UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 9
75 Hawthorne Street
San Francisco, California 94105-3901

Mail Code: WTR-4

Environmental Assessment for the Joshua Basin Water District Water Recharge Project
Joshua Basin, California

Executive summary

This Environmental Assessment (EA) was prepared to examine the impacts arising from the construction of one recharge basin facility, and an extension of the Morongo Basin Pipeline from its existing terminus to the new recharge basin near Joshua Basin, California. The recharge basin would be approximately 32.5 acres in size, consisting of multiple (up to six) six-to-seven foot deep sub-basins separated by overflow earthen weirs that would allow water to flow from sub-basin to sub-basin as needed. The basins would fill by gravity and no pumping equipment would be needed. The proposed pipeline would include up to 24,000 linear feet of up to 16 to 24-inch diameter pipe connecting to the existing Morongo Pipeline at Yucca Mesa Road. The pipeline would be installed within the road rights-of-way, following Yucca Mesa Road south to SR 62 then eastward along SR 62 to the recharge basin location. The pipeline would be buried approximately three to four feet below grade along the northern side of the highway.

The Joshua Basin Water District relies entirely on ground water from the local aquifer, which has been overdrafted by 47,000 acre-feet since 1950. There is no natural recharge, meaning that none of the pumped water is replenished, except for discharge from septic systems. If the proposed project is completed, as much as 1,959 acre feet of water will be delivered through the State Water Project to help recharge the over-drafted aquifer and protect water quality. Studies show that, without recharge, nitrate and other minerals will increase beyond maximum allowable state and federal levels, requiring more intensive water treatment. Additionally, water levels will decrease, requiring wells to be drilled deeper at higher energy costs. Failing to recharge the aquifer will result in impaired water quality and additional negative consequences, such as increased emissions associated with pumping and treating less-accessible, contaminated water.

While the proposed project will improve water quality, the extension of the State Water Project could induce growth. Estimating whether and to what extent the proposed project could impact growth projections is difficult for a number of reasons, namely the unreliability of water delivered by the State Water Project, the uncertainty of the quantity of water recharged through septic systems, and the ambiguity of how removing one obstacle to growth (i.e., a limited water supply) will affect the development of other growth-inducing infrastructure, such as roadways, electrical lines, etc..

After carefully weighing the regulatory, environmental (both natural and human) and socio-economic factors as described in this Environmental Assessment, EPA Region 9 has not identified any significant impacts to the environment that would result from the implementation of the proposed project.

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CHAPTER 1
Purpose and Need

1.1 Purpose of and Need for the Proposed Action

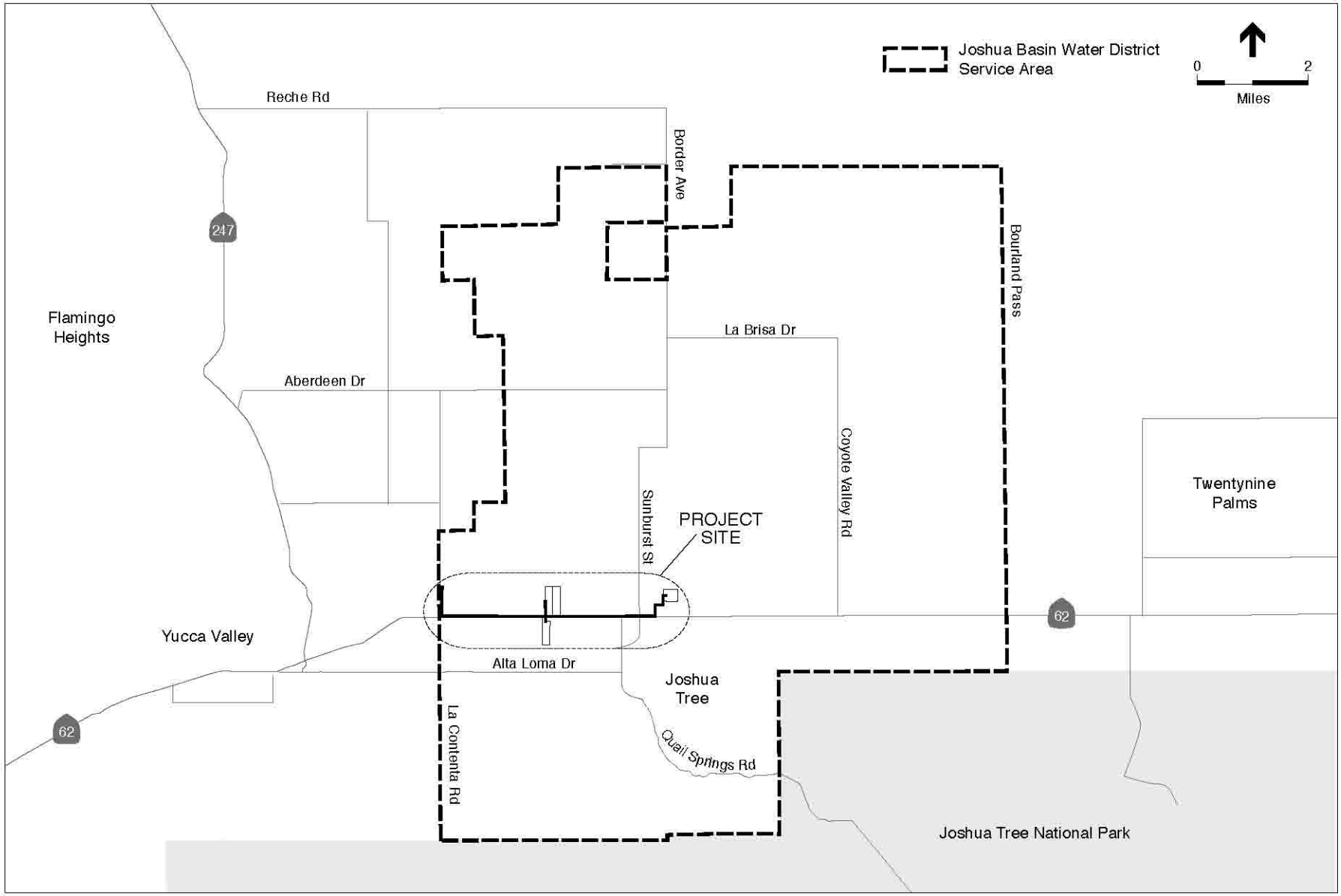
The purpose of the action is to convey an entitled water supply source from the Mojave Water Agency (MWA) to the Joshua Basin Water District (JBWD) distribution facilities. The owner and operator of the facilities would be: Joshua Basin Water District, 61750 Chollita Road, Joshua Tree, California 92252.

In 2004, the Mojave Water Agency (MWA) prepared a Regional Water Management Plan (RWMP) and Program Environmental Impact Report (PEIR) that evaluated water supply and demand throughout the MWA service area including within the JBWD service area. As part of this evaluation, projects and management actions were proposed to meet future water supply needs. The proposed action was included within the MWA RWMP as a moderate priority water supply enhancement project for JBWD. The proposed recharge basin sites were identified along State Route (SR) 62. The RWMP evaluated alternatives and concluded that the JBWD recharge project would constitute the most appropriate means of providing water supply and storage to meet future JBWD service area demands.

JBWD, a public agency serving the unincorporated community of Joshua Tree in San Bernardino County, has approximately 4,700 potable water service connections across its 100 square mile service area (**Figure 1-1**). JBWD supplies high quality groundwater obtained from district-owned wells. The water system presently consists of an estimated 625,000 acre-feet of usable water drawn from five wells, conveyed through approximately 270 miles of mainlines and stored in 17 reservoirs.

JBWD participated in the construction of the Morongo Basin Pipeline to convey SWP water from the California Aqueduct in the Mojave River watershed to the Hi-Desert Water District and JBWD service areas. The Morongo Basin Pipeline was completed in 1995 and currently supplies up to 7,250 afy of State Water Project (SWP) water to the Hi-Desert Water District. The proposed action is necessary to convey SWP water from the terminus of the Morongo Pipeline to the JBWD service area.

Potable water for the community of Joshua Tree area is supplied entirely by groundwater. Recent studies conducted by the U.S. Geological Survey (USGS) in 2003-04 have concluded that inflow to the Joshua Tree Subbasin is approximately 230 afy while outflows are approximately 200 afy resulting in a net 30 afy annual recharge. The study notes that about 1,600 acre-feet per year



SOURCE: Thomas Brothers Maps; ESA, 2008.

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Figure 1-1
Joshua Basin Water District
Service Area

(afy) of groundwater is pumped from the basins. With an estimated septage return flow of approximately 1,200 afy, the Joshua Tree Sub-basin is currently overdrafted each year by approximately 400 af (GEI, 2009). Future water demand is projected to increase over the next 25 years, which will cause further overdraft. Providing a source of imported water is necessary to alleviate the overdraft condition, replenish the groundwater basin to offset historic over-drafting, and increase water supply reliability for the region.

Currently, JBWD has an agreement in place with MWA in which JBWD is entitled to 1,959 afy of SWP water until the year 2022 delivered by the Morongo Pipeline. The proposed action would enable JBWD to receive water entitled under this agreement.

1.2 Objectives of the Proposed Action

The objectives of the proposed project are to:

- Provide additional groundwater recharge, storage, and recovery capacity in the Joshua Basin region;
- Allow the storage of water during wet hydrologic periods for recovery and use during dry periods, to provide JBWD customers with increased water supply reliability;
- Reduce the demand for local groundwater; and
- Enhance water supply reliability.

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CHAPTER 2
Analysis of Alternatives

2.1 Alternative 1 – Proposed Action

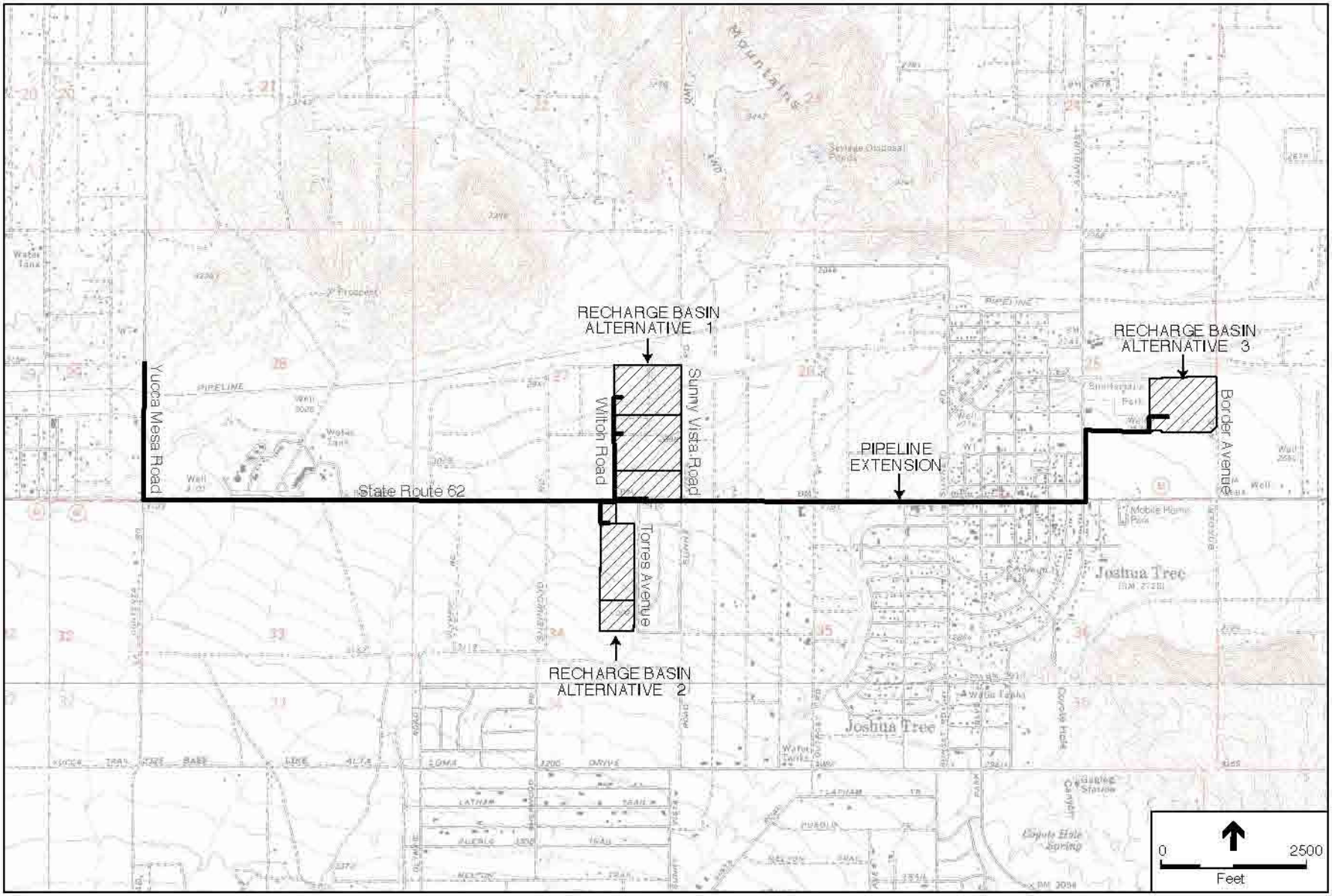
Under the Preferred Alternative, project components would include the construction of an approximately 32.5-acre recharge basin (Recharge Basin Alternative 3 has been selected from among the three basin alternatives) with a total usable area (wet acres) of 29.8 acres; and the installation of 24,000 linear feet of 16- to 24-inch diameter pipeline (Morongo Pipeline). The pipeline would be installed within the road rights-of-way, following Yucca Mesa Road south to SR 62, then eastward along SR 62 to the new recharge basin. The pipeline and recharge basin would be constructed as outlined below. See Chapter 4.0, Evaluation of Impacts for a discussion of the direct, indirect and cumulative effects of this alternative.

Recharge Basins

Three alternative recharge basin locations are evaluated within this EA (**Figure 2-1**). Recharge Basin Alternative 1 is located on the north side of SR 62 west of Sunny Vista Road and includes a total area of 79.6 acres with a total useable area of 33.0 acres. Recharge Basin Alternative 2 is located just south SR 62 west of Torres Avenue and includes a total area of 35.5 acres with a total useable area of 23.4 acres. Recharge Basin Alternative 3 is the furthest east of the alternative sites and is located north of SR 62 and west of Border Avenue. Recharge Basin Alternative 3 includes a total area of 32.5 acres with a total useable area of 29.84 acres.

Recharge basin size requirements are based on a one-foot per day infiltration rate at each site. The proposed action would require a total area of 29 acres for basin construction, which would include 22 wet acres. The project would involve construction of multiple (up to six) six- to seven-foot deep subbasins within one of the recharge basin alternative locations. The subbasins would be separated by overflow earthen weirs, allowing water to flow from subbasin to subbasin as needed. The basins would fill by gravity and no pumping equipment would be needed. Control valves would be used to add water to the various subbasins, if necessary. These valves would be contained within a small building on the site.

Water levels within the basins would not exceed original grade elevation and would be maintained at depths of three to five feet. Annual average recharge is anticipated to be approximately 2,000 afy; however, with the availability of water being less than a full year, each site would be designed to allow the 2,000 af recharge with a 50 percent water delivery schedule. Therefore, the recharge basins would be able to accommodate a total capacity of up to approximately 4,000 af for half of the year in order to meet the goal of 2,000 afy of recharge.



SOURCE: GlobeXplorer; ESA, 2009

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Figure 2-1
Project Location Map

A six-foot high earthen berm would surround the recharge basin to provide visual screening. The perimeter berms would not be used to impound water or provide freeboard. The recharge basin site would also be fenced with eight-foot chain-link fence.

Recharge Basin Alternative 3 is the preferred alternative since it would result in fewer environmental impacts, including fewer impacts associated with aesthetic resources and biological resources.

Construction of the new recharge basin would require clearing and grubbing of the property. Site excavation and grading would be conducted to a depth of approximately six feet below grade. With a wetted area of 22 acres and six-foot deep basins, the project would result in approximately 200,000 cubic yards of earthwork. Approximately 25,000 cubic yards of the soil removed to create the basins would be used to form the perimeter berms. The remaining 175,000 cubic yards of earthwork would be disposed of or sold for re-use. Equipment needed for recharge basin construction would include bulldozers, excavators, scrapers, rollers, dump trucks, concrete trucks, pre-stressing equipment and construction delivery tractor-trailers.

Construction traffic to the site would be approximately 250 trips per day total. This accounts for approximately 200 round-trips per day by trucks (for delivery and soil excavation) and 50 round-trips per day for worker commute trips (assuming approximately 25 workers). Peak construction traffic would depend on the number of activities performed concurrently and the length of time construction materials would be delivered to the site.

Pipeline

The proposed pipeline would include up to 24,000 linear feet of 16 to 24-inch diameter pipe connecting to the existing Morongo Pipeline at Yucca Mesa Road. The pipeline would be installed within the road rights-of-way, following Yucca Mesa Road south to SR 62 then eastward along SR 62 to one of the three alternative recharge basin locations. In order to reach Recharge Basin Alternative 3, the pipeline may take an alternate route in which it would travel north along Sunset Avenue and then east on Commercial Avenue. The pipeline would be buried approximately three to four feet below grade along the northern side of the highway. Figure 2-1 shows the proposed and alternative pipeline routes.

Construction of the proposed pipeline would primarily involve open trenching, although jack-and-bore tunneling may be used for specific segments. The pipeline would be installed generally within the existing roadway right-of-way, where feasible, and along the northern side of SR 62 to minimize land acquisitions or easement requirements. Tunneling and directional drilling would be required in order to pass under existing aqueducts and waterways. No road closures would be required, but lane closures would be required at intersections following the pipeline route as well as temporary lane closures along SR 62. It is anticipated that some soil would be removed from the construction sites.

Construction Schedule

The recharge basin and pipeline facilities would take approximately nine months to one year each to construct. Both facilities would likely be constructed simultaneously in order to minimize the duration and impact of the proposed project. However, project construction may occur in two phases (one phase for pipeline construction and one phase for the recharge facility). Construction would begin in December 2009.

Operation and Maintenance Details

JBWD would manage the operation and maintenance of the recharge basins. Water would be conveyed to the recharge basins from the Morongo Basin Pipeline when available from the SWP in accordance with the agreement with MWA. Since water availability varies according to the SWP operations, the recharge basins will be filled only parts of the year, with some years providing more water than others. Subbasins would be filled with water for approximately two to three weeks at a time before fully recharging. Once empty, a subbasin would be available for re-filling.

Maintenance of the recharge basins would require periodic drying and scarifying of the basin bottom, which would occur as necessary, but not more than twice per year. Because it is anticipated that would water would be available for less than a full year, maintenance would occur during the dry portion of the year. Vector and dust control would be addressed by District operations. Water would be sprayed on the basins to prevent dust during scarification. Vector control would be dependent on need; however, proper operations would not result in excessive vector development.

Discretionary Approvals Required for the Project

Table 2-1 presents a preliminary list of the agencies and entities in addition to JBWD that would use this document in their consideration of specific permits and other discretionary approvals that may apply to the proposed action. This document is intended to provide these agencies with information to support the agency decision-making processes. The table also lists the types of activities that would be subject to these requirements.

Funding of the Proposed Action

The total cost of the proposed action is $8,971,500. EPA would fund $291,000 of the project. EPA funding would be allocated to environmental planning costs and United State Geological Survey (USGS) recharge and nitrate monitoring wells and studies costs.

Table 2-1
Discretionary Permits/APPROVALS POTENTIALLY Required

Agency	Permits and Authorizations Required	Activities Subject to Regulations
California Department of Fish and Game	1602 Lake and Streambed Alteration Agreement	Fish and Game Code Section 1602 applies to projects impacting perennial, intermittent, and ephemeral rivers, streams, and lakes in the state.
Regional Water Quality Control Board	Waste Discharge Requirements	Placement of dredge or fill materials into waters of the state.
	Storm Water Pollution Prevention Plan	Control of runoff from construction sites.
California Department of Transportation (Caltrans)	Encroachment permit	Construction access within SR 62 right of way
San Bernardino County	Encroachment permit	Construction access within the community of Joshua Tree roadways.
U.S. Environmental Protection Agency	Funding approval	Proposition 84 funding

2.2 Alternative 2 – No Action

Under the No Project Alternative, the recharge basins and pipeline would not be constructed and the project locations would remain undeveloped. JBWD would continue to rely exclusively on groundwater for its water supply. The Joshua Tree sub-basin would continue to be overdrafted each year as JBWD would be unable to take advantage of SWP water via the Morongo Basin Pipeline. Groundwater production from the basins is currently 1,600 afy. If growth continues at the expected rate, groundwater production would increase each year. See Chapter 4.0, Evaluation of Impacts for a discussion of the direct, indirect and cumulative effects of this alternative.

