20.2110**	**2.0468**	**1.1900e-003**	**2.0480**		**170.1802**	**170.1802**	**9.1700e-003**		**170.3728**

3.7 Architectural Coating - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	256.9825					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2986	2.0058	1.8542	2.9700e-003		0.1506	0.1506		0.1506	0.1506		281.4485	281.4485	0.0267		282.0102
Total	**257.2811**	**2.0058**	**1.8542**	**2.9700e-003**		**0.1506**	**0.1506**		**0.1506**	**0.1506**		**281.4485**	**281.4485**	**0.0267**		**282.0102**

3.7 Architectural Coating - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1027	0.2216	1.8464	4.5800e-003	46.3658	2.6600e-003	46.3684	4.6889	2.4600e-003	4.6913		351.7057	351.7057	0.0190		352.1038
Total	**0.1027**	**0.2216**	**1.8464**	**4.5800e-003**	**46.3658**	**2.6600e-003**	**46.3684**	**4.6889**	**2.4600e-003**	**4.6913**		**351.7057**	**351.7057**	**0.0190**		**352.1038**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	256.9825					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2986	2.0058	1.8542	2.9700e-003		0.1506	0.1506		0.1506	0.1506	0.0000	281.4485	281.4485	0.0267		282.0102
Total	**257.2811**	**2.0058**	**1.8542**	**2.9700e-003**		**0.1506**	**0.1506**		**0.1506**	**0.1506**	**0.0000**	**281.4485**	**281.4485**	**0.0267**		**282.0102**

3.7 Architectural Coating - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1027	0.2216	1.8464	4.5800e-003	41.7667	2.6600e-003	41.7694	4.2300	2.4600e-003	4.2324		351.7057	351.7057	0.0190		352.1038
Total	**0.1027**	**0.2216**	**1.8464**	**4.5800e-003**	**41.7667**	**2.6600e-003**	**41.7694**	**4.2300**	**2.4600e-003**	**4.2324**		**351.7057**	**351.7057**	**0.0190**		**352.1038**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	27.3082	109.1447	422.8866	1.8281	6,955.0106	2.8331	6,957.8437	711.6466	2.6112	714.2578		135,951.4856	135,951.4856	3.4868		136,024.7089
Unmitigated	27.3082	109.1447	422.8866	1.8281	6,955.0106	2.8331	6,957.8437	711.6466	2.6112	714.2578		135,951.4856	135,951.4856	3.4868		136,024.7089

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Arena	142.98	142.98	142.98	20,927	20,927
Hotel	3,750.03	3,759.21	2731.05	46,377,214	46,377,214
Quality Restaurant	851.83	893.59	683.36	6,895,066	6,895,066
Total	4,744.84	4,795.78	3,557.38	53,293,207	53,293,207

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Arena	41.30	55.00	55.00	0.00	81.00	19.00	0.66	0.28	0.6
Hotel	41.30	55.00	55.00	19.40	61.60	19.00	58	38	4
Quality Restaurant	41.30	55.00	55.00	12.00	69.00	19.00	38	18	44

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.472386	0.067706	0.148876	0.143449	0.055135	0.006430	0.025978	0.066258	0.001000	0.001302	0.008345	0.000427	0.002709

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.1867	1.6971	1.4255	0.0102		0.1290	0.1290		0.1290	0.1290		2,036.4659	2,036.4659	0.0390	0.0373	2,048.8595
NaturalGas Unmitigated	0.3270	2.9727	2.4970	0.0178		0.2259	0.2259		0.2259	0.2259		3,567.1913	3,567.1913	0.0684	0.0654	3,588.9007

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Arena	717.242	7.7300e-003	0.0703	0.0591	4.2000e-004		5.3400e-003	5.3400e-003		5.3400e-003	5.3400e-003		84.3815	84.3815	1.6200e-003	1.5500e-003	84.8950
Hotel	26708.4	0.2880	2.6185	2.1995	0.0157		0.1990	0.1990		0.1990	0.1990		3,142.1680	3,142.1680	0.0602	0.0576	3,161.2907
Quality Restaurant	2895.46	0.0312	0.2839	0.2385	1.7000e-003		0.0216	0.0216		0.0216	0.0216		340.6419	340.6419	6.5300e-003	6.2500e-003	342.7150
Total		**0.3270**	**2.9727**	**2.4970**	**0.0178**		**0.2259**	**0.2259**		**0.2259**	**0.2259**		**3,567.1913**	**3,567.1913**	**0.0684**	**0.0654**	**3,588.9007**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Hotel	14.5362	0.1568	1.4251	1.1971	8.5500e-003		0.1083	0.1083		0.1083	0.1083		1,710.1397	1,710.1397	0.0328	0.0314	1,720.5474
Quality Restaurant	2.38545	0.0257	0.2339	0.1965	1.4000e-003		0.0178	0.0178		0.0178	0.0178		280.6414	280.6414	5.3800e-003	5.1500e-003	282.3493
Arena	0.38832	4.1900e-003	0.0381	0.0320	2.3000e-004		2.8900e-003	2.8900e-003		2.8900e-003	2.8900e-003		45.6848	45.6848	8.8000e-004	8.4000e-004	45.9628
Total		**0.1867**	**1.6971**	**1.4255**	**0.0102**		**0.1290**	**0.1290**		**0.1290**	**0.1290**		**2,036.4659**	**2,036.4659**	**0.0390**	**0.0373**	**2,048.8595**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	9.3226	4.4000e-004	0.0489	0.0000		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004		0.1055	0.1055	2.7000e-004		0.1112
Unmitigated	9.3226	4.4000e-004	0.0489	0.0000		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004		0.1055	0.1055	2.7000e-004		0.1112

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.4081					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.9100					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.4700e-003	4.4000e-004	0.0489	0.0000		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004		0.1055	0.1055	2.7000e-004		0.1112
Total	**9.3226**	**4.4000e-004**	**0.0489**	**0.0000**		**1.7000e-004**	**1.7000e-004**		**1.7000e-004**	**1.7000e-004**		**0.1055**	**0.1055**	**2.7000e-004**		**0.1112**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.4081					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.9100					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.4700e-003	4.4000e-004	0.0489	0.0000		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004		0.1055	0.1055	2.7000e-004		0.1112
Total	**9.3226**	**4.4000e-004**	**0.0489**	**0.0000**		**1.7000e-004**	**1.7000e-004**		**1.7000e-004**	**1.7000e-004**		**0.1055**	**0.1055**	**2.7000e-004**		**0.1112**

7.0 Water Detail

7.1 Mitigation Measures Water

Use Reclaimed Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

APPENDIX K

ENVIRONMENTAL NOISE ASSESSMENT

Environmental Noise Assessment

Cache Creek Hotel Expansion

Yolo County, California

BAC Job # 2016-028

Prepared For:

Analytical Environmental Services

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Prepared By:

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Paul Bollard, President

August 3, 2016

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Introduction

This report addresses potential noise impacts associated with the proposed expansion of the existing Cache Creek Hotel Expansion Project located in Yolo County, California. The project proposes to expand the existing Cache Creek Casino Resort by constructing 459 new hotel rooms, a 13,350 square foot ballroom, 9,475 square feet of restaurant facilities, 27,165 square feet of miscellaneous public spaces, and 57,108 square feet of administrative space. A reduced-intensity alternative to the project with only 399 new hotel rooms is also evaluated in this analysis. All of the construction is proposed to occur at the existing project site. The project area is shown in Figure 1. Figures 2 and 3 show the overall site improvement plan and focused hotel expansion area, respectively.

Due to the increased traffic in the area resulting from the project and equipment noise during project construction, Bollard Acoustical Consultants, Inc. (BAC) was retained by the project applicant to prepare this noise analysis. Specifically, the purpose of this analysis is to quantify existing noise levels in the project vicinity, noise level increases resulting from project traffic and construction, and to identify any impacts resulting from these noise sources at the nearest residential land uses.

Environmental Setting

Noise Fundamentals and Terminology

Noise is often described as unwanted sound. Sound is defined as any pressure variation in air that the human ear can detect. If the pressure variations occur frequently enough (at least 20 times per second), they can be heard, and thus are called sound. Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB. Another useful aspect of the decibel scale is that changes in levels (dB) correspond closely to human perception of relative loudness. Appendix A contains definitions of Acoustical Terminology. Table 1 shows common noise levels associated with various sources.

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by weighing the frequency response of a sound level meter by means of the standardized A-weighing network. There is a strong correlation between A-weighted sound levels (expressed as dBA) and community response to noise. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment. All noise levels reported in this section are in terms of A-weighted levels in decibels.

Figure 1
Vicinity Map, Project Area, and Noise Measurement Locations
Cache Creek Hotel Expansion Project

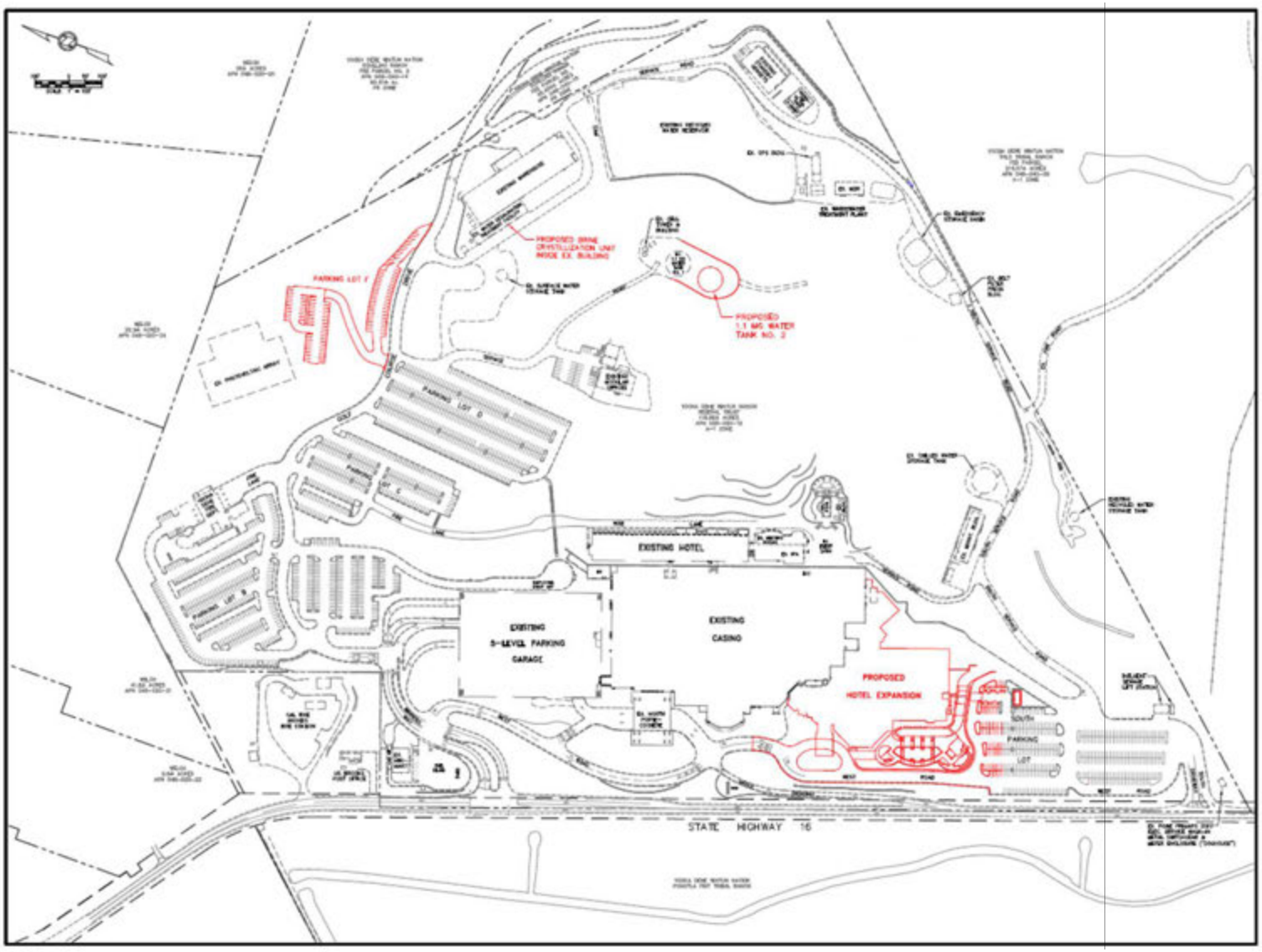

Figure 2
Overall Project Site Plan
Cache Creek Casino Resort Hotel Expansion

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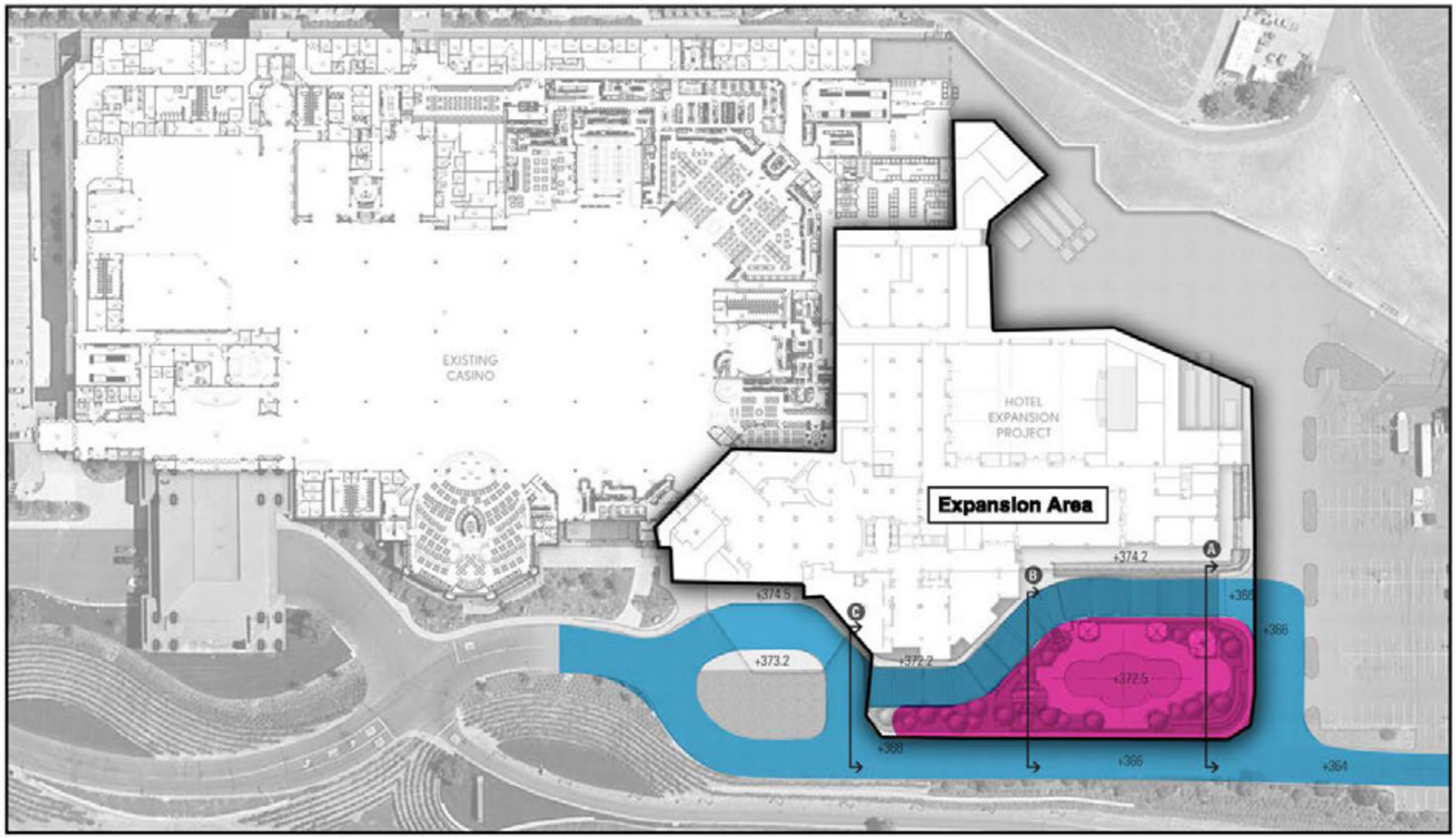
Acoustical Consultants