2.3 Existing Demand Recharge Capacity Alternative

The Existing Demand Recharge Capacity Alternative is similar to the Preferred Alternative, except that the design of the recharge basin would be such that the recharge capacity would only meet the existing water supply demand of approximately 1,600 afy. As discussed under the project description, the recharge basins are designed to accommodate large amounts of water to be received during a short time frame. Therefore, in order to allow a recharge capacity of 1,600 afy, the recharge basin under this alternative would be designed to accommodate approximately 3,200 afy. The area required for construction under the Existing Demand Recharge Capacity Alternative would be smaller than the 29 acres (22 wet acres) required under the Preferred Alternative. The proposed pipeline would still be installed as outlined in the project description. See Chapter 4.0, Environmental Consequences and Mitigation for a discussion of the direct, indirect and cumulative effects of this alternative.

2.4 Increased Recharge Capacity Alternative

The Increased Recharge Capacity Alternative is similar to the Preferred Alternative, except there would be two to three recharge basins and/or one larger recharge basin constructed instead of one moderately sized recharge basin. The proposed pipeline would be installed as outlined in the project description. Under the Increased Recharge Capacity Alternative, the three locations of the recharge basins would remain the same. However, two or three of the recharge basins would be built as opposed to only one. This would allow for increased recharge as each basin has an estimated recharge capacity of approximately 4,000 afy. In addition, under the Increased Recharge Capacity Alternative, recharge could be increased by building larger groundwater basins with recharge capacities in excess of 4,000 afy. See Section 4.0, Evaluation of Impacts, for a discussion of the direct, indirect and cumulative effects of this alternative.

Alternatives Considered and Eliminated from Detailed Consideration

During the planning process, JBWD considered surface water treatment as an alternative to recharge basins to help meet the district's water supply demands. A surface water treatment alternative would involve the construction of a reservoir that would serve to supplement the region's source of potable water instead of relying only on the groundwater supply. In order to meet the water supply demands of the region, this reservoir would have to be very large, which posed site location constraints and would involve significantly greater impacts than the proposed recharge basins. Therefore, a surface water supply alternative was rejected from further consideration.

Summary Comparison of Alternatives

Table 2-2 provides a summary comparison of the environmental impacts of three alternatives - No Project Alternative, Existing Demand Recharge Capacity Alternative, and Increased Recharge Capacity Alternative, to the Preferred Alternative. **Table 2-3** compares the ability of all four alternatives to meet the objectives of the proposed action.

TABLE 2-2
SUMMARY COMPARISON OF PROJECT ALTERNATIVE IMPACTS

Potential Project Impacts	Preferred Alternative	No Project Alternative	Existing Demand Recharge Capacity Alternative	Increased Recharge Capacity Alternative
Aesthetics	LSM	-	0	0
Air Quality	LSM	-	-	+
Biological Resources	LSM	-	-	+
Cultural Resources	LSM	-	-	+
Geology, Soils, and Mineral Resources	LSM	-	0	0
Hazards and Hazardous Materials	LSM	-	0	0
Hydrology and Water Quality	LSM	+	0	0
Land Use, Agriculture, and Recreation	LSM	-	0	0
Noise	LTS	-	0	0
Public Services and Utilities	LTS	+	0	0
Traffic and Circulation	LSM	-	0	0

LTS = Less than significant impact
LSM = Less than significant impact with mitigation
SU = Significant and unavoidable impact
NI = No Impact

(—) = lesser impact
(+) = greater impact
(0) = no difference

SOURCE: ESA, 2009.

TABLE 2-3
ABILITY OF PROJECT ALTERNATIVE TO MEET PROJECT OBJECTIVES

Project Objectives	Preferred Alternative	No Project Alternative	Existing Demand Recharge Capacity Alternative	Increased Recharge Capacity Alternative
Provide additional groundwater recharge, storage, and recovery capacity in the Joshua Basin region	Yes	No	No	Yes
Allow the storage of water during wet hydrologic periods for recovery and use during dry periods, and to provide JBWD customers with increased water supply reliability	Yes	No	Yes	Yes
Reduce the demand for local groundwater	Yes	No	Yes	Yes
Enhance water supply reliability	Yes	No	Yes	Yes

SOURCE: ESA, 2009.

CHAPTER 3
Present Environment

This chapter describes the present environment to establish the baseline conditions of the relevant environmental resources associated with implementation of the proposed action. In compliance with guidelines contained in NEPA, CEQ regulations, and the *U.S. Environmental Protection Agency Environmental Review Guide for Special Appropriation Grants*, the description of the affected environment focuses only on those resources potentially subject to impacts.

Resources that are associated with cross-cutter environmental laws that are not present in the vicinity of the project site are as follows:

- **Coastal Barrier Resources.** The proposed action would not be located within the Coastal Barrier Resources System, which is protected under the Coastal Barriers Resource Act (16 U.S.C §§3501-3510).
- **Coastal Zones.** The proposed action would not be located in the coastal zone as defined by the Coastal Zone Management Act (16 U.S.C §§1451-1466).
- **Wild and Scenic Rivers**. The proposed action would not affect any wild and scenic river, or adjacent lands, as designated under the Wild and Scenic Rivers Act (16 U.S.C. §§1271-1287).
- **Essential Fish Habitat.** The Pacific Fishery Management Council has not designated any Essential Fish Habitat (EFH) in the vicinity of the proposed action, as required by the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. §§1801-1891), as amended by the Sustainable Fisheries Act of 1996.
- **Prime and Unique Farmland.** The proposed action would not be located on or adjacent to lands identified as farmland as defined by the Farmland Protection Policy Act (7 U.S.C §§4201-4209). The proposed action would not adversely affect farmland or result in the conversion of farmland to non-agricultural use as identified by the California Department of Conservation's Farmland Mapping and Monitoring Program (see Section 4.7 for additional information).

3.1 Community Location and Service Area

The project is located in the unincorporated community of Joshua Tree, in San Bernardino County along and adjacent to SR 62 between Yucca Mesa Road and Border Avenue (see **Figure 2-1**). The unincorporated community of Joshua Tree is located approximately four miles north of the Joshua Tree National Park and is considered to be the gateway community to the West Entrance of the National Park. Located in the southern portion of the County, Joshua Tree is approximately 2 miles east of the Town of Yucca Valley and approximately 10 miles west of the City of Twentynine Palms. The Bartlett Mountains lie approximately one mile north of the

community of Joshua Tree. The Pinto Mountains and Little San Bernardino Mountains border the project area to the south.

JBWD, a public agency serving the unincorporated community of Joshua Tree in San Bernardino County, has approximately 4,700 potable water service connections across its 100 square mile service area (see **Figure 1-1**). JBWD supplies high quality groundwater obtained from district-owned wells. The water system presently consists of an estimated 625,000 acre-feet of usable water drawn from five wells, conveyed through approximately 270 miles of mainlines and stored in 17 reservoirs.

As described in Chapter 1.0, Purpose and Need, potable water for the community of Joshua Tree area is supplied entirely by groundwater. Recent studies conducted by the U.S. Geological Survey (USGS) in 2003-04 have concluded that about 1,600 acre-feet per year (afy) of groundwater is pumped from the basins. With an inflow estimated at approximately 1,200 afy, the Joshua Tree Sub-basin is currently overdrafted each year by approximately 400 af (GEI, 2009). Future water demand is projected to increase over the next 25 years, which will cause further overdraft. Providing a source of imported water is necessary to alleviate the overdraft condition, replenish the groundwater basin to offset historic over-drafting, and increase water supply reliability for the region.

Recharge Basin Alternatives

All of the Recharge Basin Alternatives would be constructed on land designated as residential. Specifically, Recharge Basin Alternatives 1 and 3 are designated for Rural Living (RL) residential, which establishes areas where non-agricultural activities are the primary use of the land, but where agricultural and compatible uses may exist. Recharge Basin Alternative 2 is designated for Single Residential (RS), which provides for single-family homes and areas for accessory and non-residential uses that complement single-family neighborhoods. Portions of Recharge Basin Alternative 2 are also designated for Multiple Residential (RM) uses, which provide areas for higher-density residential development in the form of attached, detached, or mixed-use development. Public utilities are allowed under all of these residential land use designations because they are considered to be accessory uses that complement and support residential land uses. Land use designations in the vicinity of the recharge basin locations include residential designations of varying densities, general commercial designations, and institutional designations.

Pipeline Alignment

The pipeline alignment would be constructed in road rights-of-way. Adjacent land use designations are RL, Service Commercial (CS), General Commercial (CG), Institutional (IN), and Floodway (FW). The CS zoning designation denotes areas where heavy commercial uses and light industrial uses are allowed. The CG zoning designation denotes areas that provide for retail and personal services and other similar and compatible uses. The IN zoning designation denotes areas for public and quasi public uses, and the FW provides for animal raising and crop production. The pipeline alignment is compatible with the adjacent land uses as public utilities

are accessory to uses that complement and support neighboring residential, industrial, and commercial land uses.

3.2 Population

San Bernardino County is comprised of twenty-four incorporated cities and numerous unincorporated communities and has a population of approximately 2,060,950 people. Approximately 295,400 of these people live in the unincorporated areas of the County.[1] The unincorporated areas of the County are experiencing a high rate of population growth and Southern California Association of Governments' (SCAG) projections indicate that by the year 2030, the population of the unincorporated communities within San Bernardino will be 462,447. **Table 3.2-1** summarizes recent population trends in San Bernardino County and compares those trends with the overall population trends of the State.

TABLE 3.2-1
RECENT POPULATION TRENDS: SAN BERNARDINO COUNTY AND THE STATE OF CALIFORNIA[1]

	2000	2005	2009	2000-2005 Change	1990-2005 % Change	2005-2009 Change	2005-2009 % Change
San Bernardino County	1,701,374	1,946,312	2,060,950	244,938	14	114,638	6
State of California	33,873,086	36,676,931	38,292,687	2,803,845	8	1,615,756	4

1. California Department of Finance, City/County Population and Housing Estimates, 2009.

The Joshua Tree Community Plan provides population projections from the County General Plan based on historic and expected growth trends. The County projections estimate a population range of between 9,387 and 15,500 people for the Community of Joshua Tree, by the year 2030 (**Table 3.2-2**). The larger projections are based on regional building permit data.

TABLE 3.2-2
JOSHUA TREE POPULATION PROJECTIONS 2000–2030

Year	2000	2030	Projected Average Annual Growth Rate 2000-2030
Population	8,103	9,387 to 15,500	0.5% to 0.9%
Households	3,465	4,170 to 6,625	0.6% to 0.9%

SOURCE: Joshua Tree Community Plan 2007.

1 California Department of Finance, City/County Population and Housing Estimates, 2009.

According to 2000 Census data, the median age of residents in San Bernardino County is 30 years. Age distribution within the County and State are similar with approximately 41 percent of San Bernardino residents under 24 years of age, 30 percent between the ages of 25 and 44 years, and 29 percent 45 years or older.[2] The racial and ethnic composition of San Bernardino County in 2000 was 45 percent White, Non-Hispanic, 39 percent Hispanic, nine percent African-American, six percent Asian/Pacific Islander, and one percent American Indian.

Housing

According to the U.S. Census Bureau, San Bernardino County had approximately 679,169 housing units in 2008. The vast majority of the housing units in the County are single-family houses (approximately 71 percent) while the remainder are either multi-family (approximately 23 percent) or mobile homes (approximately 6 percent). **Table 3.2-3** summarizes the housing types in San Bernardino County.

Households are occupied housing units. According to census data, San Bernardino County had 589,058 households in 2008.[3] The vacancy rate within San Bernardino County is approximately 10 percent. Housing tenure refers to whether a housing unit is owned or rented and can be affected by several factors such as housing costs (interest rates, economics, land materials, and

TABLE 3.2-3
HOUSING IN SAN BERNARDINO BY TYPE (2008)

	Total Units	
Unit Type	**Number**	**Percent**
Single-family detached	482,258	71
Single-family attached	23,585	3
Multi-family (2-4 units)	45,838	7
Multi-family (5+ units)	87,284	13
Mobile homes, boat, RV, van, etc.	40,204	6
Total	**679,169**	

SOURCE: U.S. Census Bureau, 2008.

labor costs), housing type, housing availability, and preference. In 2008, 65 percent of San Bernardino County households were owned, which is approximately the same percentage as in 2000. Renter occupied units represented the remaining 2008 households at 35 percent. The proposed action does not contain any existing or proposed housing.

2 U.S. Census Bureau. http://factfinder.census.gov/servlet/ACSSAFFFacts?_event=Search&geo_id=04000US06&_geoContext=01000US%7C04000US06&_street=&_county=San+Bernardino+County&_cityTown=San+Bernardino+County&_state=04000US06&_zip=&_lang=en&_sse=on&ActiveGeoDiv=geoSelect&_useEV=&pctxt=fph&pgsl=040&_submenuId=factsheet_1&ds_name=ACS_2008_3YR_SAFF&_ci_nbr=null&qr_name=null&reg=null%3Anull&_keyword=&_industry=

3 U.S. Census Bureau, Census 2008.

Employment

According to Census data, the San Bernardino labor force was estimated at 946,013 people, or approximately 64 percent of the population. Employment in San Bernardino County is dominated by the educational services, and health care and social assistance industries. Between 2000 and 2008, there were only slight changes in the proportion of jobs in major industries in San Bernardino County. There was a slight increase in construction and a slight decrease in manufacturing. The median household income for the County of San Bernardino is $56,575, which is lower than the State of California's median income of $69,659. **Table 3.2-4** summarizes employment trends in San Bernardino County. Currently, the alternative basin sites are vacant land and provide no jobs.

TABLE 3.2-4
EMPLOYMENT IN SAN BERNARDINO COUNTY

	2000		2008		
Major Industry	**Jobs**	**Percent**	**Jobs**	**Percent**	**Percentage Change**
Agriculture	5,934	1	4,744	1	0
Construction	49,517	8	80,863	10	+2
Manufacturing	84,166	13	88,925	10	-3
Transportation, communication and utilities	46,776	7	67,698	8	+1
Wholesale and retail	111,634	17	145,421	17	0
Finance, insurance and real estate	36,860	6	51,354	6	0
Professional, scientific, management, administrative and waste management services	50,726	8	70,237	8	0
Educational Services, and healthcare and social assistance	140,063	21	171,610	20	-1
Other service[a]	83,922	13	109,747	13	0
Public administration	36,713	6	47,105	6	0
Total Jobs	**661,272**		**854,244**		

[a] The other services industry includes arts, entertainment, recreation, accommodation and food services.

SOURCE: US Census Bureau, 2000 Census and Selected Economic Characteristics: 2006-2008.

Regulatory Setting

Federal

Executive Order 12898 outlines federal actions to address environmental justice in minority populations and low-income populations. Executive Order 12898 states that agencies shall identify and address disproportionately high and adverse human health or environmental effects on minority and low income populations. A newly created working group was created to develop strategies for programs and policies, regarding minority and low-income populations, to promote enforcement of all health and environmental statutes, improve research and data collection in relation to health and environment, identify different patterns of consumption of natural resources, and ensure greater public participation.

State

SCAG Regional Transportation Plan (RTP)

The SCAG analyzes demographic data as part of the published *Regional Transportation Plan Growth Forecast* (SCAG, 2008). The SCAG projections assume that growth potential is not constrained by a lack of public services or utilities. As such, the population estimates are not target levels, but rather reasonably foreseeable levels, based on the current trends. SCAG has projected the population and the number of households within the unincorporated community of Joshua Tree to be similar to projections used for the Joshua Tree Community Plan. **Table 3.2-5** shows the projected population and number of households for the region from the census year from 2010 to the year 2035.

TABLE 3.2-5
SCAG PROJECTIONS 2008

Location	2010	2015	2020	2025	2030	2035	Change 2010–2035
Joshua Tree							
Population	9,873	11,284	12,482	13,617	14,696	15,717	5,844
Households	3,907	4,664	5,275	5,854	6,393	6,896	2,989

SOURCE: SCAG, 2008.

SCAG Regional Housing Needs Assessment

State law requires that jurisdictions provide their fair share of regional housing needs. The State of California Department of Housing and Community Development (HCD) has a mandate to determine the state-wide housing need. In cooperation with HCD, local governments and councils of government (COGs) are charged with making a determination of their city or region's existing and projected housing need as a share of the state-wide housing need. The draft Regional Housing Needs Assessment (RHNA) (dated January 18, 2007) identifies housing needs in each SCAG jurisdiction and allocates a fair share of that need to every community. The RHNA indicates that unincorporated San Bernardino County needs to supply a total of 20,622 new housing units for the planning period between 2006 and 2014.[4] This number includes accommodating anticipated population growth, achieving a reasonable vacancy rate and replacing substandard dwellings.

3.3 Topography

Review of topographic coverage of the project site on U.S. Geological Survey (USGS) 7.5 minute quadrangle "Joshua Tree North" (1972) indicates that the general terrain around the project site slopes east-northeast. Elevations across the project site range from 3,060 feet amsl to a low of about 2,660 feet amsl. The terrain is characterized by coalescing dissected alluvial fans, broad flat

[4] SCAG Regional Housing Needs Assessment, http://www.scag.ca.gov/Housing/pdfs/rhna/RHNA_011807.pdf, accessed March 18, 2008.

valleys, and high energy desert washes. Bedrock hills contrast the surrounding valley floors and are generally composed of bouldery granite outcroppings.

Recharge Basin Alternative 1, located along the north side of SR 62, is on a relatively uneven hillslope with the northern or upper portion occupying the ridgeline formed by the Pinto Mountain Fault. The upper portion appears largely flat (north facing), the lower portion is more steeply sloped toward the southeast from a high point of approximately 3,060 feet along the northwest margin to a low of approximately 2,880 feet at the southeast corner. The resulting elevation difference for Recharge Basin Alternative 1 is 180 feet of elevation.

Recharge Basin Alternative 2 is slightly larger and slopes in a northeast direction. The highest point sits at an elevation of approximately 3,060 feet at the southwest corner and the low point sits at an elevation of 2,930 feet at the northwest corner, resulting in an elevation difference of 130 feet across the site.

Recharge Basin Alternative 3 sits on relatively flat terrain in close proximity to Joshua Creek and slopes in a northeast direction. The high point sits at an elevation of approximately 2,690 feet at the southwest corner and the low point sits at an elevation of 2,660 feet at the northeast corner. The resulting difference in elevation is approximately 30 feet.

3.4 Geology

Regional Setting

The proposed project is located in San Bernardino County in the Desert Region, one of three physiographic regions in the County. The Desert Region is comprised of the Mojave Desert, Basin, and Range and includes a portion of the Lower Colorado physiographic provinces (URS, 2007). Like all of Southern California, the Desert Region of San Bernardino is a seismically active area and includes several prominent active faults including the San Andreas, Garlock, Buillon-Lavid, Lake Kickapoo, and Camp Rock-Emerson-Johnson Valley-Landers faults. The Lake Kickapoo fault and the Camp Rock-Emerson-Johnson Valley-Landers faults were the sources of the 1999 Hector Mine magnitude 7.1 earthquake and the 1992 Landers magnitude 7.3 earthquake, respectively. Both earthquakes caused not only strong ground shaking, but also significant surface fault rupture (URS, 2007). Other hazards in the Desert Region include landslides in the mountainous region, particularly as a result of seismic ground shaking. Additionally, limited vegetation, low moisture content, high winds and infrequent high intensity rainfall events make soils susceptible to erosion.

Local Setting

The proposed project is located in the southeastern margin of the Mojave Desert Geomorphic Province in Southern California. Bounded by the San Bernardino Mountains to the south and west and the Bullion Mountains to the east-northeast, the region extends irregularly towards the town of Barstow in a north and west direction. This portion of the Mojave Desert lies at the southern end of a northwest trending structural shear zone in which faults separate and define broad, relatively flat alluvial valleys or basins between elongated bedrock hills and mountain

ranges. Closer to the project site, the Bartlett Mountains lie approximately one mile north of Joshua Tree and rise to a peak height of 3,805 feet above mean sea level (amsl). The project site is bordered on the south by the Pinto and Little San Bernardino Mountains.

The geology of the area can be divided stratigraphically into two units, specifically, consolidated rock and unconsolidated alluvium. Consolidated rock is largely of plutonic origin (granitic). Outcroppings of basalt, metasedimentary, and metavolcanic rocks also occur. Quaternary age alluvium in varying degrees of induration occurs as fanglomerate and more active desert wash deposits. These deposits generally consist of poorly sorted mixtures of boulders, cobbles, sands, silts, and clays.

The Mojave Desert region is one of the most seismically active areas of Southern California. Several faults, many with known Holocene and historical displacement, extend in a northwest direction in the region north of the Yucca Valley-Joshua Tree area. Principal faults include the Helendale Fault, the Lenwood Fault, the Johnson Valley Fault, the Camp Rock Fault, and the Emerson Fault. Faulting in the region is generally characterized by right-lateral, strike-slip type displacement (see **Figure 3.4-1**).

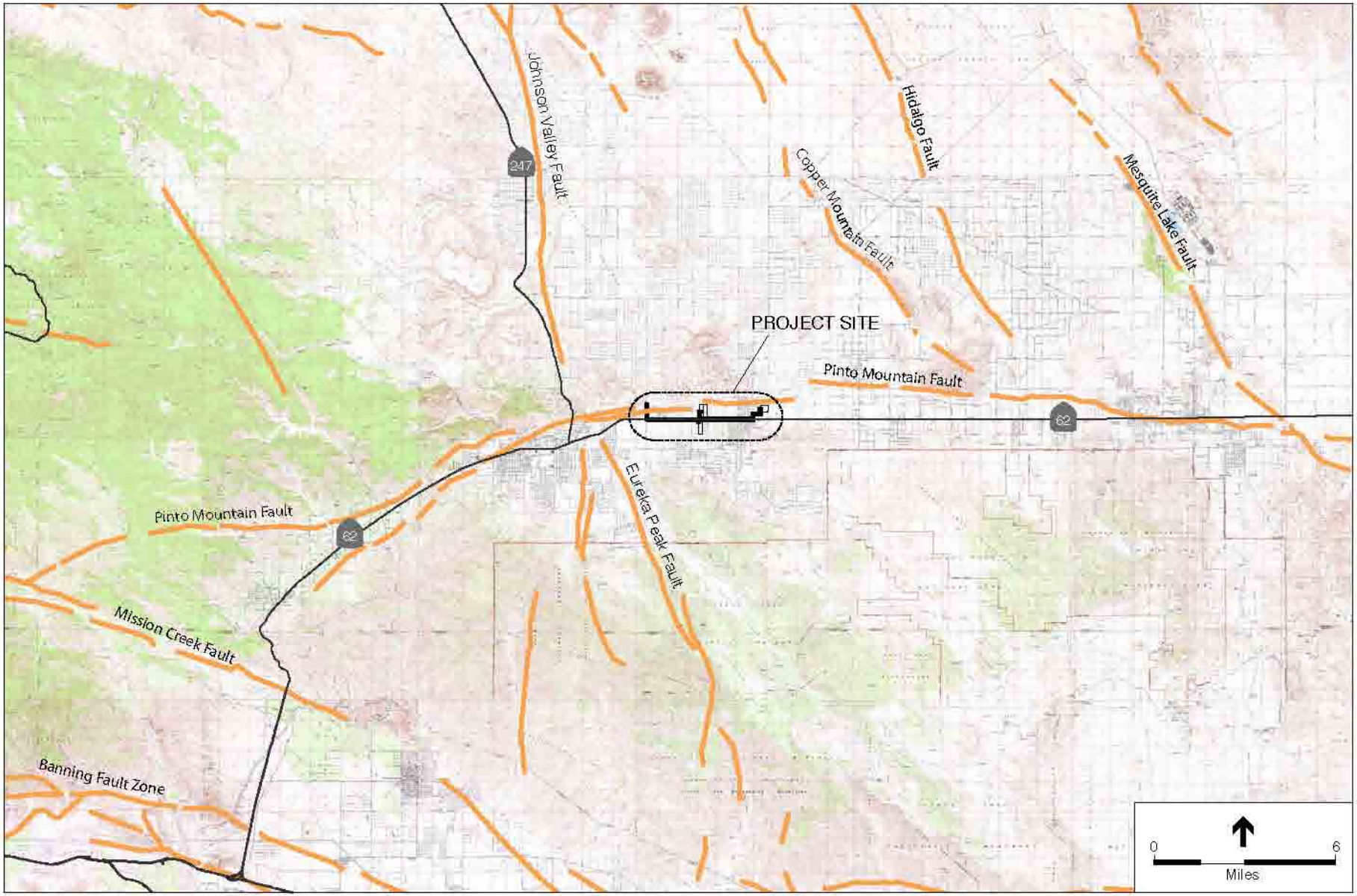
The most notable fault near the project site is the Pinto Mountain Fault, which trends in a northeasterly direction out of the Morongo Valley area to the west (see **Figure 3.4-2**). This fault closely follows SR 62 in an east-west direction between Yucca Valley and Twentynine Palms. At the project site, the fault appears as a low scarp or lineament just north of SR 62. Mapped as a left-lateral strike-slip fault, the Pinto Mountain Fault near the project site includes a zone of separate fault splays that constitute known barriers to groundwater flow, and thus separate groundwater sub-basins.

Regulatory Setting

State

Alquist-Priolo Earthquake Fault Zoning Act

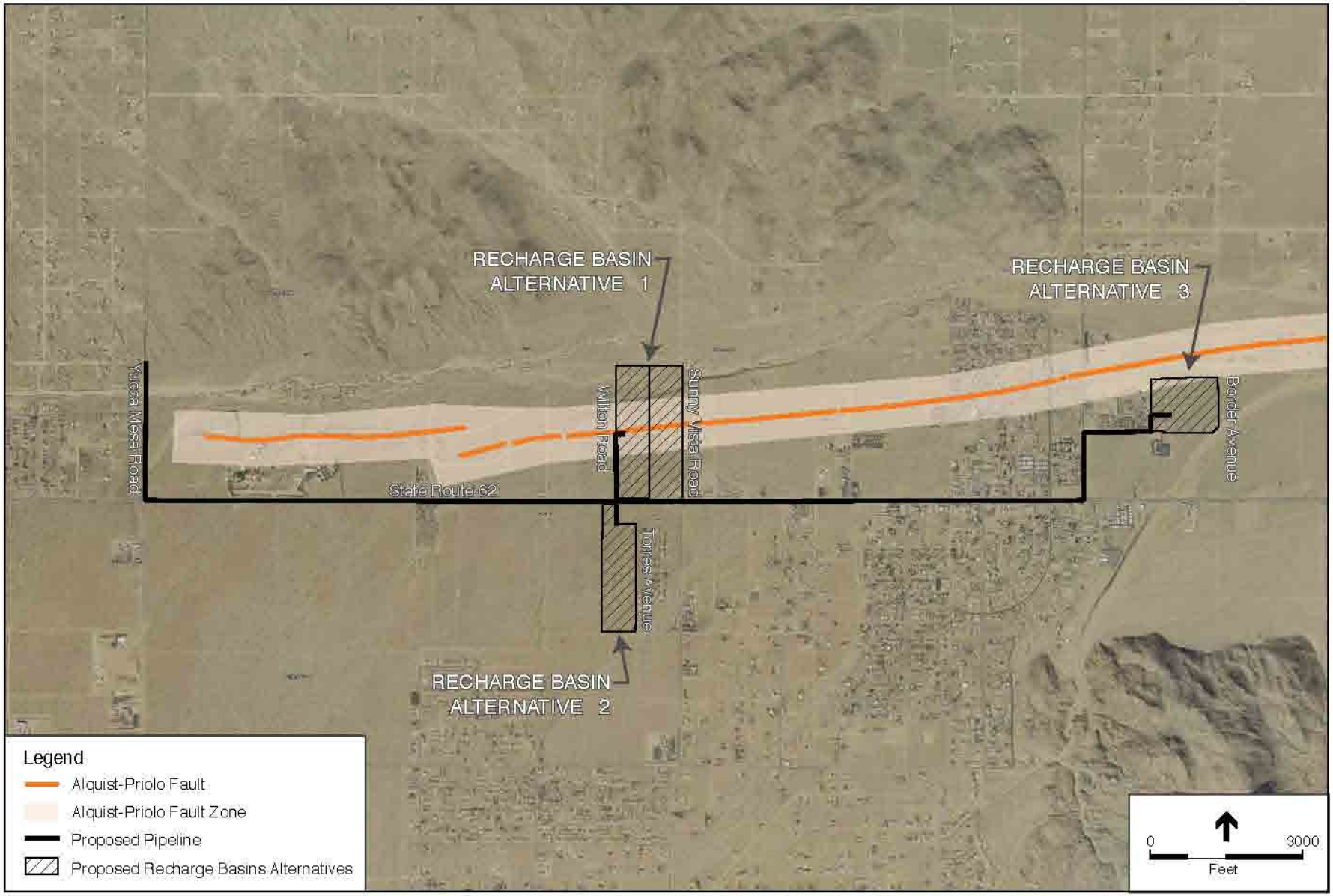
The Alquist-Priolo Earthquake Fault Zoning Act (formerly the Alquist-Priolo Special Studies Zone Act) signed into law in December of 1972, requires the delineation of zones along active faults in California. The purpose of the Alquist-Priolo Act is to regulate development on or near active fault traces to reduce the hazard of fault rupture and to prohibit the location of most structures for human occupancy across these traces. Alquist-Priolo (AP) zones have been mapped throughout the State of California. Cities and counties must regulate certain development projects within the zones, which includes withholding permits until geologic investigations demonstrate that development sites are not threatened by future surface displacement (Hart and Bryant, 1997).



SOURCE: USGS, 2008, ESA, 2008, CGS, 2002

JBWD Recharge Basin and Pipeline Project . 207651

Figure 3.4-1
Regional Fault Zones



SOURCE: GlobeXplorer, ESA, 2008; CGS, 2002.

JBWD Recharge Basin and Pipeline Project . 207651

Figure 3.4-2
Alquist-Priolo Fault Zones

Recharge Basin Alternative 1 would be located within the Pinto Mountain Fault AP zone. In addition, a portion of Recharge Basin Alternative 3 would also be located within the same AP zone (see Figure 3.4-1).

Surface Mining and Reclamation Act of 1975

The Surface Mining and Reclamation Act of 1975 (SMARA) (California Public Resources Code, Division 2, Chapter 9, Section 2710, et seq.) was enacted to ensure safe and sustainable use of California's mineral resources. The two primary objectives are to ensure access to valuable mineral resources over time and to promote reclamation of surface mining operations and restoration of surface mines to safe conditions.

Implementation of SMARA occurs cooperatively between the state and local governments. The California Department of Conservation, Division of Mines and Geology prepares technical reports identifying mineral land classification based solely on geology and economics without regard to existing land use or land ownership. The State Mining and Geology Board then uses the technical reports to designate deposits that are economically important to the region, state, or nation. Local county and municipal governments then create land use policies and regulations through which SMARA is implemented. In addition, the California Health and Safety Code requires the covering, filling, or fencing of abandoned shafts, pits, and excavations (California Health and Safety Code Sections 24400-03). Furthermore, local governments have the ability to regulate and prohibit mining pursuant to applicable general plans and local zoning laws.

The reclamation of mined lands permits the continued mining of minerals and provides for the protection and subsequent beneficial use of the mined and reclaimed land. Surface mining takes place in diverse areas where the geologic, topographic, climatic, biological, and social conditions are significantly different, and reclamation operations and the specifications may vary accordingly (California Public Resources Code Section 2711).

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act was developed 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 these zones. Before a development permit is granted for a site within a seismic hazard zone, a geotechnical investigation of the site must be conducted and appropriate mitigation measures incorporated into the project design.

California Building Code (CBC)

The CBC is another name for the body of regulations known as the California Code of Regulations, Title 24, Part 2. Title 24 is assigned to the California Building Standards Commission which, by law, is responsible for administering, adopting, approving, publishing, and implementing all building standards in the state of California. Under state law, all building standards must be centralized in Title 24 or they are not enforceable (Bolt, 1988). About one-third

of the text within the California Building Code has been tailored for California earthquake conditions (Bolt, 1988).

3.5 Soils

Soils are characteristic of the Mojave and are coarse-grained and sandy textured, and are derived from weathering of the surrounding granitic highlands. These soils are highly susceptible to erosion by both wind and water. The Natural Resources Conservation Services (NRCS) identify the dominant soils in the Mojave as aridosols and entisols. They are generally well- to excessively-drained, loamy-skeletal or sandy-skeletal, and shallow to very deep.

3.6 Climate and Air Quality

The proposed project is located in San Bernardino County, which lies within the Mojave Desert Air Basin (MDAB). The MDAB includes long broad valleys surrounded by mountain ranges with prevailing winds out of the west and southwest. The MDAB is classified as a dry-hot desert climate with portions classified as a dry-very hot desert, and for at least three months of the year have maximum average temperatures over 100 degrees Fahrenheit. The MDAB is rarely influenced by cold frontal systems, which diffuse by the time they reach the desert from the north. Most desert moisture arrives from infrequent warm, moist and unstable air masses from the south and averages between three and seven inches of precipitation per year.

Regulatory Setting

Federal

The Federal Clean Air Act (FCAA) requires the USEPA to identify National Ambient Air Quality Standards (NAAQS or national standards) to protect public health and welfare. National standards have been established for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, PM10, PM2.5, and lead. **Table 3.6-1** shows current national and state ambient air quality standards and provides a brief discussion of the related health effects and principal sources for each pollutant.

Pursuant to the 1990 Federal Clean Air Act Amendments (FCAAA), the USEPA classifies air basins (or portions thereof) as “attainment” or “nonattainment” for each criteria air pollutants, based on whether or not the NAAQS have been achieved.

The FCAA requires each state to prepare an air quality control plan referred to as the State Implementation Plan (SIP). States containing areas that violate the NAAQS are required to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is a living document that is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of air basins as reported by the agencies with jurisdiction over them. The USEPA has responsibility to review all state SIPs to determine if they conform to the mandates of the FCAAA and will achieve air quality goals when implemented. If the USEPA

TABLE 3.6-1
STATE AND NATIONAL CRITERIA AIR POLLUTANT STANDARDS, EFFECTS, AND SOURCES

Pollutant	Averaging Time	State Standard	National Standard	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
Ozone	1 hour 8 hours	0.09 ppm 0.07 ppm	--- 0.075 ppm	High concentrations can directly affect lungs, causing irritation. Long-term exposure may cause damage to lung tissue.	Formed when reactive organic gases (ROG) and nitrogen oxides (NOx) react in the presence of sunlight. Major sources include on-road motor vehicles, solvent evaporation, and commercial / industrial mobile equipment.
Carbon Monoxide	1 hour 8 hours	20 ppm 9.0 ppm	35 ppm 9 ppm	Classified as a chemical asphyxiant, carbon monoxide interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen.	Internal combustion engines, primarily gasoline-powered motor vehicles.
Nitrogen Dioxide	1 hour Annual Avg.	0.18 ppm 0.030	--- 0.053 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown.	Motor vehicles, petroleum refining operations, industrial sources, aircraft, ships, and railroads.
Sulfur Dioxide	1 hour 3 hours 24 hours Annual Avg.	0.25 ppm --- 0.04 ppm ---	--- 0.5 ppm 0.14 ppm 0.03 ppm	Irritates upper respiratory tract; injurious to lung tissue. Can yellow the leaves of plants, destructive to marble, iron, and steel. Limits visibility and reduces sunlight.	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
Respirable Particulate Matter (PM10)	24 hours Annual Avg.	50 $\mu g/m^3$ 20 $\mu g/m^3$	150 $\mu g/m^3$ ---	May irritate eyes and respiratory tract, decreases in lung capacity, cancer and increased mortality. Produces haze and limits visibility.	Dust and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
Fine Particulate Matter (PM-2.5)	24 hours Annual Avg.	--- 12 $\mu g/m^3$	35 $\mu g/m^3$ 15 $\mu g/m^3$	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and results in surface soiling.	Fuel combustion in motor vehicles, equipment, and industrial sources; residential and agricultural burning; Also, formed from photochemical reactions of other pollutants, including NOx, sulfur oxides, and organics.
Lead	Monthly Ave. Quarterly	1.5 $\mu g/m^3$ ---	--- 1.5 $\mu g/m^3$	Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurological dysfunction.	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
Hydrogen Sulfide	1 hour	0.03 ppm	No National Standard	Geothermal Power Plants, Petroleum Production and refining	Nuisance odor (rotten egg smell), headache and breathing difficulties (higher concentrations)
Sulfates	24 hour	25 $\mu g/m^3$	No National Standard	Produced by the reaction in the air of SO2.	Breathing difficulties, aggravates asthma, reduced visibility
Visibility Reducing Particles	8 hour	Extinction of 0.23/km; visibility of 10 miles or more	No National Standard	Reduces visibility, reduced airport safety, lower real estate value, discourages tourism.	See PM2.5.

NOTE: ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter.

SOURCE: California Air Resources Board, 2008a. *Ambient Air Quality Standards,* available at http://www.arb.ca.gov/research/aaqs/aaqs2.pdf Standards last updated November 17, 2008. California Air Resources Board, 2001. *ARB Fact Sheet: Air Pollution Sources, Effects and Control,* http://www.arb.ca.gov/research/health/fs/fs2/fs2.htm, page last updated December 2005.

determines a SIP to be inadequate, it may prepare a Federal Implementation Plan (FIP) for the nonattainment area and may impose additional control measures. Failure to submit an approvable SIP or to implement the plan within mandated timeframes can result in sanctions being applied to transportation funding and stationary air pollution sources in the air basin.

Regulation of Toxic Air Contaminants (TACs), termed Hazardous Air Pollutants (HAPs) under federal regulations, is achieved through federal, State and local controls on individual sources. The 1977 Clean Air Act Amendments required the USEPA to identify National Emission Standards for Hazardous Air Pollutants (NESHAPs) to protect public health and welfare. These substances include certain volatile organic chemicals, pesticides, herbicides, and radionuclides that present a tangible hazard, based on scientific studies of exposure to humans and other mammals. There is uncertainty as to the precise degree of hazard.

State

The California Air Resources Board (ARB) manages air quality, regulates mobile emissions sources, and oversees the activities of county Air Pollution Control Districts (APCDs) and regional Air Quality Management Districts (AQMDs). ARB establishes state ambient air quality standards and vehicle emissions standards.

California has adopted ambient standards that are more stringent than the federal standards for criteria air pollutants. These are shown in Table 3.6-1. Under the California Clean Air Act (CCAA), which is patterned after the FCAA, areas are designated as attainment or nonattainment with respect to the state standards. **Table 3.6-2** summarizes the local attainment status with respect to both the California and national standards.

TABLE 3.6-2
MDAQMD ATTAINMENT STATUS

	Designation/Classification	
Pollutant	**Federal Standards**	**State Standards**
Ozone – one hour	No Federal Standard[a]	Nonattainment
Ozone – eight hour	Nonattainment	Unclassified
PM10	Nonattainment	Nonattainment
PM2.5	Unclassified/Attainment	Nonattainment
CO	Attainment	Attainment
Nitrogen Dioxide	Unclassified/Attainment	Attainment
Sulfur Dioxide	Attainment	Attainment
Lead	No Designation	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility-Reducing Particles	No Federal Standard	Unclassified

[a] Federal One Hour Ozone National Ambient Air Quality Standard was revoked on June 15, 2005

SOURCE: MDAQMD CEQA and Federal Conformity Guidelines, February 2009.

Toxic Air Contaminants

California State law defines toxic air contaminants (TACs) as air pollutants having carcinogenic effects. The State Air Toxics Program was established in 1983 under Assembly Bill (AB) 1807 (Tanner). A total of 243 substances have been designated TACs under California law; they include the 189 hazardous air pollutants (HAPs) that have been identified by the federal government. The Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) seeks to identify and evaluate risk from air toxics sources; however, AB 2588 does not regulate air toxics emissions. Toxic air contaminant emissions from individual facilities are quantified and prioritized. "High-priority" facilities are required to perform a health risk assessment and, if specific thresholds are violated, are required to communicate the results to the public in the form of notices and public meetings.

In August of 1998, ARB identified particulate emissions from diesel-fueled engines (diesel particulate matter, or DPM) as TACs. ARB subsequently developed the *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles* (ARB, 2000). The document represents proposals to reduce diesel particulate emissions, with the goal of reducing emissions and associated health risks by 75 percent in 2010 and by 85 percent in 2020. The program aims to require the use of state-of-the-art catalyzed diesel particulate filters and ultra low sulfur diesel fuel on diesel-fueled engines.

ARB published the *Air Quality and Land Use Handbook: A Community Health Perspective* (ARB, 2005), with the primary goal to provide information that will help keep California's children and other vulnerable populations out of harm's way with respect to nearby sources of air pollution. The handbook highlights recent studies that have shown that public exposure to air pollution can be substantially elevated near freeways and certain other facilities (i.e., distribution centers, rail yards, chrome platers, etc.). However, the health risk is greatly reduced with distance. For that reason, ARB provided some general recommendations aimed at keeping appropriate distances between sources of air pollution and sensitive land uses, such as residences.

Climate Change and Greenhouse Gases

In 2006, California passed the California Global Warming Solutions Act of 2006 (Assembly Bill No. 32; California Health and Safety Code Division 25.5, Sections 38500, et seq., or AB 32), which requires the ARB to design and implement emission limits, regulations, and other measures, such that statewide GHG emissions will be reduced to 1990 levels by 2020.

In December 2007, ARB approved the 2020 emission limit of 427 million metric tons of CO_2 equivalents of GHG. The 2020 target of 427 million metric tons of CO_2 equivalent (CO_2e) requires the reduction of 169 million metric tons of CO_2e, or approximately 30 percent, from the state's projected 2020 emissions of 596 million metric tons of CO_2e (business-as-usual).

Also in December 2007, ARB adopted mandatory reporting and verification regulations pursuant to AB 32. The draft regulation language identifies major facilities as those that generate more than 25,000 metric tons/year of CO_2e. Cement plants, oil refineries, electric-generating facilities/providers, cogeneration facilities, and hydrogen plants and other stationary combustion sources that emit more

than 25,000 metric tons/year CO_2e, make up 94 percent of the point source CO_2e emissions in California (ARB, 2007).