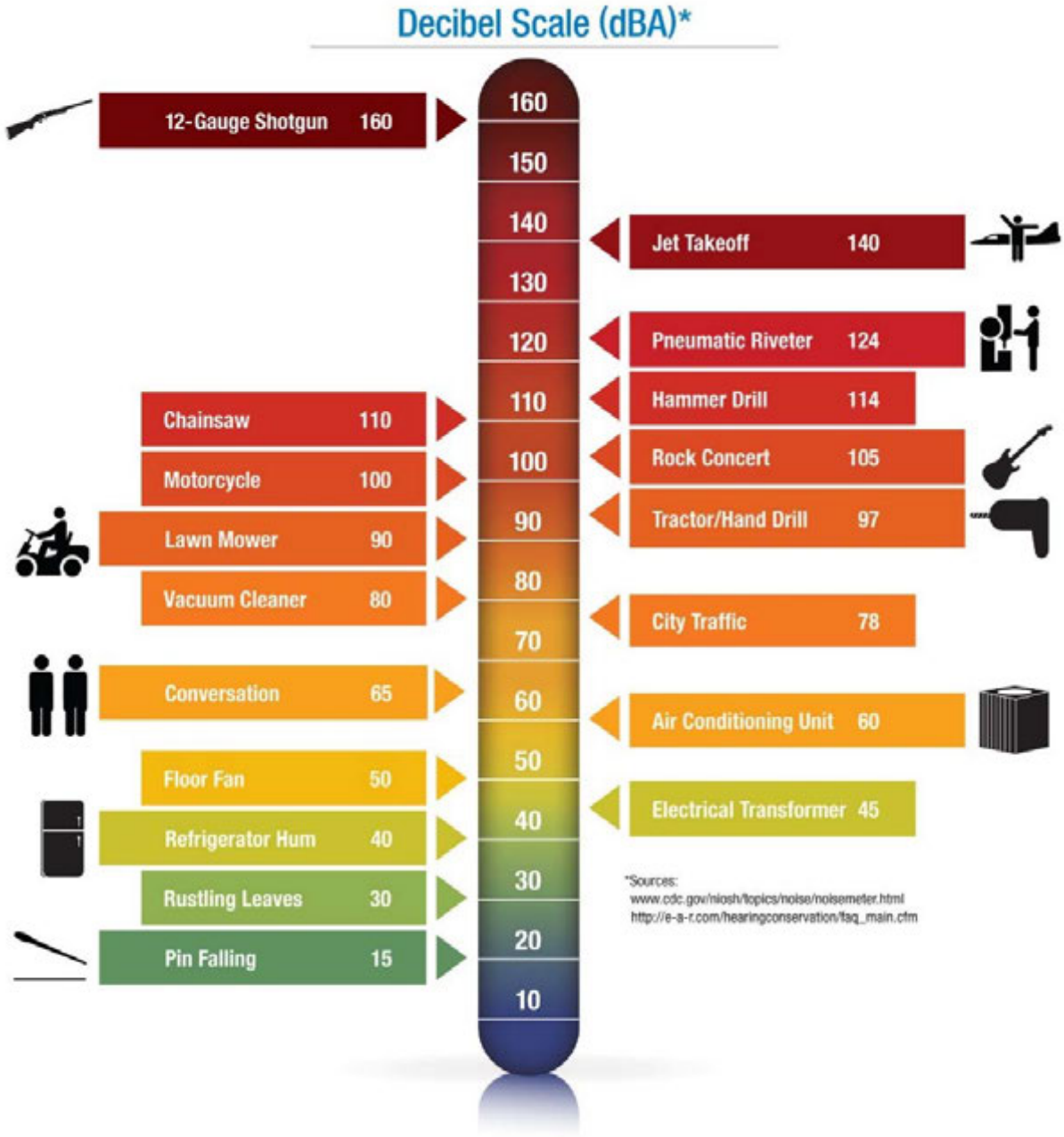
N

Scale (feet)

0 100 200

Figure 3
Project Site Plan
Cache Creek Hotel Expansion Project

Table 1
Typical A-Weighted Sound Levels of Common Noise Sources



Effects of Noise on People

The effects of noise on people can be divided into three categories:

1. Subjective effects of annoyance, nuisance, dissatisfaction;
2. Interference with activities such as speech, sleep, and learning; and
3. Physiological effects such as hearing loss or sudden startling.

Environmental noise typically produces effects in the first two categories. Workers in industrial plants can experience noise in the third category. There is no completely satisfactory way to measure the subjective effects of noise, or the corresponding reactions of annoyance and dissatisfaction. A wide variation in individual thresholds of annoyance exists, and different tolerances to noise tend to develop based on an individual's past experiences with noise.

Generally, most noise is generated by transportation systems, primarily motor vehicles, aircraft, and railroads. Poor urban planning may also give rise to noise pollution, since juxtaposing industrial and residential land uses, for example, often adversely affects the residential acoustic environment. Prominent sources of indoor noise are office equipment, factory machinery, appliances, power tools, lighting hum, and audio entertainment systems. An important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment (or ambient noise) to which one has adapted. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships occur (Caltrans, 2013):

- Under controlled conditions in an acoustics laboratory, the trained healthy human ear is able to discern changes in sound levels of 1 dBA;
- Outside such controlled conditions, the trained ear can detect changes of 2 dBA in normal environmental noise;
- It is widely accepted that the average healthy ear, however, can barely perceive noise level changes of 3 dBA;
- A change in level of 5 dBA is a readily perceptible increase in noise level; and
- A 10-dBA change is recognized as twice as loud as the original source.

These relationships occur in part because of the logarithmic nature of sound and the decibel system. Noise levels are measured on a logarithmic scale, instead of a linear scale. On a logarithmic scale, the sum of two noise sources of equal loudness is 3 dBA greater than the noise generated by only one of the noise sources (e.g., a noise source of 60 dBA plus another noise source of 60 dBA generate a composite noise level of 63 dBA). To apply this formula to a specific noise source, in areas where existing levels are dominated by traffic, a doubling in traffic volume will increase ambient noise levels by 3 dBA. Similarly, a doubling in heavy equipment use, such as the use of two pieces of equipment where one formerly was used,

would also increase ambient noise levels by 3 dBA. A 3 dBA increase is the smallest change in noise level detectable to the average person. A change in ambient sound of 5 dBA can begin to create concern. A change in sound of 7 to 10 dBA typically elicits extreme concern and/or anger.

Noise Attenuation

Stationary "point" sources of noise, including stationary mobile sources such as idling vehicles, attenuate (lessen) at a rate of 6 dBA to 9 dBA per doubling of distance from the source, depending upon environmental conditions (i.e., atmospheric conditions and noise barriers, either vegetative or manufactured, etc.). Widely distributed noises, such as a large industrial facility spread over many acres or a street with moving vehicles (a "line" source), would typically attenuate at a lower rate, approximately 4 to 6 dBA per doubling distance from the source (also dependent upon environmental conditions) (Caltrans, 2013). Noise from large construction sites (with heavy equipment moving dirt and trucks entering and exiting the site daily) would have characteristics of both "point" and "line" sources, so attenuation would generally range between 4.5 and 7.5 dBA per doubling of distance.

Existing Noise Sources and Ambient Noise Levels

The existing noise environment within the project vicinity is primarily defined by traffic on State Route 16 and the local roadway network, with local stationary noise sources and distant Interstate 505 traffic contributing to a lesser extent.

To quantify existing ambient noise levels in the project vicinity, long-term (continuous) ambient noise level measurements were conducted at three (3) locations on the project site from March 17-20, 2016. The locations of the noise monitoring sites are shown in Figure 1. Noise monitoring locations A and B were selected to be representative of noise exposure immediately adjacent to SR16, both on the south and north sides of the project site, respectively. Noise Measurement Site C was selected to be generally representative of ambient conditions at locations more removed from SR 16.

Larson Davis Laboratories (LDL) Model 820 precision integrating sound level meters were used for the long-term ambient noise level measurement surveys. The meters were calibrated before use with an LDL Model CAL200 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute.

The ambient noise measurement results are summarized below in Table 2. Appendix B contains graphical representations of the measured ambient conditions at each measurement site.

Table 2
Measured Ambient Noise Levels at Long-Term Monitoring Sites
Cache Creek Hotel Expansion – Yolo County, California

Site	Location	Averaged Measured L_{dn} (dB)
A	Southern parking lot, 50 feet from SR-16	71
B	Northern end of site, 50 feet from SR-16, adjacent to residence and gas station	64
C	Hilltop to the east of the site	57

Source: Bollard Acoustical Consultants, Inc. (BAC)

The Table 2 data indicate that noise levels at the project site vary depending on proximity to SR 16 and which side of the project site the noise level meters were located relative to SR 16. Overall, the noise measurement results indicate that the project vicinity is dominated by noise from traffic on SR 16.

Existing (Baseline) Traffic Noise Environment

The Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA-RD-77-108) was used to quantify baseline traffic noise levels along project vicinity roadways. The model is based upon the CALVENO noise emission factors for automobiles, medium trucks, and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. The FHWA Model was developed to predict hourly L_{eq} values for free flowing traffic conditions, and is considered to be accurate within 1.5 dB in most situations.

The FHWA Model was used with traffic data provided by the project transportation consultant to predict baseline traffic noise levels in the project vicinity. Table 3 shows the predicted baseline/design year (2019) traffic noise levels at a reference distance of 100 feet from the roadway centerline. The FHWA Model inputs are provided in Appendix C.