In June 2008, ARB published its *Climate Change Draft Scoping Plan* (ARB, 2008). The *Climate Change Draft Scoping Plan* reported that ARB met the first milestones set by AB 32 in 2007: developed a list of early actions to begin sharply reducing GHG emissions; assembled an inventory of historic emissions; and established the 2020 emissions limit. After consideration of public comment and further analysis, ARB released the *Climate Change Proposed Scoping Plan* in October 2008 (ARB, 2008). The Proposed Scoping Plan proposes a comprehensive set of actions designed to reduce overall carbon emissions in California. These measures were presented to and approved by the ARB on December 11, 2008. The measures in the Scoping Plan approved by the Board will be developed over the next two years and be in place by 2012.

MDAQMD

The MDAQMD has jurisdiction over the desert portion of San Bernardino County. The previously discussed MDAB is a subregion of the MDAQMD jurisdiction.

The MDAQMD adopts rules and regulations that may apply to construction or operation of the project. For example, MDAQMD Rule 403 requires the implementation of best available fugitive dust control measures during active operations capable of generating fugitive dust emissions from onsite earth-moving activities, construction/demolition activities, and construction equipment travel on paved and unpaved roads.

Physical Setting

Existing Air Quality

The MDAQMD maintains monitoring stations within Riverside County that monitor air quality and compliance with associated ambient standards. The closest station to the project site is the Joshua Tree National Monument, which only monitors ozone (O_3). The nearest station that monitors particulate matter of less than 10 and 2.5 microns in diameter (PM10 and PM2.5) is the Victorville Monitoring Station. The most recent published data (2005 – 2007) for the monitoring stations are presented in **Table 3.6-3**.

Sensitive Land Uses

Some land uses, such as schools, children's daycare centers, hospitals, and convalescent homes, are considered to be more sensitive than the general public to poor air quality because the population groups associated with these uses have increased susceptibility to respiratory distress. Persons engaged in strenuous work or exercise also have increased sensitivity to poor air quality.

Residential areas are considered more sensitive to air quality conditions than commercial and industrial areas, because people generally spend longer periods of time at their residences, resulting in greater exposure to ambient air quality conditions. The nearest sensitive receptor to Alternative 1 is a single-family home on Sunny Vista Road, approximately 138 feet from

TABLE 3.6-3
AIR QUALITY DATA SUMMARY (2005–2007)

Pollutant	Standard[a]	Monitoring Data by Year 2005	2006	2007
Ozone – Joshua Tree National Monument				
Highest 1 Hour Average (ppm)[b]	0.09	**0.125**	**0.129**	**0.140**
Days over State Standard		37	37	36
Highest 8 Hour Average (ppm)[b]	0.075	**0.105**	**0.106**	**0.100**
Days over National Standard		66	81	72
Particulate Matter (PM10) – Victorville				
Highest 24 Hour Average ($\mu g/m^3$)[b]	50	**56**	**339**	**72**
Est. Days over State Standard[c]		2	4	2
Highest 24 Hour Average ($\mu g/m^3$)[b] – National Measurement	150	62	**358**	77
Est. Days over National Standard[c]		0	1	0
State Annual Average ($\mu g/m^3$)[b]	20	**30.5**	**36**	NA
Particulate Matter (PM2.5) – Victorville				
Highest 24 Hour Average ($\mu g/m^3$)[b]	35	22	28	13
Days over National Standard		0	0	0
State Annual Average ($\mu g/m^3$)[b]	12	10.3	9.7	NA

[a] Generally, state standards and national standards are not to be exceeded more than once per year.
[b] ppm = parts per million; µg/m3 = micrograms per cubic meter.
[c] PM10 is not measured every day of the year. Number of estimated days over the standard is based on 365 days per year.
[d] Days over National Standard for PM2.5 are based on the previous standard of 65 µg/m3 rather than the current standard of 35 µg/m3.

NOTES: Values in **bold** are in excess of at least one applicable standard. NA = Not Available.
SOURCE: California Air Resources Board, 2009a. *Summaries of Air Quality Data*, 2005, 2006, 2007; http://www.arb.ca.gov/adam/cgi-bin/db2www/polltrendsb.d2w/start

construction activities. The nearest sensitive receptor to Alternative 2 is a single-family home on Torres Avenue, approximately 70 feet from construction activities. The nearest sensitive receptors to Alternative 3 are multifamily residential uses, approximately 50 feet from construction activities. The nearest sensitive receptor to pipeline construction is a single-family home on Yucca Mesa Road, located approximately 100 feet from construction activities.

3.7 Surface Waters and Wetlands

Regional Setting

The community of Joshua Tree is located in the southeastern region of the Mojave Desert. The community covers an area of approximately 93.6 square miles. The Mojave Desert is characterized by alluvial basins and dry lake beds with no hydrological outlet to the ocean. The basins are generally separated by low mountain ranges. The alluvial soils are composed of water-bearing unconsolidated sediments, which harbor extensive groundwater basins throughout the Mojave Desert region. The intermittent mountain ranges consist of non-water-bearing consolidated bedrock. The region is criss-crossed by a series of northwest-trending geologic faults, resulting in offsets of geologic layering that create barriers to groundwater flow. The climate in the region is characterized as desert with temperatures as low as 10 degrees Fahrenheit during the winter and in excess of 115 degrees Fahrenheit in the summer. The average annual rainfall in the region is 4.6 inches per year (Dudek, 2005).

Groundwater basins in the region include the Warren Valley subbasin, the Joshua Tree subbasin, and the Copper Mountain subbasin, all of which are part of the greater Morongo Groundwater Basin (GEI, 2008). In the project area, the Pinto Mountain Fault separates the Joshua Tree subbasin on the south from the Copper Mountain and Reche subbasins to the north. Regionally, surface waters of the area drain to Coyote Lake, in the area of Twentynine Palms. Desert storms can be of an intense but short-lived nature, and often result in high-energy flash flooding in drainage channels (GEI, 2008). **Figure 3.7-1** identifies major surface water resources in the region as well as groundwater basin boundaries.

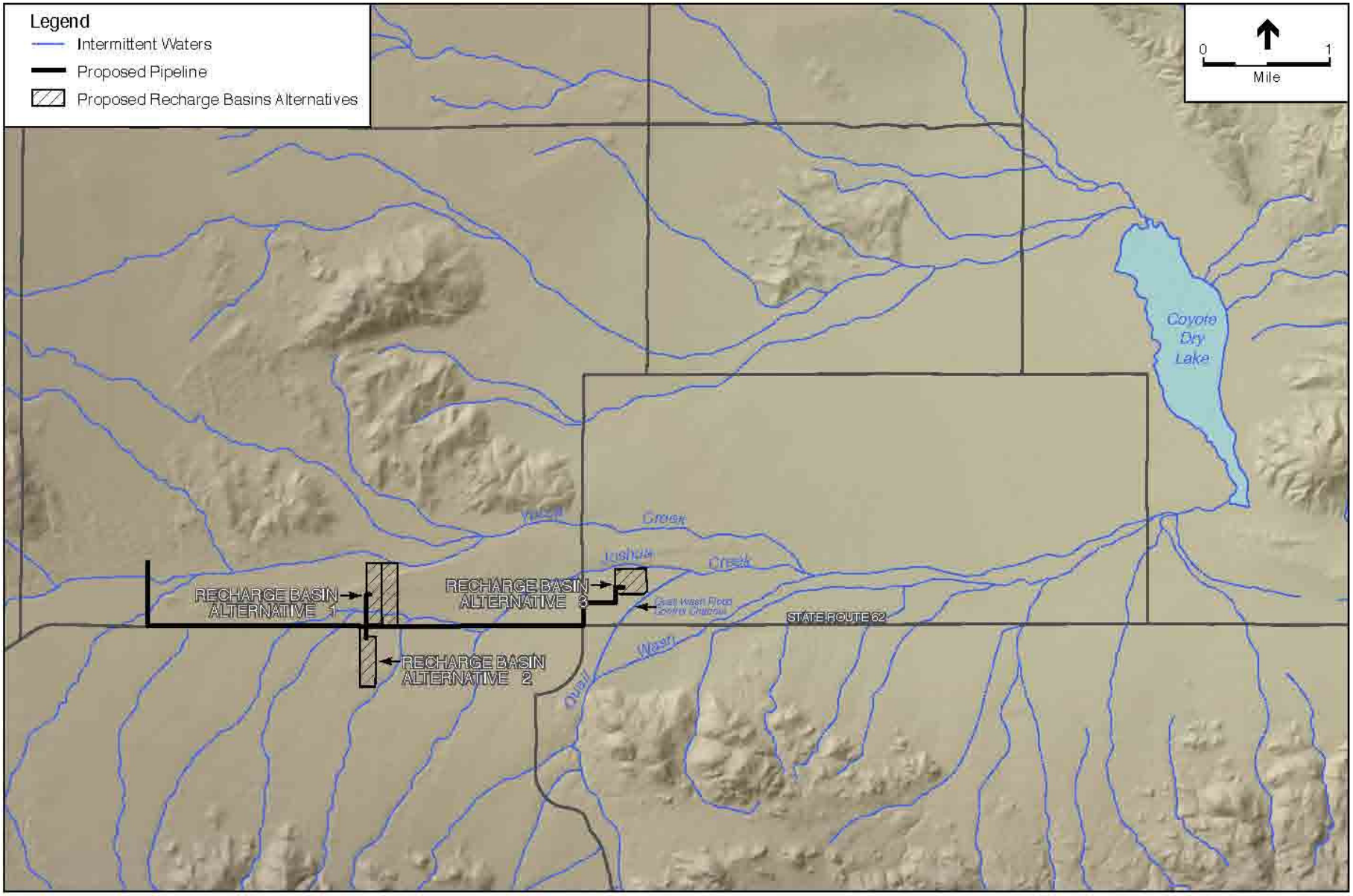
Project Area Setting

Surface Water

Surface runoff in the project area is carried in an easterly direction in numerous desert washes. The project area is traversed by several stream channels, most notably Joshua Creek and Yucca Creek. Joshua Creek is a tributary to Yucca Creek, and the confluence between these two drainages lies about two miles east of Joshua Tree (GEI, 2008).

Surface Water Quality

Section 303(d) of the CWA requires that each state identify water bodies or segments of water bodies that are “impaired” (i.e. do not meet one or more of the water quality standards established by the state). These waters are identified in the Section 303(d) list as waters that are polluted and need further attention to support their beneficial uses. Once the water body or segment is listed, the state is required to establish Total Maximum Daily Load (TMDL) for the pollutant. A TMDL is the maximum amount of a pollutant that a water body can receive and still meet the water quality standards. Typically, TMDL is the sum of the allowable loads of a single pollutant from



SOURCE: GlobeXplorer, ESA, 2009

Figure 3.7-1
Major Surface Water Features

all contributing point and nonpoint sources. The Colorado River Basin Regional Water Quality Control Board's (CRBRWQCB) 2006 Clean Water Act Section 303(d) list does not contain any impaired water bodies near the proposed project site (CRBRWQCB, 2007).

Surface Water Drainage

Desert washes in the vicinity of the project site generally carry surface runoff in an easterly direction. The most notable stream channels that traverse the site are Joshua Creek and Yucca Creek, to which Joshua Creek is tributary. The confluence is approximately two miles east of Joshua Tree north of SR 62. High-energy flash flooding can result from desert storms that are short and intense. Regionally, surface waters in the area drain to Coyote Lake near Twentynine Palms.

Jurisdictional Resources

Wetlands and permanent and intermittent drainages, creeks, and streams identified as waters of the U.S. are subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE) under Section 404 of the Federal Clean Water Act. Streambeds are subject to regulation by the CDFG under Section 1602 of the California Fish and Game Code. A stream is defined under these regulations as a body of water that flows at least periodically or intermittently through a bed or channel having banks and that supports fish or other aquatic life. This definition includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation. CDFG jurisdiction typically extends to the edge of the riparian vegetation canopy.

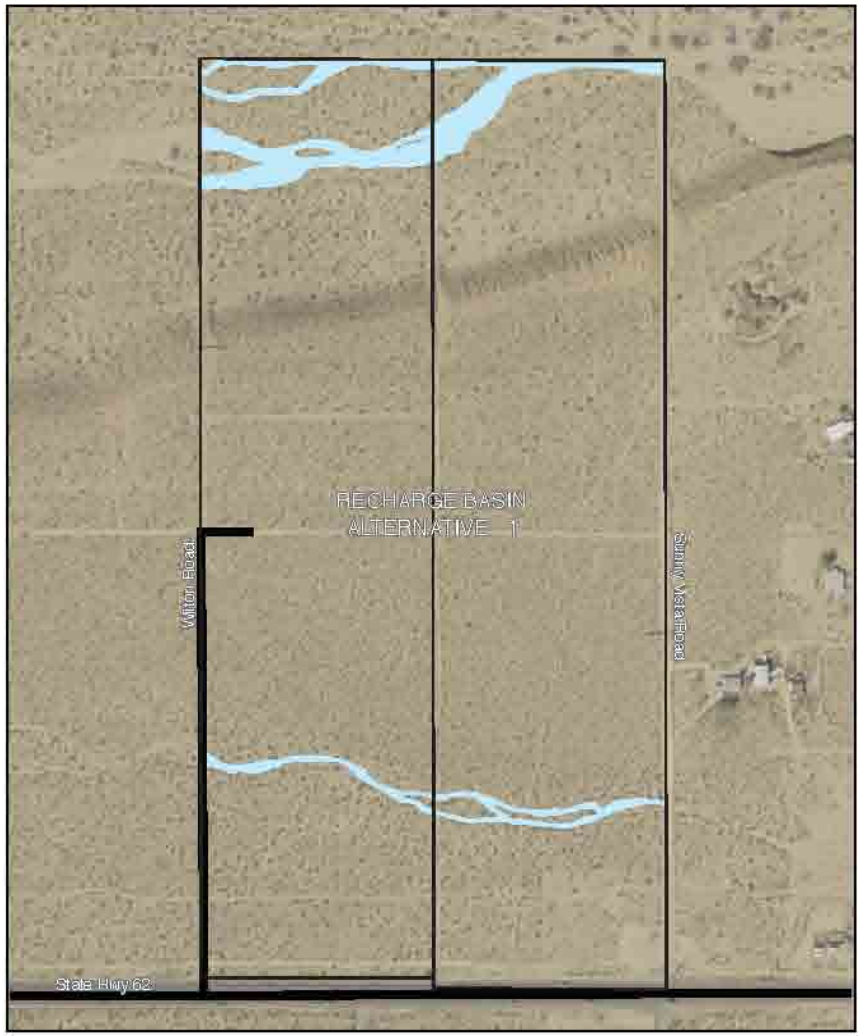
Waters of the U.S. and Wetlands

Several drainage features are present within and near the three proposed project recharge basin alternatives; however, none of the drainage features found on the recharge basin alternative sites or crossed by the proposed pipeline meet the definition of Waters of the U.S. or federal wetlands under the jurisdiction of the USACE. The washes are relatively small and characterized by infrequent, flashy, short duration flows. They are non-navigable and are not tributaries to any navigable waters. Coyote Lake, the receiving water body, is not a navigable water and the washes do not abut or flow into any other navigable waters. None of the drainage features present on the project recharge basin alternative sites meet the definition for regulated Waters of the U.S.

Waters of the State

Recharge Basin Alternative 1

Two drainage features cross Recharge Basin Alternative 1 (**Figure 3.7-2**). At the northern end of the site, the current extent of a braided wash was mapped bank to bank. This wash is part of a system of small washes that drain to the east and join to form a named wash, Yucca Creek, to the east of the Recharge Basin Alternative 1. Vegetation in the wash area is characterized as Mojave Desert Wash Scrub and is dominated by catclaw (*Acacia greggii*). Other species present include: desert willow (*Chilopsis linearis*), and desert tea (*Ephedra californica*). This wash occupies 2.63 acres across the northern end of Recharge Basin Alternative 1.



Proposed Pipeline
Proposed Recharge Basins Alternatives
Desert Wash

0 400
Feet

SOURCE: GlobeXplorer; ESA, 2009.

JBWD Recharge Basin and Pipeline Project . 207651

Figure 3.7-2
Jurisdictional Waters
Recharge Basin Alternatives 1 & 3

A smaller wash crosses the southern third of Recharge Basin Alternative 1. This wash drains to the east, following SR 62 for approximately 1.5 miles before joining with the named wash, Joshua Creek, near Border Road. Vegetation in this wash is also characterized as Mojave Desert Wash Scrub. Plant species present included catclaw, desert tea, coyote melon (*Cucurbita palmata*) and desert senna (*Senna armata*). This wash occupies 0.67 acre across the southern third of the Recharge Basin Alternative 1, for a total of 3.30 acres within Recharge Basin Alternative 1.

Recharge Basin Alternative 2

This recharge basin alternative does not contain any streams, drainage features, washes, wetlands or other areas of jurisdictional concern.

Recharge Basin Alternative 3

A small un-named wash crosses the southeast corner of Recharge Basin Alternative 3 (Figure 3.7-2). The wash flows to the east and joins with Joshua Creek. The wash does not contain any special vegetation that differentiates it from the surrounding habitat of Mojavean Creosote Bush Scrub, however, a discernable bed and bank are present and measures a total area of 1.16 acres.

Pipelines

The pipeline feeding the recharge basins will be constructed parallel to roadways and potentially cross up to eight small desert washes depending on the recharge basin alternative selected. All of these washes are part of a drainage system that terminates at Coyote Lake. They are relatively small, and characterized by infrequent, flashy, short duration flows. The washes vary in width from six to 10 feet.

Regulatory Setting

Executive Orders No. 11990 and No. 12608

Executive Order (EO) No. 11990, as amended by EO No. 12608, requires federal agencies to consider the effects of their actions on wetlands. Federal agencies are directed to avoid providing assistance for new construction in wetlands to the extent feasible.

Clean Water Act Section 404

Wetlands are generally considered to be areas that are periodically or permanently inundated by surface or ground water, and support vegetation adapted to life in saturated soil. Wetlands are recognized as important features on a regional and national level due to their high inherent value to fish and wildlife, use as storage areas for storm and floodwaters, and water recharge, filtration, and purification functions. Technical standards for delineating wetlands have been developed by the U.S. Army Corps of Engineers (USACE) which generally define wetlands through consideration of three criteria: hydrology, soils, and vegetation. Under Section 404 of the Clean Water Act (CWA), USACE is responsible for regulating the discharge of dredged or fill material into waters of the United States. The term “waters” includes wetlands and non-wetland bodies of water that meet specific criteria as defined in the Code of Federal Regulations.

3.8 Groundwater Resources

Figure 3.8-1 identifies groundwater subbasins under Joshua Basin Water District. Natural inflow to the Copper Mountain subbasins occurs principally from surface stream recharge from Yucca Creek and Quail Wash and from underflow from the Warren Valley subbasin. The USGS (Nishikawa, 2004) estimated that the recharge from stream flow ranged between 123 and 158 afy. Underflow from the Warren Valley subbasin into the area was estimated to be about 84 afy. However, most of this surface inflow and underflow occurs north of the Pinto Mountain Fault in the Copper Mountain subbasin. The Pinto Mountain Fault separates the Joshua Tree subbasin from the Copper Mountain subbasin and is a barrier to groundwater flow. For this reason, the natural recharge and inflow into the Joshua Tree subbasin is assumed to be zero. However, some recharge of the basin occurs due to septic system recharge and other incidental recharge. The JBWD water supply wells as well as the proposed recharge basins are located within the Joshua Tree subbasin with one well located in the Copper Mountain Basin.