Table 3
Design Year (Baseline) Traffic Noise Levels
Cache Creek Hotel Expansion Project

Roadway	Segment	Predicted L_{dn} (dB), 100 ft. from Roadway Centerline
SR-16	North of Cache Creek Casino	60
SR-16	South of Cache Creek Casino	65
SR-16	West of County Road 85	61
SR-16	County Road 85 to County Road 85B	63
SR-16	County Road 85B to County Road 87	60
SR-16	East of Yolo Avenue	62
SR-16	West of County Road 89	66
SR-16	County Road 89 to I-505	64
SR-16	East of I-505	64
County Road 85	North of SR-16	51
County Road 85B	South of SR-16	59
County Road 85B	North of County Road 21A	59
County Road 21A	East of County Road 85B	58
County Road 87	North of SR-16	56
County Road 87	SR-16 to SR-16	58

Source: FHWA-RD-77-108 with inputs prepared by KD Anderson & Associates

Regulatory Setting - Criteria for Acceptable Noise Exposure

Yolo County General Plan

The Yolo County General Plan, adopted in 2009, is the guiding document for development in the unincorporated areas of the County, which include the off-reservation properties in the vicinity of the Proposed Project. The Yolo County General Plan does not apply to trust land on which the Proposed Project would be located, or to the Proposed Project itself. Policies in the Yolo County General Plan that are relevant to off-reservation noise in the vicinity of the Proposed Project include the following.

Goal HS-7 **Noise Compatibility. Protect people from the harmful effects of excessive noise.**

Policy HS-7.1 Ensure that existing and planned land uses are compatible with the current and projected noise environment. However, urban development generally experiences greater ambient (background) noise than rural areas. Increased density, as supported by the County in this General Plan, generally results in even greater ambient noise levels. It is the County's intent to meet specified indoor noise thresholds and to create peaceful backyard living spaces where possible, but particular ambient outdoor thresholds may not always be achievable. Where residential growth is allowed pursuant to this general plan, these greater noise levels are acknowledged and accepted, notwithstanding the guidelines in Figure HS-7 [**Table 4]**.

Policy HS-7.3 Protect important agricultural, commercial, industrial, and transportation uses from encroachment by land uses sensitive to noise and air quality impacts.

Policy HS-7.4 For proposed new discretionary development, where it is not possible to reduce noise levels in outdoor activity areas to 60 dB CNEL or less using practical application of the best-available noise reduction measures, greater exterior noise levels may be allowed, provided that all available reasonable and feasible exterior noise level reduction measures have been implemented.

Action HS-A63: Review proposed development projects for compatibility with surrounding and planned uses in accordance with the Noise Compatibility Guidelines and the County's Right to Farm Ordinance; however, these guidelines shall not be applied to outdoor activity areas nor shall they be used to prohibit or preclude otherwise allowed density and intensity of development.

Action HS-A65: Require the preparation of a noise analysis/acoustical study, with recommendations for attenuation, for all proposed projects within noise-impacted areas that may reasonably be expected to be exposed to levels that exceed the appropriate Noise Compatibility Guidelines standards.

Policy HS-7.5 Minimize the impact of noise from transportation sources including roads, rail lines, and airports on nearby sensitive land uses.

TABLE 4
OFF -RESERVATION LAND USE COMPATIBILITY FOR COMMUNITY NOISE ENVIRONMENT

Type of Proposed Project	Community Noise Exposure in Decibels (CNEL) Day/Night Average Noise Level in Decibels (Ldn)						
	<55	55-60	60-65	65-70	70-75	75-80	>80
Residential Low Density Single-Family, Duplex, Mobile Homes							
Residential – Multi-Family							
Transient Lodging – Motels, Hotels							
Schools, Libraries, Churches, Hospitals, Nursing Homes							
Auditoriums, Concert Halls, Amphitheaters							
Sports Arena, Outdoor Spectacular Sports							
Playgrounds, Neighborhood Parks							
Golf Courses, Riding Stables, Water Recreation, Cemeteries							
Office Buildings, Business Commercial and Professional							
Industrial, Manufacturing, Utilities, Agriculture							

Notes:
- NORMALLY ACCEPTABLE: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
- CONDITIONALLY ACCEPTABLE: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design.
- NORMALLY UNACCEPTABLE: New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.
- CLEARLY UNACCEPTABLE: New construction or development clearly should not be undertaken.

Source: Yolo County, 2009a.

Capay Valley Area General Plan

The Capay Valley Area Plan, adopted in 2010 as a component of the 2030 Yolo County General Plan, does not establish any particular goals relevant to noise. However, it does state that SR-16 is an existing fixed-point noise source and the greatest source of noise in the vicinity of the Proposed Project Site. The Capay Valley Area General Plan does not apply to trust land or to the Proposed Project itself.

Goal 1: Establish and maintain noise levels that are consistent with the rural, agricultural setting of the Capay Valley.

Policy 1: Excessive or harmful noise shall be prevented, avoided, and suppressed by controlling noises at the source, providing barriers or buffers, by the implementation of a noise ordinance, and by means of wise land use planning and implementation.

Implementation Measure 1: Consistent with the Countywide General Plan Health and Safety Element, the County shall adopt a comprehensive Noise Ordinance with specific noise standards that provides for the prohibition and/or reduction of excessive sound levels, including those associated with motors, generators, vehicles, aircraft, fireworks, firearms, explosives, amplifiers, horns, etc. whether employed for residential, commercial, or recreational purposes.

Implementation Measure 2: The County shall require mitigation to reduce noise to acceptable levels throughout the Capay Valley Planning Area and particularly near or within home environments.

Significance of Project-Related Noise Level Increases

Table 5 is based upon recommendations made in August 1992 by Federal Interagency Committee on Noise (FICON) to provide guidance in the assessment of changes in ambient noise levels resulting from aircraft operations. The recommendations are based upon studies that relate aircraft noise levels to the percentage of persons highly annoyed by noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, these criteria have been applied to other sources of noise similarly described in terms of cumulative noise exposure metrics such as the L_{dn}.

Table 5
Significance of Changes in Cumulative Noise Exposure

Ambient Noise Level Without Project, L_{dn}	Increase Required for Significant Impact
<60 dB	+5.0 dB or more
60-65 dB	+3.0 dB or more
>65 dB	+1.5 dB or more

Source: Federal Interagency Committee on Noise (FICON)

According to Table 5, an increase in noise from similar sources of 5 dB or more would be noticeable where the ambient level is less than 60 dB. Where the ambient level is between 60 and 65 dB, an increase in noise of 3 dB or more would be noticeable, and an increase of 1.5 dB or more would be noticeable where the ambient noise level exceeds 65 dB L_{dn}. The rationale for the Table 5 criteria is that, as ambient noise levels increase, a smaller increase in noise resulting from a project is sufficient to cause annoyance.

Impacts and Mitigation Measures

Standards of Significance

Appendix G of the State CEQA Guidelines provides that the proposed general plan would result in a significant noise impact if the following occur:

A. exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;

B. a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;

C. a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;

D. exposure of persons to or generation of excessive groundborne vibration or noise levels;

E. for a project located within an ALUP or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, the project would expose people residing or working in the project area to excessive noise levels;

F. or a project within the vicinity of a private airstrip, the project would expose people residing or working in the project area to excessive noise levels.

Because this project is not located in an area which is impacted by aircraft noise, items E and F listed above would not apply. In addition, no appreciable sources of existing vibration were identified in the project area and the project operations would not introduce any substantive sources of vibration to the immediate project area. As a result, an analysis of groundborne vibration is not warranted for this project.

Identification of Sensitive Receptors

Existing land uses located outside of the tribal lands consist primarily of large-lot, agricultural-residential uses and a mix of residential and commercial uses within the communities of Esparto and Capay. Agricultural uses are considered to be noise-generating rather than noise-sensitive.

However, residences constructed on agricultural properties are considered to be noise sensitive.

The nearest sensitive receptors to the tribal lands include a rural residence on the north side of SR 16, approximately 270 feet north of the fire station, a rural residence located approximately 1,400 feet north of the proposed parking lot F expansion area, and a rural residence located near the intersection of SR 16 and Wintun Road, approximately 3,000 feet south of the tribal lands. There are no existing sensitive land uses located immediately adjacent to the proposed expansion areas on the tribal lands.

Off-Reservation Impacts of the Proposed Project

Impact 1: Off-Site Traffic Noise Impacts

The FHWA Model was used with traffic data provided by the project applicant to predict project-related traffic noise level increases. The FHWA Model input data is contained in Appendix C. Tables 6-7 show traffic noise levels and changes resulting from the proposed project for baseline and cumulative conditions at a representative distance of 100 feet from the roadway centerlines. It is recognized that the distances from the various roadway centerlines to the nearest residences vary, and are not necessarily 100 feet. The 100 foot reference distance is used to standardize traffic noise levels so that the increases from the project can be evaluated. It should be noted that the traffic noise level *increases* shown in Tables 6 and 7 would be same regardless of the distance from the roadway to a sensitive receptor.

Table 6
Baseline Vs. Baseline Plus Project Traffic Noise Levels
Cache Creek Hotel Expansion Project

Roadway	Segment	Baseline	Baseline + Project	Change	Substantial Increase?
SR-16	North of Cache Creek Casino	59.3	59.4	0.1	No
SR-16	South of Cache Creek Casino	65.3	66.0	0.7	No
SR-16	West of County Road 85	61.0	61.7	0.7	No
SR-16	County Road 85 to County Road 85B	63.3	64.0	0.7	No
SR-16	County Road 85B to County Road 87	60.0	60.6	0.6	No
SR-16	East of Yolo Avenue	61.9	62.3	0.5	No
SR-16	West of County Road 89	66.0	66.5	0.5	No
SR-16	County Road 89 to I-505	64.1	64.6	0.5	No
SR-16	East of I-505	64.3	64.6	0.3	No
County Road 85	North of SR-16	51.4	51.8	0.4	No
County Road 85B	South of SR-16	59.2	60.0	0.7	No
County Road 85B	North of County Road 21A	59.0	59.7	0.8	No
County Road 21A	East of County Road 85B	58.1	58.5	0.4	No
County Road 87	North of SR-16	55.6	55.7	0.1	No
County Road 87	SR-16 to SR-16	58.1	58.7	0.6	No

Source: FHWA-RD-77-108 with inputs prepared by KD Anderson & Associates

Table 7
Cumulative Vs. Cumulative Plus Project Traffic Noise Levels
Cache Creek Hotel Expansion Project

Roadway	Segment	Cumulative	Cumulative + Project	Change	Substantial Increase?
SR-16	North of Cache Creek Casino	59.3	60.5	1.2	No
SR-16	South of Cache Creek Casino	65.8	66.4	0.6	No
SR-16	West of County Road 85	61.5	62.1	0.6	No
SR-16	County Road 85 to County Road 85B	63.8	64.4	0.6	No
SR-16	County Road 85B to County Road 87	60.8	61.3	0.5	No
SR-16	East of Yolo Avenue	63.5	63.8	0.3	No
SR-16	West of County Road 89	66.6	67.1	0.5	No
SR-16	County Road 89 to I-505	65.2	65.6	0.4	No
SR-16	East of I-505	66.0	66.2	0.2	No
County Road 85	North of SR-16	53.4	53.6	0.2	No
County Road 85B	South of SR-16	59.5	60.2	0.7	No
County Road 85B	North of County Road 21A	59.3	60.0	0.7	No
County Road 21A	East of County Road 85B	58.2	58.9	0.7	No
County Road 87	North of SR-16	57.1	57.2	0.1	No
County Road 87	SR-16 to SR-16	58.9	59.4	0.5	No

Source: FHWA-RD-77-108 with inputs prepared by KD Anderson & Associates

As shown in Tables 6-7, no substantial increases in traffic noise levels are identified for the project-area roadways relative to either baseline or future (cumulative) conditions for the proposed project relative to the Table 5 criteria. As a result, noise impacts associated with increased traffic resulting from the project-generated traffic are identified as ***less than significant***.

Impact 2: Construction Noise Impacts

During the construction phases of the project, noise from construction activities would add to the noise environment in the immediate project vicinity. Activities involved in construction would generate maximum noise levels, as indicated in Table 8, ranging from 70 to 90 dB L_{max} at a distance of 50 feet. However, construction noise would be of short duration, and would likely occur primarily during daytime hours.

Table 8
Typical Construction Equipment Noise Levels

Equipment Description	Maximum Noise Level at 50 feet, dBA
Auger drill rig	85
Backhoe	80
Boring jack power unit	80
Chain saw	85
Compactor (ground)	80
Compressor (air)	80
Concrete mixer truck	85
Concrete pump truck	82
Concrete saw	90
Crane (mobile or stationary)	85
Dozer	85
Dump truck	84
Excavator	85
Flat bed truck	84
Front end loader	80
Generator (25 kilovolt-amperes [kVA] or less)	70
Generator (more than 25 kVA)	82
Grader	85
Hydra break ram	90
Jackhammer	85
Mounted impact hammer (hoe ram)	90
Paver	85
Pickup truck	55
Pneumatic tools	85
Pumps	77
Scraper	85
Tractor	84
Vacuum street sweeper	80
Vibratory concrete mixer	80
Welder/Torch	73

Source: Federal Highway Administration 2006.

The closest residences to the proposed construction area are located over 1,000 feet away. Adjusted to this distance, construction noise levels would range from 40 to 60 dB L_{max}. Evaluation of the ambient noise level data reported in Appendix B-2 indicates that existing maximum noise levels at the nearest receptor, represented by noise measurement Site B, typically ranged from 65 to 85+ dB L_{max}. As a result, noise generated by construction-related activities is predicted to be well below measured existing ambient noise conditions at the nearest residence to the project site and this impact is considered ***less than significant***.

Impact 3: Noise Generated by Parking Lot Movements

As indicated in Figure 2, the project proposes a new parking area (Lot F) southeast of the existing solar array located near the northern site boundary. The nearest sensitive receptor to

this proposed parking area is a rural residence located approximately 1,300 feet to the northwest. As a means of determining the noise levels due to parking lot activities, BAC utilized noise level data collected at various parking lots over the years. That data indicate that a typical Sound Energy Level (SEL) due to automobile arrivals/departures, including car doors slamming and people conversing is approximately 72 dB, at a distance of 50 feet. The maximum noise level associated with parking lot activity typically did not exceed 65 dB L_{max} at the same reference distance. Conservatively assuming the approximately 100 proposed parking spaces in Lot F would fill or empty during a peak hour, the resulting average and maximum noise levels at the nearest residence would be approximately 25 dB L_{eq} and 35 dB L_{max}. Very conservatively assuming this new parking area were to empty and fill each hour of the day and night, computed day/night average noise levels at the nearest residence would be approximately 30 dB L_{dn}. The predicted parking lot noise levels at the nearest sensitive receptor are well below the County's 60 dB Ldn exterior noise standard for residential uses, and well below measured existing ambient noise exposure in the general project area. As a result, this impact is considered ***less than significant.***

Impact 4: Noise Resulting From Use of the Proposed New Ballroom

As noted in the Introduction Section of this report, the proposed project includes a 13,350 square foot ballroom. While it is likely that amplified speech and music will be a common component of this ballroom usage, the proposed ballroom would be completely enclosed and sound generated within the ballroom would be contained by the building envelope. As a result, sound generated during events within the ballroom is not predicted to be audible at the exterior of the proposed expansion area, and would similarly be inaudible at the nearest sensitive receptors. As a result, this impact is considered ***less than significant***.

Off-Reservation Impacts of the Reduced Intensity Alternative

Impact 5: Off-Site Traffic Noise Impacts

The FHWA Model was used with traffic data provided by the project applicant to predict reduced intensity project-related traffic noise level increases. The FHWA Model input data is contained in Appendix C. Tables 9 and 10 show traffic noise levels and changes resulting from the reduced intensity project for baseline and cumulative conditions at a representative distance of 100 feet from the roadway centerlines. It is recognized that the distances from the various roadway centerlines to the nearest residences vary, and are not necessarily 100 feet. The 100 foot reference distance is used to standardize traffic noise levels so that the increases from the project can be evaluated. It should be noted that the traffic noise level *increases* shown in Tables 9 and 10 would be same regardless of the distance from the roadway to a sensitive receptor.