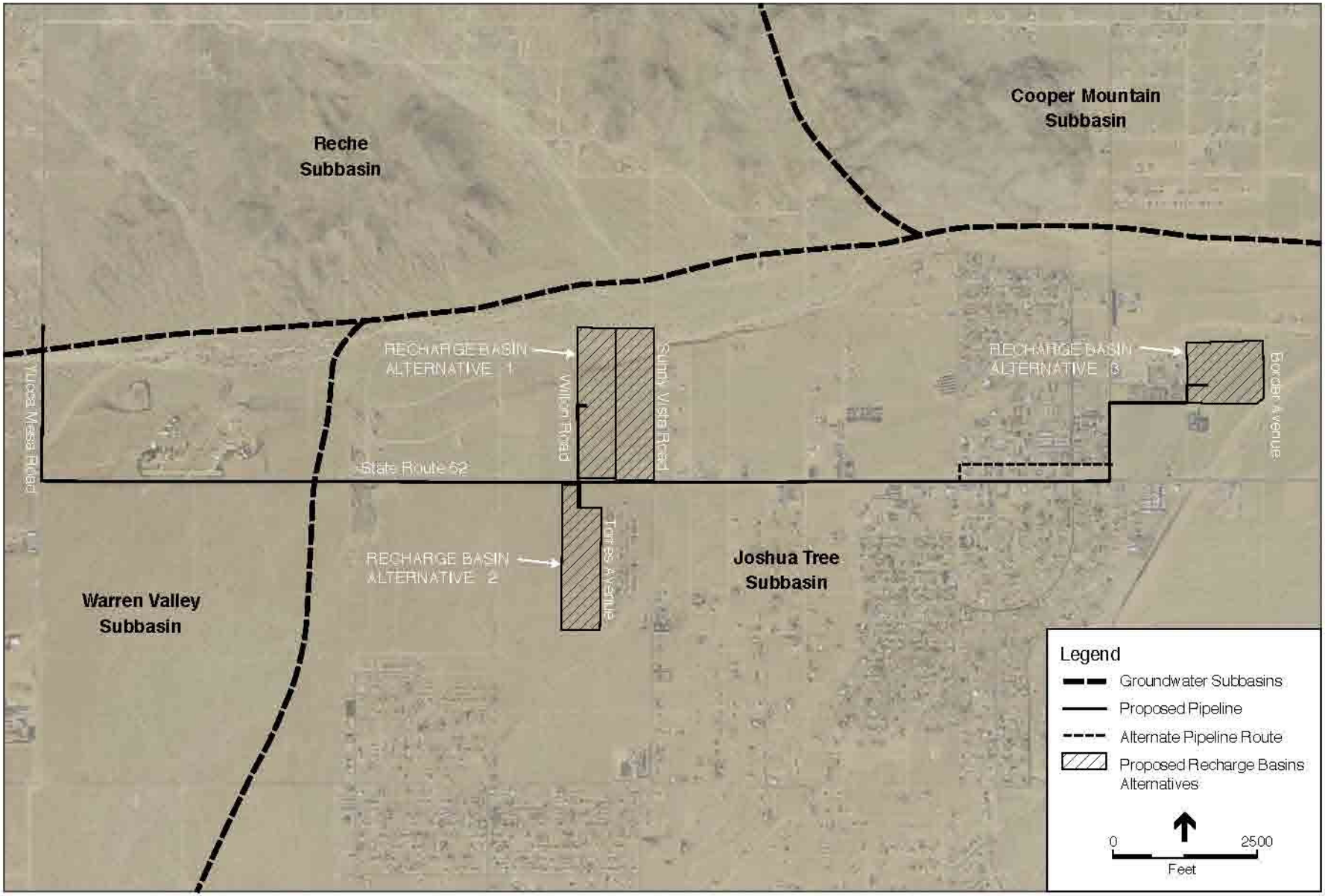
The Joshua Tree subbasin is comprised of three aquifers: the upper, middle, and lower. The upper and middle aquifers are included in the Quaternary alluvial deposits, while the lower is contained in underlying Tertiary bedrock formations. Most of the wells in the project area are constructed in the upper aquifer. The upper aquifer has an estimated 348,594 af of groundwater in storage. The middle aquifer has approximately 3,648 af of groundwater in storage. The lower aquifer is not pumped for water supply as is it not a major water-bearing unit with only 375 af of groundwater in storage (GEI, 2008).

Groundwater Quality

Groundwater quality in the Joshua Tree subbasin is good and is a sodium bicarbonate type. With the exception of well odor, color, and turbidity, groundwater quality estimates were derived from well data on the USGS website. Total dissolved solids (TDS) concentrations ranged from 148 to 248 milligrams per liter (mg/L) and average about 180 mg/L. A 2006 groundwater evaluation reported that a composite sample from a JBWD well taken by the USGS in September 2005 had a nitrate concentration of 20 mg/L and that a depth-discrete sample collected from the upper portion of the well contained approximately 43 mg/L of nitrate. The USEPA maximum contaminant level (MCL) for nitrate is 45 mg/L. The nitrate results show that the levels are highest in the shallowest groundwater. The nitrate occurrence is believed to be an effect of return flow septic systems.

An estimated 73 percent of pumped groundwater is returned to the basin via septic return flow (Nishikawa et al, 2004). Septic system return flow water quality has a TDS of 406 mg/L. This estimate was based on data from the MWA wastewater estimates from the Victor Valley Wastewater Reclamation Authority.

Fluoride concentrations above the USEPA secondary MCL limit of 2 mg/L were found in JBWD wells that perforated in the lower aquifer. However, the lower aquifer is not pumped for water supply. Water quality results also showed that arsenic and chromium concentration and speciation are controlled by reduction-oxidation conditions within the aquifer. Arsenic and chromium concentrations measured in water from wells perforated in the lower aquifer did not exceed the MCL.



SOURCE: GlobeXplorer; GEI Consultants; ESA, 2009

JBWD Recharge Basin and Pipeline Project . 207651

Figure 3.8-1
Groundwater Subbasins

SWP Water Quality

SWP water is imported through the California Aqueduct to the Morongo Pipeline. SWP water quality varies substantially year to year, but is generally consistent with drinking water standards. TDS concentrations average around 256 mg/L of a weakly sodium-chloride type. SWP water from the California Aqueduct contains high levels of both dissolved organic carbon (DOC) and bromide, and can exceed the drinking water standard for trihalomethane (THM) formation (0.10 mg/L total THMs). THMs are formed when the DOC reacts with chlorine added as a disinfectant during the water-treatment process. Recharging with SWP water could increase concentrations of THM forming compounds in the groundwater.

Importing water adds to the overall volume of salts and other constituents in the basin. Over a long period of time, these added constituents can accumulate and eventually pose water quality concerns.

Regulatory Setting

Federal

Clean Water Act

The Federal Water Pollution Control Act (33 U.S.C. 1251 et. sec.) as amended by the Federal Water Pollution Control Act Amendments of 1972, also known as the Clean Water Act (CWA), states that the discharge of pollutants to waters of the United States from any point source is unlawful, unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. Amendments (1987) to the CWA added a section which established a framework for regulating municipal and industrial (M&I) storm water discharges under the NPDES program. On November 16, 1990, the USEPA published final regulations, under the 1987 CWA Amendments, that establish application requirements for storm water permits. These regulations require that discharges of storm water from construction activity of five acres or more must be regulated as an industrial activity and covered by a NPDES permit.

Safe Drinking Water Act

The Safe Drinking Water Act (SDWA) (42 U.S.C §§300f-300j-26) requires water supply systems to meet minimum national water quality standards in order to protect public health. The U.S. Environmental Protection Agency (EPA) sets the standards for a wide range of contaminants that can be present in drinking water. In addition, the SDWA emphasizes preventing contamination of aquifers that are the sole source of drinking water for a community. No federal assistance is allowed for projects that may contaminate sole-source aquifers and create a significant hazard to the public, as determined by the Administrator of the U.S. EPA.

State

Porter-Cologne Water Quality Act

The Porter-Cologne Water Quality Control Act (Division 7 of the California Water Code) provides the basis for water quality regulation within California. This act establishes the authority

of the SWRCB and the nine 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. The project area lies within the jurisdiction of the CRBRWQCB. The CRBRWQCB regulates discharges including storm water discharges to waters of the state through the issuance of Waste Discharge Requirements (WDRs).

SWRCB Anti-Degradation Policy

The SWRCB Resolution No. 82-16 "Statement of Policy with Respect to Maintaining High Quality Water in California" is California's implementation of the Clean Water Act (40 CFR 131.6; 131.12(a)). The SWRCB policy requires the continued maintenance of existing high quality water unless there is a demonstration that: (1) allowing some degradation is consistent with the maximum benefit to the people of the state; and (2) that such degradation would not unreasonably affect existing or potential beneficial use. The policy requires a constituent-by-constituent comparison to determine water quality changes for the proposed project.

Colorado River Basin Water Quality Control Plan

The SWRCB and the Colorado River Basin RWQCB share the responsibility, under the Porter-Cologne Act, to formulate and adopt water policies and plans and to adopt and implement measures to fulfill CWA requirements. The Colorado River Basin RWQCB has prepared the Colorado River Basin Water Quality Control Plan (Basin Plan) (1994) that identifies beneficial uses for the major creeks and washes in the project area as shown in **Table 3.8-1**. **Table 3.8-2** defines the identified beneficial uses.

NPDES General Construction Permit

TABLE 3.8-1
BENEFICIAL USE DESIGNATIONS FOR WATER BODIES IN THE PROJECT AREA

Waterbody	MUN	GWR	REC I	REC II	WARM	WILD	RARE
Unlisted Perennial and Intermittent Streams	X	X I	X I	X I	X I	X I	[1]
Washes (Ephemeral Streams)		I		I	[2]	I	

X = Present or potential beneficial uses
I = Intermediate beneficial uses
1 = Rare, endangered, or threatened wildlife may exist in or utilize some of these waterways. If the RARE beneficial use may be affected by a water quality control decision, responsibility for substantiation of the existence of rare, endangered, or threatened species on a case-by-case basis is upon the California Department of Fish and Game on its own initiative and/or at the request of the Regional Board; and such substantiation must be provided within a reasonable time frame as approved by the Regional Board.
2 = Use, if any, to be determined on a case-by-case basis.

SOURCE: CRBRWQCB Basin Plan, 1994.

TABLE 3.8-2
DEFINITIONS OF BENEFICIAL USES OF SURFACE WATERS

Beneficial Use	Description
Municipal and Domestic Supply (MUN)	Waters are used for community, military, municipal or individual water supply systems. These uses may include, but are not limited to, drinking water supply.
Groundwater Recharge (GWR)	Uses of water for natural or artificial recharge of groundwater for purposes of future extraction, maintenance of water quality, or halting saltwater intrusion into freshwater aquifers.
Preservation of Rare and Endangered Species (RARE)	Uses of waters that support habitats necessary for the survival and successful maintenance of plant or animal species established under state and/or federal law as rare, threatened, or endangered.
Water Contact Recreation (REC I)	Uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white water activities, fishing, and use of natural hot springs.
Non-Contact Water Recreation (REC II)	Uses of water for recreational activities involving proximity to water, but not normally involving contact with water where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.
Warm Freshwater Habitat (WARM)	Uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.
Wildlife Habitat (WILD)	Uses of water that support terrestrial ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.
Water Contact Recreation (REC 1)	Uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white-water activities, fishing, or use of natural hot springs.
Non-Contact Water Recreation (REC 2)	Uses of water for recreational activities involving proximity to water, but not normally involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.

SOURCE: CRBRWQCB Basin Plan, 1994.

For projects that discharge storm water to waters of the US, construction activities of one acre or more are subject to the permitting requirements of the NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (General Construction Permit). The project applicant must submit a Notice of Intent to the RWQCB to be covered by the General Construction Permit prior to the beginning of construction. The General Construction Permit requires the preparation and implementation of a SWPPP. The SWPPP must be prepared before project construction begins and must include specifications for BMPs that would be implemented during construction. If no waters of the US would be affected, the NPDES permits would not be required.

Streambed Alteration Agreements

Sections 1601-1616 of the California Fish and Game Code apply to any state or local government agency or any public utility that proposes to *substantially divert or obstruct the natural flow of, or*

substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

Sections 1601-1616 require application to the CDFG to obtain a Streambed Alteration Agreement (SAA). This agreement is not considered a discretionary permit subject to CEQA; instead, it is a negotiated agreement between DFG and the applicant. The agreement may contain mitigation measures, such as erosion control, intended to reduce the effect of the activity on fish and wildlife resources. The agreement may also be provisional and include a long-term monitoring condition to assess the effectiveness of the proposed mitigation(s) related to the activity.

The proposed project could require a streambed alteration agreement with the CDFG for the construction activities that would take place within Joshua Creek.

3.9 Floodplains

Surface runoff in the project area is carried in an easterly direction in numerous desert washes. The project area is traversed by several stream channels, most notably Joshua Creek and Yucca Creek. Joshua Creek is a tributary to Yucca Creek, and the confluence between these two drainages lies about two miles east of Joshua Tree (GEI, 2008).

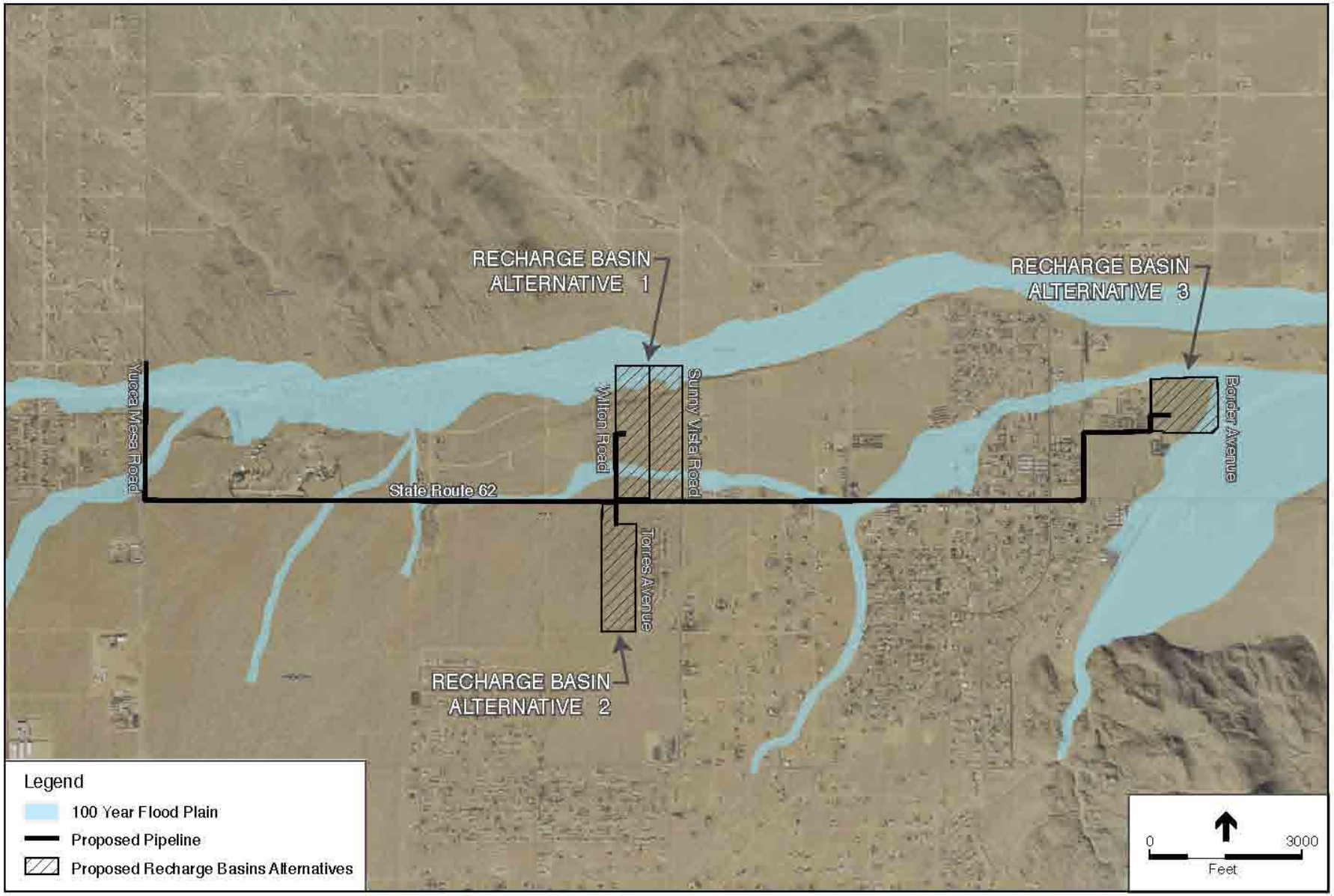
The principal drainages that are in proximity to the proposed project, Yucca Creek, Joshua Creek, and Quail Wash, are subject to flash flooding during intermittent, high-intensity rainfall events. Flood Insurance Rate Maps (FIRMs) produced by the Federal Emergency Management Agency (FEMA) indicate that Yucca and Joshua Creeks and Quail Wash are located in a 100-year floodplain, as shown in **Figure 3.9-1**. Both Yucca and Joshua Creeks would cross Recharge Basin Alternative 1. The northern boundary of Recharge Basin Alternative 3 would adjoin Joshua Creek and the pipeline alignment would cross Yucca Creek on Yucca Mesa Road.

Regulatory Setting

Federal

Clean Water Act

The Federal Water Pollution Control Act (33 U.S.C. 1251 et. sec.) as amended by the Federal Water Pollution Control Act Amendments of 1972, also known as the Clean Water Act (CWA), states that the discharge of pollutants to waters of the United States from any point source is unlawful, unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. Amendments (1987) to the CWA added a section which established a framework for regulating municipal and industrial (M&I) storm water discharges under the NPDES program. On November 16, 1990, the USEPA published final regulations, under the



SOURCE: GlobeXplorer; ESA, 2008; FEMA, 2008.

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Figure 3.9-1
FEMA Flood Hazard Map

1987 CWA Amendments, that establish application requirements for storm water permits. These regulations require that discharges of storm water from construction activity of five acres or more must be regulated as an industrial activity and covered by a NPDES permit.

Federal Emergency Management Agency

Under Executive Order 11988, the Federal Emergency Management Agency (FEMA) is responsible for the management and mapping of areas subject to flooding during a 100-year flood event (i.e., one percent chance of occurring in a given year). FEMA requires that local governments covered by federal flood insurance pass and enforce a floodplain management ordinance that specifies minimum requirements for any construction within the 100-year flood plain.

3.10 Vegetation

The community of Joshua Tree is located north of Joshua Tree National Park along SR 62 in San Bernardino County, California. It is approximately five miles east of Yucca Valley and 14 miles west of Twentynine Palms. All three proposed recharge basin alternative sites consist of undeveloped land with varying degrees of disturbance to the natural communities present (**Figures 3.10-1** and **3.10-2**). A Biological Resources Technical Memo and Wetland Delineation and Jurisdictional Determination Report, which provide the primary sources of the following sections, are included in **Appendix C of the Draft EIR**.

Recharge Basin Alternative 1

This site covers 79.6 acres on two rectangular parcels north of SR 62 and west of Sunny Vista Road. A large wash exists to the north of the site and several dirt paths traverse the site in the east-west direction as well as one near the center in the north-south direction. The highest point of elevation on the site occurs near the center and the site slopes toward the north (toward the large wash) and south (toward SR 62).

The vegetation community on this site is characterized as Mojavean creosote bush scrub. Dominant plants are creosote bush (*Larrea tridentata*) and Joshua tree (*Yucca brevifolia*). Other plants on the site include pencil cholla (*Opuntia ramosissima)*, beavertail cactus (*O. basilaris*), desert tea (*Ephedra californica*), burro-weed (*Ambrosia dumosa*), Mojave yucca (*Yucca schidigera*), coyote melon (*Cucurbita palmata*), hedgehog cactus (*Echinocereus englemannii*) and big galleta grass (*Pleuraphis rigida*). A number of annual plants were in evidence through their dried remains, including *Phacelia, Stephanomeria,* and *Erodium,* which were not identifiable to species due to their condition. Several dirt roads transect the site; however, the vegetation is relatively undisturbed and diverse.

Recharge Basin Alternative 1 - View looking north

Recharge Basin Alternative 2 - View looking north

SOURCE: ESA, 2008.

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Figure 3.10-1
Site Photos

Recharge Basin Alternative 3- View looking east

Pipeline Route – View looking north along Yucca Mesa Road from State Route 62

SOURCE: ESA, 2008.

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Figure 3.10-2
Site Photos

Recharge Basin Alternative 2

This site covers 37.5 acres south of SR 62 and west of Torres Avenue and is rectangular in shape excepting a small cutout of an adjoining parcel on the northeast corner. The site slopes generally from south to north (toward SR 62).

The vegetation community on this site is characterized as Mojavean creosote bush scrub. The dominant plants are Joshua tree and creosote bush. Other species present include Mojave yucca, pencil cholla, beavertail cactus, desert tea, desert senna (*Senna armata*), California buckwheat (*Eriogonum fasciculatum*) and indigo bush (*Psorothamnus arborescens*). This site is the least disturbed of the three recharge basin alternatives.

Recharge Basin Alternative 3

This site covers 32.5 acres and is generally square in shape. It is located approximately 1,500 feet north of SR 62 between Border Avenue and Memory Lane. The topography of the site is relatively level though the overall area generally slopes to the east. There is a significant wash to the north, adjacent to the property that drains to Coyote Lake approximately six miles to the east.

The vegetation on this site is Mojavean creosote bush scrub. The dominant plant species are creosote bush, burro-weed, and silver cholla (*Opuntia echinocarpa*). Other species observed include pencil cholla, desert senna, desert tea, hedgehog cactus, beavertail cactus, and bladderpod (*Cleome isomeris*). The wash offsite and adjacent to the north side of the site supports individuals of several riparian-associated species not present on the site proper, including cat claw (*Acacia greggii*), and desert willow (*Chilopsis linearis*). This site is more disturbed by human activities than the other recharge basin alternatives. It is crisscrossed by numerous off-road vehicle trails, and littered with refuse including construction debris and trash.

Pipeline

Water will be supplied to the selected recharge basin via a pipeline to be located parallel to Yucca Mesa Road turning east on SR 62 then parallel to same along the north side of the highway until reaching the basin site. Being located along roadways, the pipelines will pass primarily through disturbed habitats lacking sensitive biological resources (Figure 3.10-2).

The vegetation communities present along the pipeline route are similar to those found on the recharge basin alternative sites though much more disturbed owing to their proximity to the roadways. Mojavean creosote bush scrub is the dominant vegetation type along the roadways. Also present along the roadway are several patches of landscaped, ornamental vegetation.

Agricultural Resources

The proposed recharge basin locations contain undeveloped open space and are not currently used for agricultural purposes; nor have these locations been designated by the County of San Bernardino for agricultural uses. In addition, according to the Department of Conservation's Farmland Mapping and Monitoring Program, the recharge basin alternatives are not be located on land designated as important farmland and are not located on lands under Williamson Act contracts. (Department of Conservation, 2007).

Regulatory Setting

State

California Farmland Mapping and Monitoring Program

The California Department of Conservation, under the Division of Land Resource Protection, has established the Farmland Mapping and Monitoring Program (FMMP). The FMMP monitors the conversion of the state's farmland to and from agricultural use. The map series identifies eight classifications and uses a minimum mapping unit size of 10 acres. The FMMP maintains an inventory of state agricultural land and updates its "Important Farmland Series Maps" every two-years (Department of Conservation, 2007). Important farmlands are divided into the following five categories based on their suitability for agriculture.

- **Prime Farmland.** Prime Farmland is land with the best combination of physical and chemical characteristics able to sustain long-term production of agricultural crops. This land has produced irrigated crops at some time within the four-years prior to the mapping date.
- **Farmland of Statewide Importance.** Farmland of Statewide Importance is land that meets the criteria for Prime Farmland but with minor shortcomings such as greater slopes or lesser soil moisture capacity.
- **Unique Farmland.** Unique Farmland has even lesser quality soils and produces the state's leading agricultural crops. This land is usually irrigated but also includes non-irrigated orchards and vineyards.
- **Farmland of Local Importance.** Farmland of Local Importance is land that is important to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee.
- **Grazing Land.** Grazing Land is land on which the existing vegetation is suited to the grazing of livestock.

Williamson Act

The California Land Conservation Act of 1965, also known as the Williamson Act, is designed to preserve agricultural and open space lands by discouraging their premature and unnecessary conversion to urban uses. Williamson Act contracts, also known as agricultural preserves, create an arrangement whereby private landowners contract with counties and cities to voluntarily restrict their land to agricultural and compatible open-space uses. The vehicle for these agreements is a rolling term 10 year contract.[5] In return, restricted parcels are assessed for tax purposes at a rate consistent with their actual use, rather then potential market value. At the end of the 10 year contract, either the local government, or landowner, can initiate the nonrenewal process. A "notice of nonrenewal" starts a nine-year nonrenewal period. During the nonrenewal process, the annual tax assessment gradually increases. At the end of the nine-year nonrenewal period, the contract is terminated. Contracts renew automatically every year unless the

[5] Information about the basic provisions of Williamson Act contracts can be found on the California Department of Conservation, Division of Land Resource Protection web site: http://www.consrv.ca.gov/DLRP/lca/basic_contract_provisions/index.htm, accessed January 21, 2009.

nonrenewal process is initiated. Williamson Act contracts can be divided into the following categories: Prime Agricultural Land, Non-Prime Agricultural Land, Open Space Easement, Built up Land, and Agricultural Land in Non-Renewal.

The Williamson Act states that a board or council by resolution shall adopt rules governing the administration of agricultural preserves. The rules of each agricultural preserve specify the uses allowed. Generally, any commercial agricultural use will be permitted within any agricultural preserve. In addition, local governments may identify compatible uses permitted with a use permit.

3.11 Fish and Wildlife

Fish / Essential Fish Habitat

There are no fish species in the project area. The Pacific Fishery Management Council has not designated any Essential Fish Habitat (EFH) in the vicinity of the proposed action, as required by the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. §§1801-1891), as amended by the Sustainable Fisheries Act of 1996.

Wildlife

Wildlife species observed within and in the vicinity of the Recharge Basin Alternatives are shown below in **Table 3.11-1**. For more information, please refer to the Biological Resources Technical Memo that was included as **Appendix C of the Draft EIR**. Endangered or threatened species and Critical Habitat are discussed in Section 3.12 of this EA.

TABLE 3.11-1
SPECIES OBSERVED WITHIN AND IN THE VICINITY OF
JBWD RECHARGE BASIN ALTERNATIVES, JOSHUA TREE CALIFORNIA

		Observed		
Scientific Name	**Common Name**	**on Alt. 1**	**on Alt. 2**	**on Alt. 3**
Plants				
Acacia greggii	cat claw	x		
Achantherum hymenoides	Indian ricegrass	x		x
Ambrosia dumosa	burrowbush	x	x	x
Chilopsis linearis	desert willow	x		
Cleome isomeris	bladderpod			x
Cucurbita palmata	coyote melon	x		x
Datura wrhghtii	jimsonweed		x	x
Echinocerius englemannii	hedgehog cactus	x	x	x
Ephedra californica	desert tea	x	x	x
Ephedra nevadensis	Nevada joint fir		x	
Ericameria cooperi var. cooperi	Cooper's goldenbush		x	
Eriogonum fasciculatum	buckwheat		x	
Eriogonum inflatum	desert trumpet	x	x	
Ferocactus cylindraceus	barrel cactus	x		
Hymenoclea salsola	cheesebush	x	x	x

TABLE 3.11-1
SPECIES OBSERVED WITHIN AND IN THE VICINITY OF
JBWD RECHARGE BASIN ALTERNATIVES, JOSHUA TREE CALIFORNIA

		Observed		
Scientific Name	**Common Name**	**on Alt. 1**	**on Alt. 2**	**on Alt. 3**
Krameria grayi	white ratany	x	x	
Larrea tridentata	creosote bush	x	x	x
Opuntia basilaris	beavertail cactus	x	x	x
Opuntia echinocarpa	silver cholla	x	x	x
Opuntia ramosissima	pencil cholla	x	x	x
Phacelia sp.	phacelia	x	x	x
Pleuraphis rigida	big galleta grass	x	x	x
Psorothamnus arborescens	indigo bush		x	
Salazaria mexicana	paperbag bush	x	x	
Senna armata	desert senna	x	x	x
Stephanomeria sp.	aster	x	x	x
Tetradymia stemolepis	Mojave cottonthorn	x	x	
Yucca brevifolia	Joshua tree	x	x	x
Yucca schedigera	Mojave yucca	x	x	x
Wildlife				
Ammospermophilus leucurus	antelope ground squirrel	x		
Amphispiza bilineata	black-throated sparrow	x	x	x
Campylorhynchus brunneceicapillus	cactus wren	x	x	x
Canis latrans	coyote	x	x	x
Carpodacus micanus	house finch	x	x	x
Cnemidophorus tigris	western whiptail	x	x	
Corvus corax	common raven	x	x	x
Gopherus agassizii	desert tortoise	x[1]		
Lepus californicus	black-tailed hare	x	x	x
Sylvilagus audobonii	cottontail			x
Urocyon cinereoargenteus	fox		x	
Uta stansburiana	side-blotched lizard	x	x	x
Zenaida macroura	mourning dove	x	x	x
Zonotrichia leucophrys	white-crowned sparrow	x		x

SOURCE: ESA 2008

The CNDDB (CDFG, 2008) search revealed the recorded occurrences of five State wildlife species of special concern in the area that have the potential to occur on the project site recharge basin alternatives: burrowing owl (*Athene cunicularia*), loggerhead shrike (*Lanius ludovicianus*), LeConte's thrasher (*Toxostoma lecontei*), western yellow bat (*Lasiurus xanthinus*), and pallid San Diego pocket mouse (*Chaetodipus fallax pallidus*). The burrowing owl, loggerhead shrike and LeConte's thrasher have a moderate potential to occur at the proposed project sites. These species have nearby records documented in the CNDDB and suitable habitat present on the project sites.

Appendix C of the Draft EIR lists each special-status species potentially present on the project sites and provides some description of their distribution and potential to occur on the site.

Wildlife Movement

The concept of habitat corridors addresses the linkage between large blocks of habitat that allows the safe movement of mammals and other wildlife species from one habitat area to another. The definition of a corridor is varied, but corridors may include greenbelts, refuge systems, underpasses, and biogeographic landbridges, for example. In general, a corridor is described as a linear habitat, embedded in a dissimilar matrix that connects two or more large blocks of habitat.

Wildlife movement corridors are critical for the survivorship of ecological systems for several reasons. Corridors can connect water, food, and cover sources, spatially linking these three resources with wildlife in different areas. In addition, wildlife movement between habitat areas provides for the potential of genetic exchange between wildlife species populations, thereby maintaining genetic variability and adaptability to maximize the success of wildlife species in response to changing environmental conditions. This is especially critical for small populations subject to loss of variability from genetic drift and effects of inbreeding. The nature of corridor use and wildlife movement patterns varies greatly among species.

The large amount of undeveloped land within the Community of Joshua Tree provides important wildlife movement corridors for wildlife in the area of the proposed project.

Regulatory Setting

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. §§703-711) makes it unlawful to possess, buy, sell, purchase, barter or "take" any migratory bird listed in Title 50 of the Code of Federal Regulations Part 10. "Take" is defined as possession or destruction of migratory birds, their nests or eggs. Disturbances that causes nest abandonment and/or loss of reproductive effort or the loss of habitats upon which these birds depend would be in violation of the MBTA.

3.12 Endangered or Threatened Species and Critical Habitat.

Reports from focused surveys (Circle Mountain, 2008) indicated the occurrence of the desert tortoise (*Gopherus agassizi*) in the project vicinity. The desert tortoise is listed as a threatened species by both the State of California and the federal government. ESA biologists did not observe desert tortoise burrows or other sign of activity during the October 2008 site reconnaissance visit. However, Circle Mountain Biological Consultants Inc. (Circle Mountain) (CMBC, 2008) have recently conducted focused surveys and found active tortoise burrows and sign on Recharge Basin Alternative 1 and sign of activity and tortoise remains on Recharge Basin Alternative 2. Circle Mountain did not perform any focused surveys within Recharge Basin Alternative 3. The potential for encountering desert tortoise on Recharge Alternative Basin 3 is low due to the disturbance on the site.

There is no designated critical habitat in the project area.

Regulatory Framework

Federal Endangered Species Act

The United States Fish and Wildlife Service (USFWS) administers the federal Endangered Species Act (FESA) (16 U.S.C. §§1531-1599) that provides a process for listing species as either threatened or endangered, and methods of protecting listed species. Species are listed as either endangered or threatened under Section 4 of the FESA that defines as “endangered” any plant or animal species that is in danger of extinction throughout all or a significant portion of its range and “threatened” if a species is likely to become endangered in the foreseeable future. Section 9 of the FESA prohibits “take” of listed threatened or endangered species. The term “take” means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in such conduct. Harm under the definition of “take” includes disturbance or loss of habitats used by a threatened or endangered species during any portion of its life history. Under the regulations of the FESA, the USFWS may authorize “take” when it is incidental to, but not the purpose of, an otherwise lawful act.

California Endangered Species Act

The California Endangered Species Act (CESA) is similar to the main provisions of the FESA and is administered by the California Department of Fish and Game (CDFG). Unlike its federal counterpart, CESA applies the take prohibitions to not only listed threatened and endangered species, but also to state candidate species for listing. Section 86 of the Fish and Game Code defines "take" as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” The CDFG maintains lists for Candidate-Endangered Species and Candidate-Threatened Species, which have the same protection as listed species. Under CESA the term "endangered species" is defined as a species of plant, fish, or wildlife, which is "in serious danger of becoming extinct throughout all, or a significant portion of its range" and is limited to species or subspecies native to California.

3.13 Environmental Sensitive Areas

In fulfillment of Executive Order No. 12372, Intergovernmental Review of Federal Programs, JBWD undertook the following activities to inform the public and pertinent agencies about the proposed action and to afford an opportunity for public participation: 1) early coordination with government agencies and interest parties during a 30-day scoping period, 2) a scoping meeting to introduce the project to the general public and solicit input, 3) submission of the Notice of Preparation and EIR to the State Clearinghouse, Office of Planning and Research, which is the California Single Point of Contact (SPOC) designated for intergovernmental review under EO 12372, 4) a 45-day public review period to receive comments, and 4) a public meeting to present the environmental analysis and findings of the proposed action. **Appendix A of the Draft EIR and the Final EIR** that was prepared for this project under CEQA summarize the public comments received during the two meetings and letters received both from the public and government agencies during the early scoping and public review periods.

Notice of Preparation

To advise the public that preparation of an EIR was to begin for the proposed action a Notice of Preparation (NOP) was issued on December 1, 2008 to interested parties, including local, state, and federal agencies; adjacent property owners; and other groups or individuals who had previously expressed interest in the project. Copies of the NOP were made available for public review at two San Bernardino County Libraries, Yucca Valley and Joshua Tree Branch, and the JBWD web site: www.jbwd.com. **Appendix A of the Draft EIR** lists the agencies and parties that received the NOP and were invited to the scoping meeting.

The 30-day NOP project scoping period, which began with the distribution of the NOP, remained open through December 22, 2008. During the scoping period, the Joshua Basin Water District held a scoping meeting on December 9, 2008, 2:00 P.M. at the Joshua Basin Water District (61750 Chollita Road, Joshua Basin, CA 92252). The Joshua Basin Water District placed display ads for the scoping meeting in the Hi-Desert Star on November 29th and December 3rd, 2008.

At the scoping meeting, presentations were given on the district's application and the proposed action. Following the presentations, meeting participants were invited to talk to staff regarding any issues on their mind. Participant questions and comments were recorded on a whiteboard, and comment cards were also available for participants to fill out at the meeting or to send in at a later date.

During the scoping period, the Joshua Basin Water District received 10 comments on the proposed project via mail, fax, or e-mail. The district also received comments during the scoping meeting and multiple comments were recorded. Federal agencies that submitted comments include FEMA and U.S. Fish and Wildlife Service. Copies of all comment letters can be found in **Appendix A of the Draft EIR**.

Draft EIR

The Draft EIR or a Notice of Availability (NOA) was mailed to interested parties, including local, state, and federal agencies; adjacent property owners; other groups or individuals who had previously expressed interest in the project; and those who sent comment letters during the NOP comment period.

The 45-day public review period, which began with the distribution of the DEIR, remained open through June 26, 2009. During the review period, the Joshua Basin Water District held a public meeting on May 27, 2009 at 7:00 P.M. at the Joshua Basin Water District (61750 Chollita Road, Joshua Basin, CA 92252). The Joshua Basin Water District placed display ads for the meeting in the Hi-Desert Star on May 20th and May 23rd, 2009 (see **the Final EIR**).

At the meeting, a presentation was given and following the presentation, meeting participants were invited to comment on the project. Participant questions and comments were recorded on a whiteboard, and comment cards were also available for participants to fill out at the meeting or to send in at a later date.

In addition to the comments received at the meeting, during the public review period, Joshua Basin Water District received 11 comment letters on the proposed project via mail, fax, or e-mail. The only federal agency that submitted a comment was the U.S. Geological Service. A summary of the comments received at the public meeting, along with all comments letters can be found in the Final EIR. The Final EIR also includes all responses provided to commentors.

Federal Agency Involvement

Federal cross-cutter agencies that were contacted regarding the proposed action include the U.S. Fish and Wildlife Service (USFWS), the U.S. Army Corps of Engineers (USACE), and the State Historic Preservation Office (SHPO). **Table 3.13-1** identifies the federal coordination effort and summarizes agency responses.

TABLE 3.13-1
FEDERAL AGENCY CONTACT MATRIX

Agency	Notices Sent	Date	Comments Received	Response
USFWS	NOP	12-1-08	Yes	Comments incorporated into Draft EIR
	Draft EIR	5-12-09	No	
USACOE	NOP	12-1-08	No	
	Draft EIR	5-12-09	No	
SHPO	NOP	12-1-08	No	
	Draft EIR	5-12-09	No	

United States Fish and Wildlife Service

The U.S. Fish and Wildlife Service (USFWS) was sent a copy of the NOP and of the Draft EIR. Comments were received on the NOP and were incorporated into the Draft EIR. No comments were received on the Draft EIR.

U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers (USACE) was sent a copy of the NOP and of the Draft EIR. No comments were received from this agency.

State Historic Preservation Office (SHPO)

The Office of State Historic Preservation was sent a copy of the NOP and of the Draft EIR. No comments were received from this agency.

State and Local Agency Involvement

Coordination with interested State and local agencies was also performed. **Table 3.13-2** summarizes this coordination effort.

TABLE 3.13-2
STATE AND LOCAL AGENCY CONTACT MATRIX

Agency	Notices Sent	Date	Comments Received	Response
SHPO	NOP	12-1-08	No	
	Draft EIR	5-12-09	No	
CDFG	NOP	12-1-08	Yes	Comments incorporated into Draft EIR
	Draft EIR	5-12-09	No	
RWQCB	NOP	12-1-08	No	
	Draft EIR	5-12-09	No	
San Bernardino County	NOP	12-1-08	Yes	Comments incorporated into Draft EIR
	Draft EIR	5-12-09	No	

A letter was sent to the Native American Heritage Commission (NAHC) on September 5, 2008 informing them of the project and requesting a record search of sacred lands or traditional cultural properties that may exists within the project area, in addition to the contact information of all Native American representatives who could be associated with the project area.

The NAHC responded and indicated that the record search for its Sacred Lands File did not indicate the presence of Native American cultural resources in the immediate project area. A list of 10 Native American contacts with interest in the project area was included in the response. All ten contacts were sent letters describing the project on October 8, 2008. Two response letters were received from Native American contacts. One indicated that he had no interest in the project and the other requested to be included in any further project developments. This second commenter received a copy of the Draft EIR, but did not comment further.

A second letter was sent to the NAHC on November 19, 2009 and follow-up letters were sent to all 10 Native American contacts on December 2, 2009 (see **Appendix D of the Draft EIR**).

California Department of Fish and Game

The California Department of Fish and Game (CDFG) was sent a copy of the NOP and of the Draft EIR. Comments were received on the NOP and were incorporated into the Draft EIR. No comments were received on the Draft EIR.

Regional Water Quality Control Board (Region 7)

The Regional Water Quality Control Board (RWQCB) was sent a copy of the NOP and of the Draft EIR. No comments were received from this agency.

California Department of Transportation

JBWD is in the process of coordinating with the California Department of Transportation (Caltrans) in order to obtain an encroachment permit for the proposed project.

County of San Bernardino

The County of San Bernardino was sent a copy of the NOP and of the Draft EIR. Comments were received on the NOP and were incorporated into the Draft EIR. No comments were received on the Draft EIR.

Community of Joshua Tree

The Community of Joshua Tree received copies of the NOP and the Draft EIR. Comments received from community residents on the NOP and Draft EIR were incorporated into the Final EIR. Joshua tree preservation is considered a priority by the Community of Joshua Tree. A County Building official must make a determination that no other reasonable alternative exists before a Joshua tree is removed. Relocation of Joshua trees onsite is strongly encouraged.

3.14 Historic, Prehistoric, Architectural, Archaeological, and Cultural Resources

Setting

Paleontological Context

Fossil remains are found in the geologic deposits (sedimentary rock formations) within which they were originally buried. A paleontologically important deposit is one that has a high probability of producing unique, scientifically important fossils. This is determined by the abundance and densities of fossil specimens and/or previously recorded fossil sites in exposures of the deposit. Therefore, the potential paleontological sensitivity of the project site can be assessed by identifying the paleontological importance of geologic deposits within the project site.

Paleontological Resources

The project area lies in the southeast portion of the Mojave Desert Geomorphic Province. Geologic units near the project area consist of unconsolidated alluvium and consolidated granitic rock, with outcroppings of basalt and metasedimentary and metavolcanic rocks. All three recharge basin alternatives as well as the pipeline route are situated upon Quaternary alluvium and older alluvium (GEI, 2008). These types of alluvium have a low potential to produce fossils and are not considered paleontologically sensitive.

Historical Context

Prehistoric Setting

The prehistory of the Mojave is generally described in terms of cultural “complexes.” A complex is a specific archaeological manifestation of a general mode of life, characterized archaeologically by technology, particular artifacts, economic systems, trade, burial practices, and other aspects of culture. Complexes are typically associated with particular chronological periods.

Paleo-Indian (10,000-8,000 B.C.)

The Paleo-Indian period is sparsely represented in the Mojave, primarily by large, fluted Clovis projectile points. This limited evidence suggests that early human occupants of the Mojave probably lived in small, mobile groups in temporary camps on permanent water sources (Sutton, et al., 2007).

Lake Mojave Complex (8,000-6,000 B.C.)

In terms of material culture, the Lake Mojave Complex is typified by stone tools such as Lake Mojave and Silver Lake projectile points, bifaces, steep-edged unifaces, crescents, and some ground stone implements (Sutton, et al., 2007). Lake Mojave groups were organized in relatively small, mobile groups and practiced a forager-like subsistence strategy. Some trade with coastal groups was practiced, as evidenced by the presence of shell beads.

The Pinto Complex (6,000 to 3,000 B.C.)

Archaeological deposits dating from the Pinto Period suggest that Pinto settlement patterns consisted of seasonal occupation by small, semi-sedentary groups that were dependent upon a combination of big and small-game hunting and collection strategies, which could include the exploitation of stream or water resources. Typically, sites of this period are found along lake shores and streams or springs, some of which are now dry. Material culture representative of this period in California prehistory include roughly formed projectile points, “heavy-keeled” scrapers, choppers, and a greater prevalence of flat millingstones and manos, indicating a more intensive use and processing of plant resources (Warren, 1984; Sutton et al., 2007). At the end of the middle Holocene, around 3000 B.C., environmental conditions became much drier and hotter, and few sites in the Mojave date to the period between 3000 and 2000 B.C., suggesting that the area may have been largely abandoned during this period of unfavorable climate (Sutton et al., 2007).