Table 9
Baseline Vs. Baseline Plus Reduced Intensity Project Traffic Noise Levels
Cache Creek Hotel Expansion Project

Roadway	Segment	Baseline	Baseline + Project	Change	Substantial Increase?
SR-16	North of Cache Creek Casino	59.3	59.4	0.1	No
SR-16	South of Cache Creek Casino	65.3	66.0	0.7	No
SR-16	West of County Road 85	61.0	61.7	0.6	No
SR-16	County Road 85 to County Road 85B	63.3	63.9	0.6	No
SR-16	County Road 85B to County Road 87	60.0	60.6	0.6	No
SR-16	East of Yolo Avenue	61.9	62.3	0.5	No
SR-16	West of County Road 89	66.0	66.5	0.5	No
SR-16	County Road 89 to I-505	64.1	64.5	0.4	No
SR-16	East of I-505	64.3	64.6	0.3	No
County Road 85	North of SR-16	51.4	51.7	0.3	No
County Road 85B	South of SR-16	59.2	59.9	0.7	No
County Road 85B	North of County Road 21A	59.0	59.7	0.7	No
County Road 21A	East of County Road 85B	58.1	58.4	0.3	No
County Road 87	North of SR-16	55.6	55.7	0.1	No
County Road 87	SR-16 to SR-16	58.1	58.6	0.6	No

Source: FHWA-RD-77-108 with inputs prepared by KD Anderson & Associates

Table 10
Cumulative Vs. Cumulative Plus Reduced Intensity Project Traffic Noise Levels
Cache Creek Hotel Expansion Project

Roadway	Segment	Cumulative	Cumulative + Project	Change	Substantial Increase?
SR-16	North of Cache Creek Casino	59.3	60.5	1.2	No
SR-16	South of Cache Creek Casino	65.8	66.4	0.6	No
SR-16	West of County Road 85	61.5	62.1	0.6	No
SR-16	County Road 85 to County Road 85B	63.8	64.4	0.6	No
SR-16	County Road 85B to County Road 87	60.8	61.3	0.5	No
SR-16	East of Yolo Avenue	63.5	63.8	0.3	No
SR-16	West of County Road 89	66.6	67.0	0.4	No
SR-16	County Road 89 to I-505	65.2	65.6	0.4	No
SR-16	East of I-505	66.0	66.2	0.2	No
County Road 85	North of SR-16	53.4	53.6	0.2	No
County Road 85B	South of SR-16	59.5	60.2	0.6	No
County Road 85B	North of County Road 21A	59.3	60.0	0.7	No
County Road 21A	East of County Road 85B	58.2	58.8	0.6	No
County Road 87	North of SR-16	57.1	57.2	0.1	No
County Road 87	SR-16 to SR-16	58.9	59.4	0.5	No

Source: FHWA-RD-77-108 with inputs prepared by KD Anderson & Associates

As shown in Tables 9 and 10, no substantial increases in traffic noise levels are identified for the project-area roadways relative to either baseline or future (cumulative) conditions associated with the reduced intensity project relative to the Table 5 criteria. As a result, noise impacts associated with increased traffic resulting from the reduced-intensity project-generated traffic are identified as ***less than significant***.

Conclusions

Noise generated by construction activities, parking lot movements, ballroom events, and increases in off-site traffic resulting from the Cache Creek Hotel Expansion is not predicted to result in adverse noise impacts at any off-reservation, sensitive-receptor locations.

These conclusions are based on the traffic assumptions cited in Appendix C and on information cited in this report. This concludes BAC's noise assessment for the Cache Creek Hotel Expansion Project. Please contact BAC at (916) 663-0500 or paulb@bacnoise.com with any questions regarding this assessment.

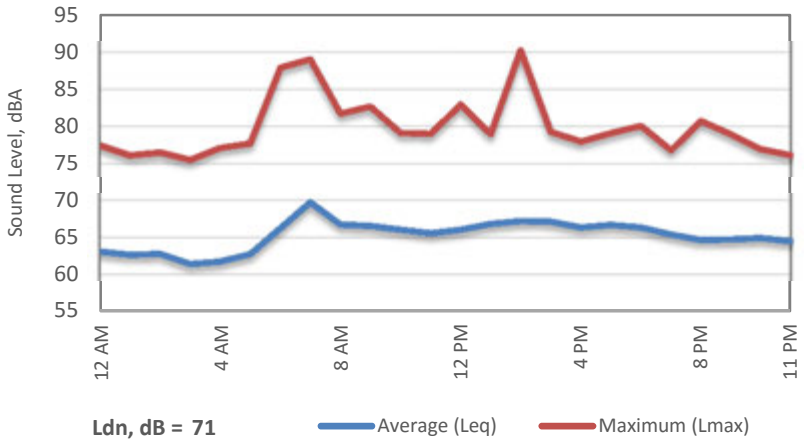
Appendix A

Acoustical Terminology

Acoustics	The science of sound.
Ambient Noise	The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
Attenuation	The reduction of an acoustic signal.
A-Weighting	A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.
Decibel or dB	Fundamental unit of sound, A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell.
CNEL	Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by a factor of three and nighttime hours weighted by a factor of 10 prior to averaging.
Frequency	The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz.
Ldn	Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.
Leq	Equivalent or energy-averaged sound level.
Lmax	The highest root-mean-square (RMS) sound level measured over a given period of time.
Loudness	A subjective term for the sensation of the magnitude of sound.
Masking	The amount (or the process) by which the threshold of audibility is for one sound is raised by the presence of another (masking) sound.
Noise	Unwanted sound.
Peak Noise	The level corresponding to the highest (not RMS) sound pressure measured over a given period of time. This term is often confused with the Maximum level, which is the highest RMS level.
RT_{60}	The time it takes reverberant sound to decay by 60 dB once the source has been removed.
Sabin	The unit of sound absorption. One square foot of material absorbing 100% of incident sound has an absorption of 1 sabin.
SEL	A rating, in decibels, of a discrete event, such as an aircraft flyover or train passby, that compresses the total sound energy of the event into a 1-s time period.
Threshold of Hearing	The lowest sound that can be perceived by the human auditory system, generally considered to be 0 dB for persons with perfect hearing.
Threshold of Pain	Approximately 120 dB above the threshold of hearing.

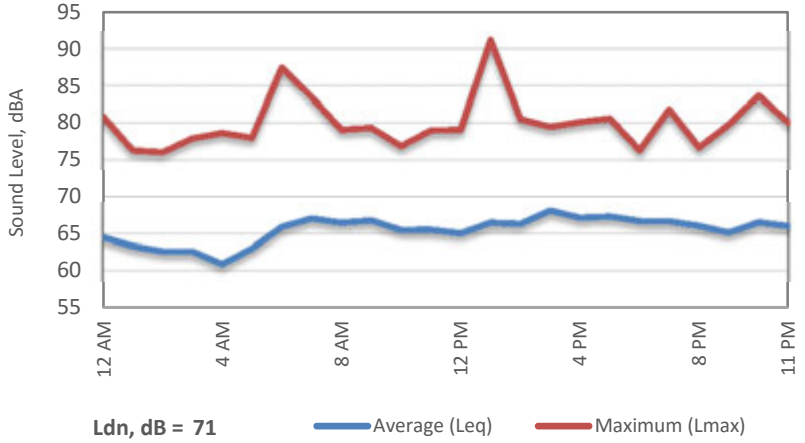
Appendix B - 1
Cache Creek Hotel Expansion
Thursday, March 17 - Sunday, March 20, 2016
Site A