Gypsum Complex (c. 2,000 B.C. to A.D. 200)

Many archaeological sites of this period are small and surficial, probably of a temporary nature. It is during this time that the archaeological evidence suggests inter-tribal trade was occurring, particularly between the desert and the coast. The artifact assemblage associated with this period includes an increase in the prevalence of millingstones and manos, and it was during this period that the pestle and mortar may have been introduced. These technological developments may point to an increased consumption of seeds and mesquite. Other artifacts associated with the Gypsum Period include Humboldt Concave Base, Gypsum Cave, Elko Eared, and Elko Corner-notched projectile points. Towards the end of the Gypsum period, there is evidence for the use of the bow and arrow (Warren, 1984).

Rose Springs Complex (c. A.D. 200 to 1,200)

The general cultural pattern for this period is a continuation of that of the preceding Gypsum Period. The increase in cultural complexity continued into this period and the archaeological record attests to established trade routes between desert and coastal populations by the presence of shell beads and steatite. In addition, Anasazi influence from the eastern Great Plains is introduced as evidenced by the appearance of turquoise and pottery. Material culture related to

this period includes obsidian artifacts, Rose Spring and Eastgate projectile points, millingstones, manos, mortars and pestles, slate pendants, and incised stones (Warren, 1984). Archaeological sites from this period are more numerous and contain more well-developed middens, indicating an increase in population and a more permanent settlement pattern (Sutton et al., 2007).

The Protohistoric Period (A.D. 1,200 to European Contact)

By the Protohistoric period, an extensive network of established trade routes wound their way through the desert, routing quality goods to populations throughout the Mojave Region. These trade routes may have encouraged the development of an "increasingly complex socioeconomic and sociopolitical organization" within Protohistoric peoples in Southern California. Housepit village sites are prevalent during this period, as are the presence of Desert Side-notched and Cottonwood projectile points, brownware and buffware ceramics, steatite shaft straighteners, painted millingstones, and, to a lesser degree, coastal shell beads. By the end of this period, however, a decline in trade occurred and well-established village sites were abandoned (Warren, 1984).

Historic Setting

Regional

Several major trails crossed the Mojave before and at the time of Spanish contact, which were used not only by the native peoples but by Euro-American explorers as well. The Yuma-Needles Trail ran from south of Yuma up the western side of the Colorado River to the Needles area. The Mojave Trail ran from Needles west across the desert to the coast. The Cocomaricopa Trail ran from Arizona through the Salton Sink and then northwest to meet the Mojave Trail near San Bernardino (Greene, 1983).

The first Europeans known to have visited the Mojave were Pedro Fages in 1772 and Juan Bautista de Anza and Father Francisco Garces in 1774 (Greene, 1983). In 1775, Father Garces separated from de Anza and crossed the Mojave along the ancient Mojave Trail from Needles west to the San Gabriel Mission. The Spanish missions that dotted the California coast never spread inland to the Mojave, and the desert remained relatively unexplored and unsettled by Europeans for much of the next century. The Romero-Estudillo Expedition of 1823-24 was an attempt by the Spanish to establish a secure route between the California Coast and Tucson; however, the expedition never managed to make it as far as the Colorado River despite two attempts (Greene, 1983).

The first recorded American visitors to the Mojave were the party of Jedediah Smith, who crossed the Mojave along the Mojave Trail in 1826. Ewing Young and Kit Carson followed his route in the 1820s and 1830s. In the 1850s, Pauline Weaver, a cattleman, trapper, and guide, created a private thoroughfare through the Morongo Basin by which he herded cattle from the Cajon Pass to Arizona (Greene, 1983). This route passed immediately north of the Joshua Tree National Monument, in the vicinity of the project area. In the 1850s, after California achieved statehood, numerous railroad surveys were conducted in the Mojave, including two near the Joshua Tree National Monument, the Williamson survey and the Whipple survey, both conducted in 1853

(Greene, 1983). By 1883, the Atchison, Topeka, and Santa Fe rail lines ran from Needles to Los Angeles via Barstow.

In the early 1870s, gold mining began in the Joshua Tree area, and in 1873 the de Crevecoeur brothers became the first known white settlers in the Morongo Valley and Twentynine Palms areas. Cattle ranching, along with mining, was one of the area's significant economic bases. In the late 1870s, Chuck Warren began grazing cattle in the area. The well that he dug in Yucca Valley along the area's main trail, as one of the few permanent water sources in the region, soon became a traveler's wayside station and later a stage stop and the center of Yucca Valley life (Greene, 1983).

Homesteading began in Yucca Valley in 1910 and in Joshua Tree in 1913. While few homesteads were settled in this area at first, the Great Depression led to an influx of settlers, who were attracted to the affordable land and purported health benefits of the desert air (Greene, 1983). During World War II, numerous military bases were established in the Mojave, leading to a second population boom. Joshua Tree National Monument was created in 1936 and has remained a tourist draw ever since, becoming a National Park in 1994 (Joshua Tree Community Plan).

Project Sites

General Land Office (GLO) Land patent records indicate that sections 25 and 27 (Recharge Basin Alternatives 3 and 1) of Township 1N, Range 6E were deeded to the Southern Pacific Railway in 1910. The Northeast quarter of section 34 (Recharge Basin Alternative 2) was homesteaded by Francis D. Curry in 1930.

Several historic maps cover the project area. The Official Map of San Bernardino County (1892) shows a road marked "Road to Palm Springs" running through Township 1N, Range 6E, Sections 23, 33, and 34 (through or near Recharge Basin Alternative 2). This road may also be visible in the 1955 Joshua Tree USGS 7.5' quadrangle, running from near Warren's Well through sections 31, 32, 33, and 34 (immediately south of Recharge Basin Alternative 2) to Joshua Tree. However, by this time SR 62 had assumed its current route and the older road was marked on the 1955 map as an unpaved dirt road.

The project areas appear to have changed little since the 1955 map. The SR 62 is visible, as are the Mentalphysics Center and the layout of the town of Joshua Tree. In Recharge Basin Alternative 1, an unpaved road is shown running through the middle of the project area. In Recharge Basin Alternative 2, the dirt road that bisects site JB-6 (described below) is noted on the map, running from SR 62 to the old Palm Springs road. Recharge Basin Alternative 3 contains no roads or other features.

Aerial photographs from the 1950s through the present show all three recharge basin alternatives as undeveloped land. SR 62 is visible and appears to be paved in asphalt in all photographs. In Recharge Basin Alternative 1, the east-west and north-south dirt roads that divide the parcel are visible from 1967 onwards (Reynolds, 2008). Prior to that, the only visible landmarks in the parcel are a few small dirt roads related to a residence just outside the parcel on its eastern edge. In Recharge Basin Alternative 2, Torres Road was present from at least 1967. In Recharge Basin

Alternative 3, the residential development that defines the parcel's western boundary as well as the concrete channel to the east of the parcel are visible from 1989 onwards.

Historic Resources

Records Search

Results of the records search performed by the San Bernardino Archaeological Information Center (SBAIC) indicated that four cultural resource surveys had been performed within portions of the project area. An additional 11 surveys had been performed within ½ mile of the project area.

No previously known cultural resources exist in the immediate project area; however, two prehistoric sites, one historic site, one historic structure, and two prehistoric isolates have been recorded within ½ mile of the project area. The resources are listed in **Table 3.14-1**.

TABLE 3.14-1
PREVIOUSLY RECORDED CULTURAL RESOURCES WITHIN ½-MILE RADIUS OF THE JOSHUA BASIN PROJECT AREA

Trinomial/Primary	Date Recorded	Description
36-060142	1972	Isolate- core found along side of wash
36-060143	1972	Chipping station with two flakes
36-060273	1972	Pottery scatter
SBR-1605	1975	Extensive site (40 acres) consisting of porphyritic felsite quarry, campsite with pottery, flakes, stone tools, obsidian projectile point.
SBR-10525H	2000	SR 62
36-030078	1999	General Store on Hwy 62

SOURCE: SBAIC, 2008.

Field Survey

Four isolated artifacts, two historic sites, two prehistoric sites, one multi-component site, and one site of undetermined age were recorded during a field survey of the Joshua Basin project area. The cultural resources are detailed below by project area.

Recharge Basin Alternative 1

JB-1

Site JB-1 is a sparse lithic scatter, consisting of two worked flakes and three tested cobble fragments. The material of these artifacts is a light grey fine-grained igneous rock.

JB-2

Site JB-2 is a sparse lithic scatter. The site consists of a total of five worked flakes made of a light grey fine-grained igneous material, similar to the artifacts found at site JB-1.

Sites JB-1 and JB-2 may be related to CA-SBR-1605, a prehistoric quarry site located approximately 0.5 miles northwest. Site SBR-1605, about 40 acres in size, consists of a natural outcrop of what the original recording archaeologists described as "porphyritic felsite" (a fine-grained igneous rock with large feldspar inclusions), along with numerous cores, flakes, and complete tools of the same material. Geologic maps indicate that the site SBR-1605 is situated on an outcrop of volcanic and metamorphic rocks, including monzonite porphyry. Site JB-1 and JB-2 consist of tested cobble fragments and worked flakes of a similar material, indicating that prehistoric people may have been scouting this area, along with the quarry site, for natural material with which to make tools.

JB-3

Site JB-3 consists of about 30 tin cans arranged in a 1.8 x 4.5 m rectangle, its long end oriented roughly E-W. The cans were lined up end to end to form the rectangle; many were partially or almost entirely buried. Most of the cans appeared to be 3 14/16 by 3 inch hole-in-top milk cans. One glass mason jar was a component of the south side of the rectangle. Based on the presence of this particular type of hole-in-top milk cans, which were produced from 1917 to the present, the site can be dated to the 20th century (IMACS, 471).

Recharge Basin Alternative 2

JB-5

Site JB-5 consisted of a 70 cm in diameter circular pile of medium-sized (10-15 cm) cobbles. No artifacts were found near the site. The date and possible use of the site are unknown. Rock cairns are common in the Mojave, and can represent burials, historic and prehistoric trail markers, or historic mining claims, among other things.

JB-6

Site JB-6 was recorded in the field, but later determined not to be in the project area. The site consists of an extensive historical (1930s-1940s) debris scatter, characterized by concentrations of tin cans, many riddled with bullet holes.

JB-ISO-4

One isolated artifact was found in Recharge Basin Alternative 3, a grey and tan cryptocrystalline silicate (very fine-grained metamorphic rock) biface fragment.

Recharge Basin Alternative 3

Three isolate flakes (JB-ISO-1, -2, and -3) were found in Recharge Basin Alternative 3. All three were of a dark grey fine-grained igneous material, similar to that found at site JB-1 and JB-2.

Pipeline Alignment

One site was located during the survey of the pipeline alignment.

JB-4

This site is an extensive historic debris scatter, about 400 square meters in area. The site is located just south of SR 62, in a shallow ravine below the road. Debris is concentrated into two areas and consists mainly of metal cans (approximately 80-100 in total), broken brown and clear

glass, and some hand-painted and transfer print ceramic fragments. Metal can types included hole-in-top cans of varying sizes, church key beer cans, motor oil cans, coffee cans, and paint cans. Several of the hole-in-top milk cans were of a type produced from 1917-1948 (IMACS).

About 10 meters south of the main concentrations of artifacts were two pieces of brownware ceramics. The fabric was medium brown in color, with visible straw temper, and fingerprint and shaping marks. One fragment was blackened on the outside. The brownware sherds are Protohistoric in date (1200 A.D. to historic contact).

In the vicinity of the brownware were several pieces of burnt bone as well as one clear glass bottle base fragment that includes the maker's mark of the Owens Illinois glass company (a "I" within an oval, on top of an elongated diamond), a date mark of "53", and an inscription that reads: "Dairymen's Service/REG. CAL./ Duraglass/Riverside, Calif." Based on the maker's mark and date stamp, the glass milk bottle fragment was manufactured in 1953 (Lockhart 2006).

This probably represents a large mid-20th century trash dump. The SR 62 was paved and ran along its current route by this time. The Protohistoric brownware may be isolated artifacts, or could indicate the presence of a larger prehistoric site nearby.

Ethnographic Context

At the time of European contact, the project area was inhabited by the Serrano, Cahuilla, and Chemehuevi tribes, with occasional visits by the Mojave people. The Serrano had a village site at the oasis of Mara, in present-day Twentynine Palms, which they inhabited until the 1870s. After this, Mara was inhabited by the Chemehuevi. The Cahuilla occupied what is now the southern portion of the Joshua Tree National Monument. Mojave occupation of the Joshua Tree area was likely seasonal and transitory (Bean and Vane, 2002). The Serrano, Cahuilla, and Chemehuevi cultural groups are each described in detail below.

Both the Serrano and the Cahuilla occupied territories that ranged from low or moderately low desert to the mountain regions of the Transverse and Peninsular ranges, with the Serrano inhabiting the north and the Cahuilla holding the south. Both groups adapted to and inhabited the terrain in a similar manner. Villages located at higher elevations were placed near canyons that received substantial precipitation or were adjacent to streams and springs. Villages situated at lower elevations were also located close to springs or in proximity to the termini of alluvial fans where the high water table provided abundant mesquite and shallow wells could be dug. Although the two groups were independent of one another, village communities often interacted with each other (Bean, 1978; Bean and Smith, 1978).

Serrano territory was bordered to the west by the Cajon Pass in the San Bernardino Mountains, to the east by Twentynine Palms and to the south by Yucaipa Valley. The Serrano subsistence strategy relied upon hunting and gathering and occasionally fishing. The division of labor was split between women gathering and men hunting and fishing (Bean and Smith, 1978). Mountain sheep, deer, rabbits, acorns, grass seeds, piñon nuts, bulbs, yucca roots, cacti fruit, berries, and mesquite were some of the more common resources utilized (Bean and Smith, 1978).

The Serrano lived in small villages where extended families occupied circular, dome-shaped structures made of willow frames covered with tule thatching. Despite early European in 1771, the Serrano remained relatively autonomous until the period between 1819 and 1834 when most of the western Serrano were removed and placed into missions (Warren, 1984).

As with the Serrano, the Cahuilla occupied high-altitude locations as well as low desert lands, with villages positioned close to plentiful water sources. The Cahuilla relied on hunting as well as the exploitation of a variety of available resources for their primary food sources. The material culture of the Cahuilla was extensive and varied, and included pottery, ornamental items, charmstones, and a number of knapped stone tools. Unlike other Native American populations in Southern California, the Cahuilla were able to retain their autonomy even after the arrival and increasing control of European explorers and the settling governments that followed. It was not until 1891 that the Cahuilla culture and its population began to succumb to the pressure of European and, later, United States governing bodies (Bean & Smith, 1978).

The Chemehuevi, a branch of the Southern Paiute, had a territory that stretched from the Colorado River to the San Bernardino Mountains. The Chemehuevi moved into the eastern Mojave around 1500 A.D. and into the Joshua Tree area in the late 19th century. Chemehuevi material culture and subsistence was similar to the Serrano and Cahuilla. One major difference was the use of baskets instead of pottery (Bean and Vane, 2002). Food was also stored in baskets or occasional ceramic jars. Houses were built from brush laid across four posts, and similar structures were built for storage and ceremonial structures.

The Chemehuevi were occupying the oasis of Mara (Twentynine Palms) when permanent settlement of the area by Europeans and Americans began. Livestock depleted natural resources and white settlers began to claim large pieces of land and water rights. In 1890, 160 acres were set aside for a reservation for the Chemehuevi. In 1910, 640 acres adjacent to the existing Cabazon reservation in Coachella was given jointly to the Cahuilla and the Chemehuevi, and those who remained on the Twentynine Palms reservation were encouraged to move there (Bean and Vane, 2002).

Ethnographic Resources

Sacred Lands Search results prepared by the Native American Heritage Commission (NAHC) failed to indicate the presence of Native American cultural resources in the immediate project area.

Regulatory Setting

National Historic Preservation Act (NHPA) (16 USC §§470-470x-6)

First authorized by the Historic Sites Act of 1935, the National Register of Historic Places (National Register) was established by the NHPA of 1966, as “an authoritative guide to be used by federal, state, and local governments, private groups and citizens to identify the Nation’s historic resources and to indicate what properties should be considered for protection from destruction or impairment” (Code of Federal Regulations [CFR] 36 Section 60.2). The National

Register recognizes both historical-period and prehistoric archaeological properties that are significant at the national, state, and local levels. The National Register is maintained by the U.S. Deport of the Interior (DOI). The NHPA is administered by the DOI and the Advisory Council on Historic Preservation. The Council implements Section 106 of the NHPA, which requires federal agencies to consult with the council regarding actions over which federal agencies have jurisdication and which may affect any sites on the National Register. However, procedures generally call for federal agencies to consult with relevant state preservation offices, such as the State Historic Preservation Officer (SHPO) in California, rather than directly with the council itself.

To be eligible for listing in the National Register, a resource must be significant in American history, architecture, archaeology, engineering, or culture. Districts, sites, buildings, structures, and objects of potential significance must meet one or more of the following four established criteria (U.S. Department of the Interior, 1995):

- Are associated with events that have made a significant contribution to the broad patterns of our history;
- Are associated with the lives of persons significant in our past;
- 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
- Have yielded, or may be likely to yield, information important in prehistory or history.

Unless the property possesses exceptional significance, it must be at least fifty years old to be eligible for National Register listing (U.S. Department of the Interior, 1995).

In addition to meeting the criteria of significance, a property must have integrity. Integrity is defined as "the ability of a property to convey its significance" (U.S. Department of the Interior 1995). The National Register recognizes seven qualities that, in various combinations, define integrity. To retain historic integrity a property must possess several, and usually most, of these seven aspects. Thus, the retention of the specific aspects of integrity is paramount for a property to convey its significance. The seven factors that define integrity are location, design, setting, materials, workmanship, feeling, and association.

Archaeological and Historic Preservation Act (16 USC §§469a-1)

The Archaeological and Historic Preservation Act (AHP/a) is intended to limit the loss of historical data associated with federally-authorized construction activities. As a counterpart to Section 106 of the NHPA, AHPA is invoked once a project has begun in order to protect inadvertent discoveries of cultural resources. The AHPA requires federal agencies to identify prehistoric, historic, or archaeological data that may be lost during construction; and DOI must be notified if such items are discovered. DOI may recommend mitigation measures to recover, preserve, or protect such discoveries.

Recharge Basin Alternative 1 - View looking west

Recharge Basin Alternative 2 - View looking west

SOURCE: ESA, 2008.

JBWD Recharge Basin and Pipeline Project . 207651

Figure 3.15-1
Site Photos

Recharge Basin Alternative 3- View looking east

Pipeline Route – View looking north along Yucca Valley Road from State Route 62

JBWD Recharge Basin and Pipeline Project . 207651

SOURCE: ESA, 2008.

Figure 3.15-2
Site Photos

To the east and south of the Recharge Basin Alternative 1 site, sparse, small-scale residential development is within mid-range views. In all directions, low-lying mountains are within long-range views. The Recharge Basin Alternative 2 site is also undeveloped. Scarce, small-scale residential uses are visible to the east of this site. Low-lying mountains are within long-range views in all directions of the site. As with sites 1 and 2, the Recharge Basin Alternative 3 site is undeveloped. A community center is adjacent to the west of the Alternative 3 site and the Morongo Basin Transit Authority (MBTA) Administration Building is adjacent to the south. Small-scale residential uses are within views to the south and west. Sparse, low-lying mountains are within long-range views to the north, east, and west; and within mid-range views to the south.

Scenic Roadways

According to the California Department of Transportation (Caltrans), SR 62 has been identified as an Eligible State Scenic Highway, though it has not been officially designated (Caltrans, 2009).Within San Bernardino County, various roadways have been identified as "scenic routes" due to their scenic vistas, or other scenic or aesthetic qualities. Scenic route designation recognizes the value of protecting scenic resources for future generations, and places restrictions on adjacent development including specific sign standards regarding sign placement and dimensions, utility placement, architectural design, grading, landscaping characteristics, and vegetation removal. Joshua Tree contains two County-designated scenic routes: SR 62, and Park Boulevard/Quail Springs Road. The proposed project would be located either directly adjacent to, or within the vicinity of, SR 62, which runs west to Yucca Valley and east to Twentynine Palms, and provides regional and interregional connectivity to Joshua Basin via an interchange with Interstate 10 (I-10) (San Bernardino County, 2007). All three site alternatives are within view of SR 62. The Alternative 1 and 2 sites are adjacent to SR 62, and the Alternative 3 site is within mid-range views.

Recharge Basin Alternative 2 would be the location that is closest to Park Boulevard/Quail Springs Road. Alternative 2 is located approximately 1.2 miles from the top of Park Boulevard, which is a two-lane arterial that extends southward between SR 62 and Alta Loma Drive. Quail Springs Road is a two-lane arterial that begins at the southern terminus of Park Boulevard and continues southeast before entering the Joshua Tree National Park. This roadway is one of the two primary entrances to the park (San Bernardino County, 2007a). Alternative 2 is not within view of Park Boulevard/Quail Springs Road.