Thursday, March 17, 2016



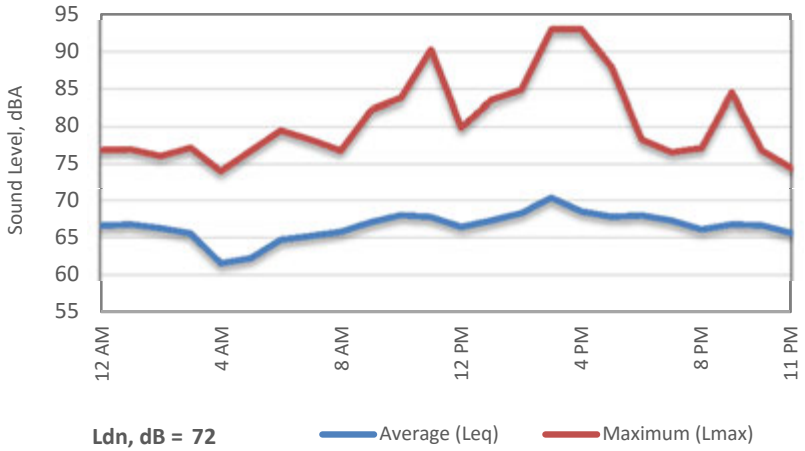
Ldn, dB = 71

Friday, March 18, 2016



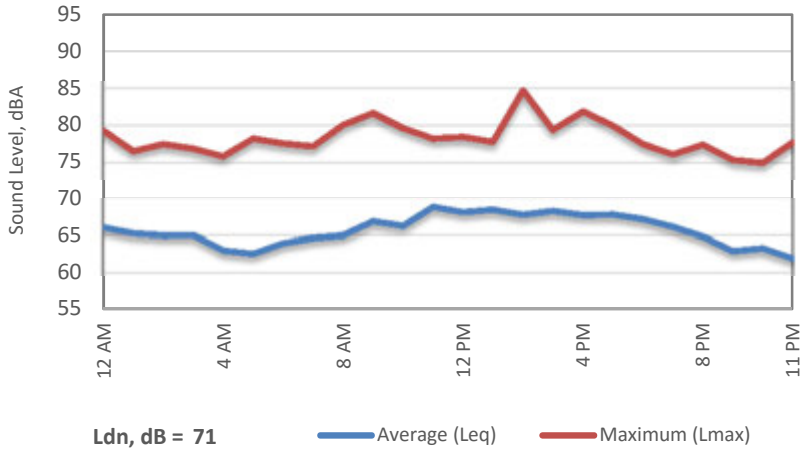
Ldn, dB = 71

Saturday, March 19, 2016



Ldn, dB = 72

Sunday, March 20, 2016



Ldn, dB = 71

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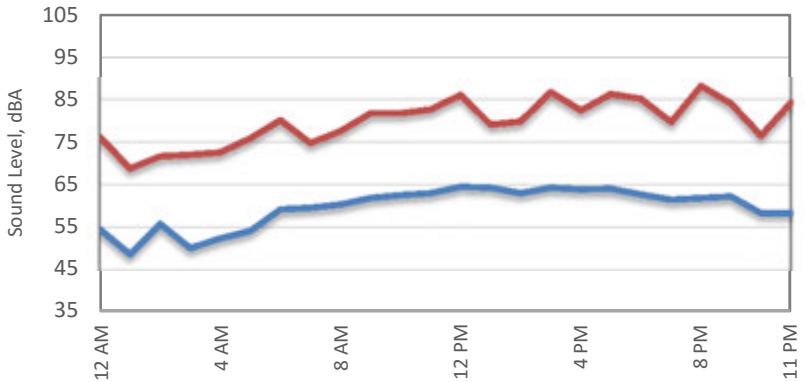
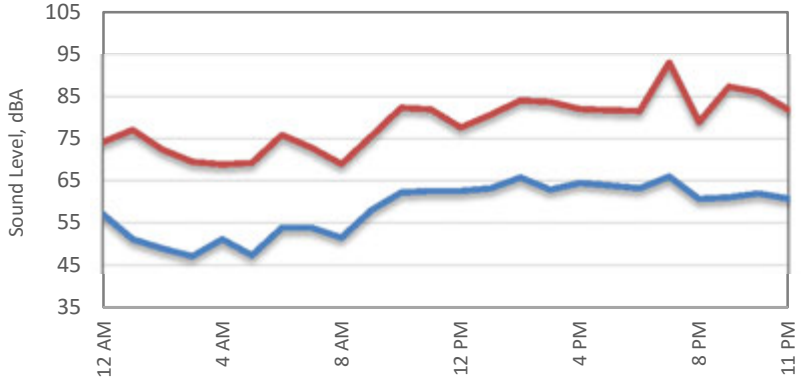
Appendix B - 2
Cache Creek Hotel Expansion
Thursday, March 17 - Sunday, March 20, 2016
Site B

Thursday, March 17, 2016



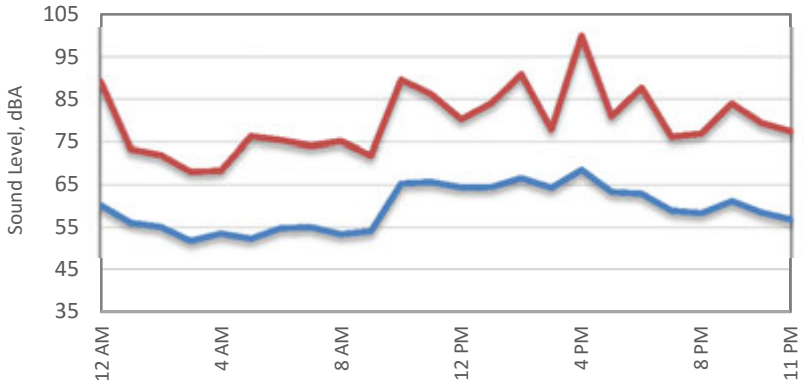
Ldn, dB = 64 Average (Leq) Maximum (Lmax)

Friday, March 18, 2016



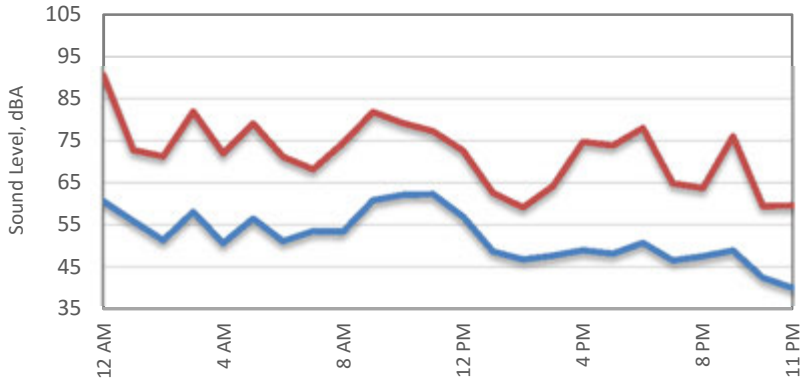
Ldn, dB = 65 Average (Leq) Maximum (Lmax)

Saturday, March 19, 2016



Ldn, dB = 65 Average (Leq) Maximum (Lmax)

Sunday, March 20, 2016



Ldn, dB = 62 Average (Leq) Maximum (Lmax)

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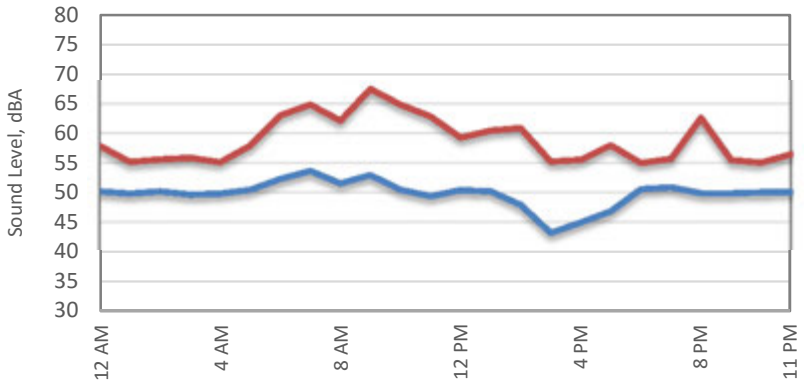
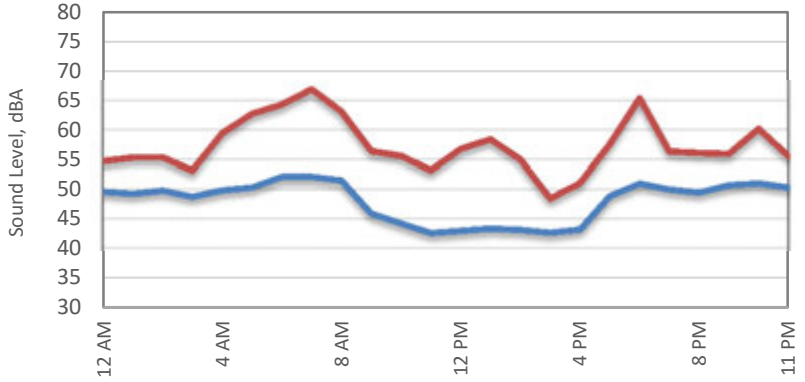
Appendix B - 3
Cache Creek Hotel Expansion
Thursday, March 17 - Sunday, March 20, 2016
Site C

Thursday, March 17, 2016



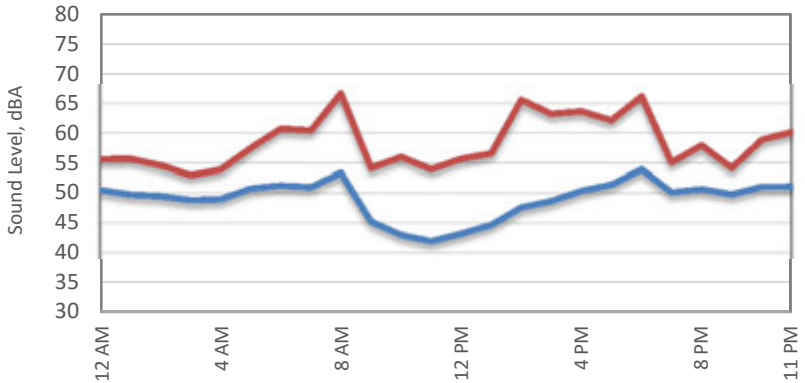
Ldn, dB = 57

Friday, March 18, 2016



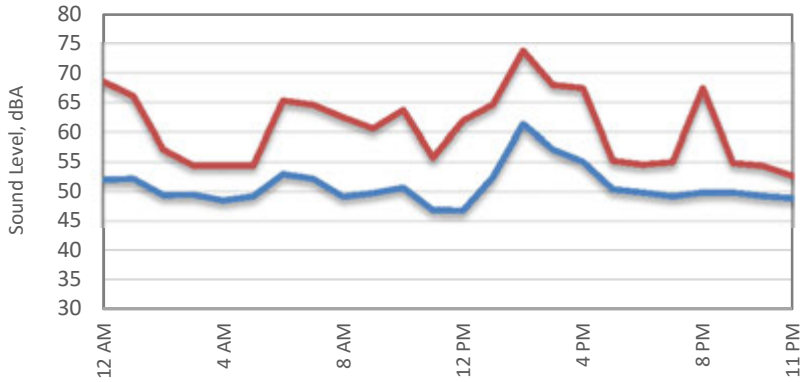
Ldn, dB = 56

Saturday, March 19, 2016



Ldn, dB = 57

Sunday, March 20, 2016



Ldn, dB = 58

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Appendix C-1

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet

Project #: 2016-028 Cache Creek Hotel Expansion
Description: Design Year
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	SR-16	North of Cache Creek Casino	2,105	80		20	2	2	55	100	
2	SR-16	South of Cache Creek Casino	8,385	80		20	2	2	55	100	
3	SR-16	West of County Road 85	8,595	80		20	2	2	35	100	
4	SR-16	County Road 85 to County Road 85B	8,390	80		20	2	2	45	100	
5	SR-16	County Road 85B to County Road 87	6,839	80		20	2	2	35	100	
6	SR-16	East of Yolo Avenue	10,375	80		20	2	2	35	100	
7	SR-16	West of County Road 89	9,855	80		20	2	2	55	100	
8	SR-16	County Road 89 to I-505	10,105	80		20	2	2	45	100	
9	SR-16	East of I-505	6,705	80		20	2	2	55	100	
10	County Road 85	North of SR-16	340	80		20	2	2	55	100	
11	County Road 85B	South of SR-16	2,065	80		20	2	2	55	100	
12	County Road 85B	North of County Road 21A	1,955	80		20	2	2	55	100	
13	County Road 21A	East of County Road 85B	1,600	80		20	2	2	55	100	
14	County Road 87	North of SR-16	895	80		20	2	2	55	100	
15	County Road 87	SR-16 to SR-16	6,925	80		20	2	2	25	100	

Appendix C-2

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet

Project #: 2016-028 Cache Creek Hotel Expansion
Description: Design Year Plus Project
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	SR-16	North of Cache Creek Casino	2,170	80		20	2	2	55	100	
2	SR-16	South of Cache Creek Casino	9,850	80		20	2	2	55	100	
3	SR-16	West of County Road 85	10,060	80		20	2	2	35	100	
4	SR-16	County Road 85 to County Road 85B	9,830	80		20	2	2	45	100	
5	SR-16	County Road 85B to County Road 87	7,850	80		20	2	2	35	100	
6	SR-16	East of Yolo Avenue	11,605	80		20	2	2	35	100	
7	SR-16	West of County Road 89	11,090	80		20	2	2	55	100	
8	SR-16	County Road 89 to I-505	11,290	80		20	2	2	45	100	
9	SR-16	East of I-505	7,180	80		20	2	2	55	100	
10	County Road 85	North of SR-16	370	80		20	2	2	55	100	
11	County Road 85B	South of SR-16	2,445	80		20	2	2	55	100	
12	County Road 85B	North of County Road 21A	2,325	80		20	2	2	55	100	
13	County Road 21A	East of County Road 85B	1,735	80		20	2	2	55	100	
14	County Road 87	North of SR-16	925	80		20	2	2	55	100	
15	County Road 87	SR-16 to SR-16	7,910	80		20	2	2	25	100	

Appendix C-3

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Project #: 2016-028 Cache Creek Hotel Expansion
Description: Design Year Plus Project Alternative
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	SR-16	North of Cache Creek Casino	2,165	80		20	2	2	55	100	
2	SR-16	South of Cache Creek Casino	9,760	80		20	2	2	55	100	
3	SR-16	West of County Road 85	9,965	80		20	2	2	35	100	
4	SR-16	County Road 85 to County Road 85B	9,740	80		20	2	2	45	100	
5	SR-16	County Road 85B to County Road 87	7,800	80		20	2	2	35	100	
6	SR-16	East of Yolo Avenue	11,525	80		20	2	2	35	100	
7	SR-16	West of County Road 89	11,005	80		20	2	2	55	100	
8	SR-16	County Road 89 to I-505	11,205	80		20	2	2	45	100	
9	SR-16	East of I-505	7,145	80		20	2	2	55	100	
10	County Road 85	North of SR-16	365	80		20	2	2	55	100	
11	County Road 85B	South of SR-16	2,410	80		20	2	2	55	100	
12	County Road 85B	North of County Road 21A	2,305	80		20	2	2	55	100	
13	County Road 21A	East of County Road 85B	1,715	80		20	2	2	55	100	
14	County Road 87	North of SR-16	925	80		20	2	2	55	100	
15	County Road 87	SR-16 to SR-16	7,860	80		20	2	2	25	100	

Appendix C-4

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet

Project #: 2016-028 Cache Creek Hotel Expansion
Description: Cumulative (2035)
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	SR-16	North of Cache Creek Casino	2,105	80		20	2	2	55	100	
2	SR-16	South of Cache Creek Casino	9,315	80		20	2	2	55	100	
3	SR-16	West of County Road 85	9,605	80		20	2	2	35	100	
4	SR-16	County Road 85 to County Road 85B	9,425	80		20	2	2	45	100	
5	SR-16	County Road 85B to County Road 87	8,100	80		20	2	2	35	100	
6	SR-16	East of Yolo Avenue	15,035	80		20	2	2	35	100	
7	SR-16	West of County Road 89	11,315	80		20	2	2	55	100	
8	SR-16	County Road 89 to I-505	13,155	80		20	2	2	45	100	
9	SR-16	East of I-505	9,890	80		20	2	2	55	100	
10	County Road 85	North of SR-16	540	80		20	2	2	55	100	
11	County Road 85B	South of SR-16	2,215	80		20	2	2	55	100	
12	County Road 85B	North of County Road 21A	2,120	80		20	2	2	55	100	
13	County Road 21A	East of County Road 85B	1,620	80		20	2	2	55	100	
14	County Road 87	North of SR-16	1,270	80		20	2	2	55	100	
15	County Road 87	SR-16 to SR-16	8,345	80		20	2	2	25	100	

Appendix C-5

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Project #: 2016-028 Cache Creek Hotel Expansion
Description: Cumulative Plus Project
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	SR-16	North of Cache Creek Casino	2,775	80		20	2	2	55	100	
2	SR-16	South of Cache Creek Casino	10,780	80		20	2	2	55	100	
3	SR-16	West of County Road 85	11,065	80		20	2	2	35	100	
4	SR-16	County Road 85 to County Road 85B	10,855	80		20	2	2	45	100	
5	SR-16	County Road 85B to County Road 87	9,115	80		20	2	2	35	100	
6	SR-16	East of Yolo Avenue	16,260	80		20	2	2	35	100	
7	SR-16	West of County Road 89	12,555	80		20	2	2	55	100	
8	SR-16	County Road 89 to I-505	14,390	80		20	2	2	45	100	
9	SR-16	East of I-505	10,360	80		20	2	2	55	100	
10	County Road 85	North of SR-16	570	80		20	2	2	55	100	
11	County Road 85B	South of SR-16	2,590	80		20	2	2	55	100	
12	County Road 85B	North of County Road 21A	2,495	80		20	2	2	55	100	
13	County Road 21A	East of County Road 85B	1,900	80		20	2	2	55	100	
14	County Road 87	North of SR-16	1,300	80		20	2	2	55	100	
15	County Road 87	SR-16 to SR-16	9,320	80		20	2	2	25	100	

Appendix C-6

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet

Project #: 2016-028 Cache Creek Hotel Expansion
Description: Cumulative Plus Project Alternative
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	SR-16	North of Cache Creek Casino	2,770	80		20	2	2	55	100	
2	SR-16	South of Cache Creek Casino	10,680	80		20	2	2	55	100	
3	SR-16	West of County Road 85	10,975	80		20	2	2	35	100	
4	SR-16	County Road 85 to County Road 85B	10,765	80		20	2	2	45	100	
5	SR-16	County Road 85B to County Road 87	9,050	80		20	2	2	35	100	
6	SR-16	East of Yolo Avenue	16,185	80		20	2	2	35	100	
7	SR-16	West of County Road 89	12,475	80		20	2	2	55	100	
8	SR-16	County Road 89 to I-505	14,310	80		20	2	2	45	100	
9	SR-16	East of I-505	10,330	80		20	2	2	55	100	
10	County Road 85	North of SR-16	570	80		20	2	2	55	100	
11	County Road 85B	South of SR-16	2,570	80		20	2	2	55	100	
12	County Road 85B	North of County Road 21A	2,465	80		20	2	2	55	100	
13	County Road 21A	East of County Road 85B	1,880	80		20	2	2	55	100	
14	County Road 87	North of SR-16	1,300	80		20	2	2	55	100	
15	County Road 87	SR-16 to SR-16	9,260	80		20	2	2	25	100	