Regulatory Setting

State

State Scenic Highway Program

The State Scenic Highway Program, created by the California Legislature in 1963, was established to preserve and protect scenic highway corridors from change that would diminish the aesthetic value of lands adjacent to highways. A highway is designated under this program when a local jurisdiction adopts a scenic corridor protection program, applies to Caltrans for scenic highway approval, and receives notification from Caltrans that the highway has been designated as a Scenic Highway. When a city or county nominates an Eligible Scenic Highway for official

designation, it defines the scenic corridor, which is land generally adjacent to and visible to a motorist on the highway. The only officially designated State Scenic Highway in San Bernardino is a portion of State Highway 38 (SR-38), which is located outside of the project area. The only Eligible State Scenic Highway within the project area is SR 62, and as noted above, all three alternative project sites are within view of this highway.

3.16 Hazard Materials

The Community of Joshua Tree is a small area of commercial and residential development surrounded by open space. The Yucca Valley Airport lies approximately 2.5 miles west of Yucca Mesa Road and SR 62. Roy Williams Airport is approximately 5.5 miles north-east of Park Boulevard and SR 62. Twentynine Palms Airport is greater than 15 miles north-east of the project site.

There are approximately nine schools located within 10 miles of the proposed project (Morongo Unified School District, 2008). One of these schools, the Friendly Hills Elementary School, is within a quarter mile of Alternative Recharge Basin 1.

The County of San Bernardino Fire Hazard Overlay Maps identify fire hazard zones within the community of Joshua Tree and the California Department of Fire and Forestry maps the Fire Hazard Severity Zones (FHSZ) within the County of San Bernardino. The FHSZ's are based on an evaluation of fuels, topography, dwelling density, weather, infrastructure, building materials, brush clearance, and fire history. According to these maps, the majority of the project site is located in areas designated as having a 'moderate fire hazard' (County of San Bernardino, 2007a). However, fire hazard severity has been mapped as very high in areas near the proposed pipeline extension at the intersection of SR 62 and Sunset Avenue (County of San Bernardino, 2007a).

A database search was conducted to identify the hazardous materials/waste sites present in the project vicinity. The purpose of this inquiry was to identify portions of the project site that may have contaminated soils. Potential sites of contaminated soils within the project vicinity were identified with a review of the following databases:

- Leaking Underground Storage Tank (LUST) databases: Identifies potential sources of soil contamination by petroleum hydrocarbons and petroleum-related volatile organic compounds (VOCs).[6]
- Envirostor databases: The California Department of Toxic Substances Control's (CDTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP) EnviroStor database identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides

[6] SWRCB, 2009.

additional site information, including, but not limited to, identification of formerlycontaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.[7]

- Cortese databases: Hazardous Waste & Substances Sites. List of sites designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites). This listing is no longer updated by the state agency.[8]
- Solid Waste Landfill (SWLF) and Toxic Pits databases: for potential sources of soil contamination associated with solid waste landfills, including petroleum constituents, VOCs, and metals.[9]

The review of the databases indicates that there are no sites that qualified as a potential source of soil contamination within a quarter mile of the proposed project. For purpose of this review, sites are considered relevant if they appear on the LUST database and the case remains open or undefined, if they appear on the Envirostor database, or if they appear on the SWLF or Cortese databases.

Regulatory Setting

Federal

Occupational Safety and Health Administration

The federal Occupational Safety and Health Administration (OSHA) enforces regulations covering the handling of hazardous materials in the workplace. The regulations established in the Code of Federal Regulations (CFR) Title 29 are designed to protect workers from hazards associated with encountering hazardous materials at the work site. The regulations require certain training, operating procedures, and protective equipment to be used at work sites that could encounter hazardous materials. All three proposed project alternative sites are vacant, undeveloped lots and do not contain any hazardous materials.

Resource Conservation and Recovery Act

Under the federal Resource Conservation and Recovery Act (RCRA), individual states may implement their own hazardous waste programs in lieu of RCRA as long as the state program is at least as stringent as federal RCRA requirements and is approved by the U.S. Environmental Protection Agency (USEPA). The USEPA approved California's RCRA program, called the Hazardous Waste Control Law (HWCL), in 1992. California Environmental Protection Agency (Cal EPA) and the Department of Toxic Substance Control (DTSC), a department within Cal EPA, regulate the generation, transportation, treatment, storage, and disposal of hazardous waste. DTSC has primary regulatory responsibility for hazardous materials, but can delegate

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7 CDTSC, 2009.
8 CDTSC, 2009.
9 Cal EPA, 2009.

enforcement responsibilities to local jurisdictions that enter into agreements with DTSC for the generation, transport, and disposal of hazardous materials under the authority of the HWCL.

Toxic Substance Control Act

The Toxic Substances Control Act (TSCA) of 1976 was enacted by Congress to give the USEPA the ability to track the 75,000 industrial chemicals currently produced or imported into the United States. The USEPA repeatedly screens these chemicals and can require reporting or testing of those that may pose an environmental or human-health hazard. The USEPA can ban the manufacture and import of those chemicals that pose an unreasonable risk.

CERCLA

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) was developed to protect the water, air, and land resources from the risk created by past chemical disposal practices. This act is also referred to as the Superfund Act and the sites listed under it are referred to as Superfund sites. Under CERCLA, the USEPA maintains a list, known as CERCLIS, of all contaminated sites in the nation that have in part or are currently undergoing clean-up activities. CERCLIS contains information on current hazardous waste sites, potential hazardous waste sites, and remedial activities. This includes sites that are on the National Priorities List (NPL) or being considered for the NPL. No cases were identified on the NPL lists within a one-mile search radius and no CERCLIS cases were identified within a halfmile search distance of the proposed project alternative sites according to the Phase I Environmental Site Assessment report.

State

California Code of Regulations

The California Code of Regulations (CCR), Title 22, Section 66261.20-24 contains technical descriptions of characteristics that would classify wasted material, including soil, as hazardous waste. When excavated, soils having concentrations of contaminants higher than certain acceptable levels must be handled and disposed as hazardous waste.

State Water Resources Control Board

SWRCB and the RWQCBs administer the requirements of the Clean Water Act that regulate pollutant discharges into waterways of the US. The Colorado River Basin RWQCB (CRBRWQCB) enforces site cleanup regulations for illicit discharges that have resulted in contamination of groundwater in the project area.

California Hazardous Materials Release Response Plans and Inventory Law

The California Hazardous Materials Release Response Plan and Inventory Law of 1985 (Business Plan Act) requires that businesses that store hazardous materials on site prepare a business plan and submit it to local health and fire departments. The business plan must include details of the facility and business conducted at the site, an inventory of hazardous materials that are handled and stored onsite, an emergency response plan, and a safety and emergency response training program for new employees with an annual refresher course.

California Occupational Safety and Health Administration

In California, the California Occupational Safety and Health Administration (Cal OSHA) regulates worker safety similarly to the federal OSHA. OSHA has developed worker safety regulations for the safe abatement of lead-based paint and primers (Lead in Construction Standard, Title 8 CCR 1532.1).

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program

In January 1996, Cal EPA adopted regulations that implemented a Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program). The program has six elements: (1) hazardous waste generators and hazardous waste onsite treatment; (2) underground storage tanks (USTs); (3) aboveground storage tanks (ASTs); (4) hazardous materials release response plans and inventories; (5) risk management and prevention programs; and (6) Unified Fire Code hazardous materials management plans and inventories. The plan is implemented at the local level and the agency responsible for implementation of the Unified Program is called the Certified Unified Program Agency (CUPA). In San Bernardino County, the San Bernardino County Fire Department is the designated CUPA.

Department of Toxic Substance Control

The DTSC is responsible for regulating the use, storage, transport, and disposal of hazardous substances in the state. DTSC maintains a Hazardous Waste and Substances Site List for site cleanup. This list is commonly referred to as the Cortese List. Government Code section 65962.5 requires the Cal-EPA to update the Cortese List at least annually. DTSC is responsible for a portion of the information contained in the Cortese List. Other State and local government agencies are required to provide additional hazardous material release information for the Cortese List. According to the Phase I Environmental Site Assessment report, there are no Cortese sites within a one-mile radius of the proposed project alternatives (see **Appendix F of the Draft EIR**).

CHAPTER 4
Evaluation of Impacts

This chapter discusses the potential direct and indirect impacts to relevant environmental resources from implementation of the proposed action and its alternatives, and means of mitigating potentially significant environmental impacts to less-than-significant levels. It also includes a discussion of project benefits, short-term use of the environment versus long-term productivity, and the irreversible and irretrievable commitment of resources. Cumulative impacts associated with the Preferred Alternative are discussed in Chapter 5 of this EA.

4.1 Surface Waters and Wetlands

Preferred Alternative

None of the drainage features at the three proposed recharge basin alternative locations meet the definition of waters of the U.S. Therefore, no impact to federally jurisdictional waters or wetland features would occur and no mitigation is required. However, Waters of the State are present in the study area and may be impacted at some of the proposed recharge basin locations.

A total of 3.30 acres of jurisdictional Waters of the State cross Recharge Basin Alternative 1. Construction of the recharge basin alternative at this location would only impact the southern drainage for a total of 0.67 acres. The northern portion of the parcel with the second drainage feature would not be used for construction and would remain undisturbed. Recharge Basin Alternative 3 would impact 1.16 acres of jurisdictional Waters of the State. Recharge Basin Alternative 2 does not contain any state jurisdictional water features, therefore, construction at this location would not have any impacts and no mitigation is required.

Due to the flashy, intermittent nature of these desert washes, the boundaries of the jurisdictional Waters of the State could change after a single storm event. The general location for features in low-lying areas of a property would be expected to be relatively stable over the short-term life of project permitting and construction. Implementation of Mitigation Measures 3.3-5a and 3.3-5b from the Draft EIR, and Mitigation Measure 3.3-5c from the Final EIR, would ensure impacts to Waters of the State would be reduced to a less-than-significant level for Recharge Basin Alternatives 1 and 3.

In compliance with existing regulations, JBWD will obtain a California Fish and Game Code Section 1602 Streambed Alteration Agreement (SAA) or written documentation from the CDFG that an agreement is not required. JBWD will implement all the terms and conditions of the CDFG Streambed Alteration Agreement. Terms of this agreement are expected to include

measures to divert flows during construction, measures to minimize erosion, measures to minimize discharge of contaminants through proper storage of chemicals and vehicle maintenance, and site restoration performance standards. For activities within Waters of the State, JBWD would acquire waste discharge requirements (WDRs) from the RWQCB. Depending on the extent of impact and the quality of the existing drainages, the RWQCB and CDFG would include best management practices during construction activities as well as site restoration requirements as conditions of permit approval. Compensation of affected acreage may also be necessary.

Mitigation Measures from the Draft EIR

> ***Mitigation Measure 3.3-5a*:** Prior to construction, JBWD shall retain a qualified biologist to delineate Waters of the State within the construction zones. Waters of the State affected by the project, including recharge basin and pipeline construction zones, would be clearly identified and noted in permit applications to the RWQCB (for WDRs) and CDFG (for a SAA).
>
> ***Mitigation Measure 3.3-5b*:** JBWD shall prepare a Waters of the State Mitigation Plan to include with RWQCB and CDFG permit applications. Conditions of the Mitigation Plan shall include at a minimum measures to divert flows during construction, measures to minimize erosion, measures to minimize discharge of contaminants through proper storage of chemicals and vehicle maintenance, and post-construction site restoration performance standards.

Mitigation Measures from the Final EIR

> ***Mitigation Measure 3.3-5c*:** For Recharge Basin Alternative 3, final designs shall avoid infringing onto Joshua Creek, located approximately 25 feet north of the proposed project area. JBWD shall demarcate the construction zone and monitor construction sufficiently to ensure that no vegetation is removed within the creek or vehicles encroach onto the creek.

No Project Alternative

Direct Effects: The No Project Alternative would not result in any impacts to Waters of the State because no physical modification to the existing sites would occur. Overall this alternative would have fewer impacts to Waters of the State as the Preferred Alternative.

Indirect and Cumulative Effects: Implementation of the No Project Alternative would not result in indirect or cumulative effects to surface waters and wetlands within the area.

Existing Demand Recharge Capacity Alternative

Direct Effects: The Existing Demand Recharge Capacity Alternative would result in similar adverse impacts related to Waters of the State as the Preferred Alternative.

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the Existing Demand Recharge Capacity Alternative.

Increased Recharge Capacity Alternative

Direct Effects: The Increased Recharge Capacity Alternative would result in similar adverse impacts related to Waters of the State as the Preferred Alternative

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the Increased Recharge Capacity Alternative.

4.2 Floodplains

Preferred Alternative

Direct Effects: The Preferred Alternative site would not expose people or structures to a significant risk of loss, injury, or death involving flooding due to failure of a levee or dam. Recharge Basin Alternatives 1 and 2 are not located near a levee or dam nor would they involve construction or other activities that would alter the stability of any levee or dam, or any other flood control structure. Recharge Basin 3 is located near the Quail Wash Flood Control Channel but would not affect the function of the channel. The recharge basins would impound water below grade and would not construct levees. The proposed project does not involve construction of housing within a 100-year flood hazard area and would be no impact relative to residential units.

Drainage and Flooding

This alternative includes the construction of an underground pipeline that would be within the 100-year flood hazard area of both Yucca Creek and Covington Wash. Once installed the pipeline would be underground and would not impede or redirect flood water. The proposed pipeline would not affect the local floodplain or increase the risk of flooding in other areas. Impacts would be less than significant.

The proposed recharge basin would be constructed by excavating, grading, and recontouring the existing soils at the project site and building six-oot high earthen berms. The berms would be constructed to minimize any potential flooding of the surrounding area. In the event that damage occurs to the berms, release of water would likely not occur since water levels would be kept below grade.

Recharge Basin Alternative 3 (constructed as part of the Preferred Alternative) would be constructed in the 100-year flood hazard area of both Joshua Creek and Quail Wash. Quail Wash has been converted to a flood control channel as it crosses SR 62 near the proposed recharge basin site. The channel forms the eastern border of the proposed recharge site. Construction of a recharge basin within the flood hazard zone could redirect storm flows and modify the floodplain. In addition, Recharge Basin Alternative 3 could block a small drainage that parallels the Quail Wash flood control channel (see Figure 4.3-3 from the Draft EIR). Implementation of Mitigation Measure 3.7-2a from the Draft EIR would ensure that the drainage would be redirected past the recharge basin. This may require modifying the shape of the recharge basins to accommodate the storm flow.

The area is subject to flash flooding occurring primarily during the late summer. If a flash flood were to occur during construction of the pipeline or recharge basin, the construction site as well as neighboring floodplain could be affected. Mitigation Measures 3.7-2b and 3.7-2c from the Draft EIR, and 3.7-2d from the Final EIR, would ensure that measures were implemented to protect construction zones and surrounding land uses from flash flooding.

The proposed project is located over 100 miles inland from the Pacific Ocean; a tsunami inundation threat would not occur. A seiche is the rhythmic motion of water in a partially or completely landlocked water body caused by landslides, earthquake-induced ground acceleration, or ground offset. The proposed project would not be located near a landlocked body of water, and thus it is not at risk of inundation due to a seiche. There would be no impact.

Locations for the proposed facilities are of relatively gentle relief and would not be expected to be highly susceptible to landslides or other types of mass earth movements under normal circumstances. Under the influences of ground shaking and/or increased saturation from the recharge of groundwater, the chances of such an event occurring would increase. However, portions of the project site, in particular, Recharge Basin Alternatives 3, while not steep, may require some modification and/or terracing to address existing slope angles and keep operational water surfaces below existing ground level. Impacts would be less than significant with the Preferred Alternative.

Mitigation Measures from the Draft EIR

> ***Mitigation Measure 3.7-2a:*** JBWD shall retain a qualified hydrologist to evaluate the impact to the floodplain and to design diversion structures that would minimize impacts to the floodplain both upstream and downstream. The diversion structures will include velocity dissipaters to prevent scouring resulting from flow channelization across the site and discharge downstream. The diversion structures may need to be armored to prevent scouring of the recharge basin perimeter berms.
>
> ***Mitigation Measure 3.7-2b:*** During construction, flow diversion structures shall be employed to prevent inundation of construction sites (recharge basin as well as pipeline corridor) from flash flooding. The final design of these temporary flow diversion structures will be approved by a qualified hydrologist to ensure the safety of construction workers and surrounding land uses within the floodplain.
>
> ***Mitigation Measure 3.7-2c:*** During construction, flow diversion structures shall be employed to prevent inundation of construction sites (recharge basin as well as pipeline corridor) from flash flooding. The final design of these temporary flow diversion structures will be approved by a qualified hydrologist to ensure the safety of construction workers and surrounding land uses within the floodplain.
>
> ***Mitigation Measure 3.7-2d:*** Prior to construction, JBWD will obtain a permit from the San Bernardino County Flood Control District for installing features within the Flood Control District Property.

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the Preferred Alternative.

No Project Alternative

Direct Effects: The No Project Alternative would not result in structures being located within a 100-year floodplain,. However, the beneficial impact of imported SWP water into the existing groundwater, which would lower nitrate concentrations, would not occur under the No Project Alternative.

Indirect and Cumulative Effects: Implementation of the No Project Alternative would not result in indirect or cumulative effects with hydrology, water quality and groundwater within the area.

Existing Demand Recharge Capacity Alternative

Direct Effects: The Existing Demand Recharge Capacity Alternative would result in similar adverse impacts related to hydrology as the Preferred Alternative.

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the Existing Demand Recharge Capacity Alternative.

Increased Recharge Capacity Alternative

Direct Effects: The Increased Recharge Capacity Alternative would result in similar adverse impacts related to hydrology as the Preferred Alternative.

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the Increased Recharge Capacity Alternative.

4.3 Significant and/or Important Farmlands

The Preferred Alternative would not be located on or adjacent to lands identified as farmland as defined by the Farmland Protection Policy Act (7 U.S.C §§4201-4209). The Preferred Alternative would not adversely affect farmland or result in the conversion of farmland to non-agricultural use as identified by the California Department of Conservation's Farmland Mapping and Monitoring Program (see Section 3.10 of this EA for additional information).

4.4 Coastal Zones

The Preferred Alternative would not be located in the coastal zone as defined by the Coastal Zone Management Act (16 U.S.C §§1451-1466).

4.5 Wild and Scenic Rivers

The Preferred Alternative would not affect any wild and scenic river, or adjacent lands, as designated under the Wild and Scenic Rivers Act (16 U.S.C. §§1271-1287).

4.6 Coastal Barrier Resources

The Preferred Alternative would not be located within the Coastal Barrier Resources System, which is protected under the Coastal Barriers Resource Act (16 U.S.C §§3501-3510).

4.7 Air Quality

Construction. The project would result in a significant construction air quality impact if regional emissions exceed the significance thresholds set forth in **Table 4.7-1.**

TABLE 4.7-1
AIR QUALITY SIGNIFICANCE THRESHOLDS

Pollutant	Construction	
NOx	25 tons/year	137 lbs/day
VOC (ROG)	25 tons/year	137 lbs/day
PM10	15 tons/year	82 lbs/day
CO	100 tons/year	548 lbs/day

SOURCE: MDAQMD , CARB, November 2008

Operations. The project would result in a significant operational air quality impact if any of the following occur:

- Regional emissions exceed the significance thresholds set forth in **Table 4.7-1**.
- Either of the following conditions would occur at an intersection or roadway within one-quarter mile of a sensitive receptor:
  - The proposed project causes an exceedance of the California one-hour or eight-hour CO standards of 20 or 9.0 ppm, respectively; or
  - For intersection or roadways where existing CO levels exceed California standards, the incremental increase due to the project is equal to or greater than 1.0 ppm for the one-hour CO standard, or 0.45 ppm for the eight-hour CO standard.
- The project would not be compatible with SCAQMD, SCAG, and/or County of Riverside air quality goals and policies.

Toxic Air Contaminants. The project would result in a significant operational air quality impact if any of the following occur:

- On-site stationary sources emit carcinogenic or toxic air contaminants that individually or cumulatively exceed the maximum individual cancer risk of ten in one million or an acute or chronic hazard index of 1.0. (SCAQMD, 2005a); or
- Hazardous materials associated with on-site stationary sources result in an accidental release of air toxic emissions or acutely hazardous materials posing a threat to public health and safety.

Methodology

Construction Impacts

Daily regional emissions during construction were forecasted by assuming a conservative estimate of construction (i.e., assuming all construction occurs at the earliest feasible date and that all project components would be constructed concurrently) and applying the mobile-source and fugitive dust emissions factors derived from URBEMIS 2007 version 9.2.

There are no statewide guidelines for GHG emission impacts, but this will be addressed through the provisions of Senate Bill 97 ("SB 97"). OPR has drafted new GHG guidelines, and the State Resources Agency will have until January 1, 2010, to certify and adopt the regulations. In the interim, local agencies must analyze the impact of GHGs. No project individually could have a major impact (either positively or negatively) on the global concentration of GHG; however, the proposed action will be reviewed to make sure it does not conflict with the goals of AB 32. For this analysis, the proposed action would be considered to have a significant impact if it would conflict with the ability of the state to achieve AB 32 goals for reducing GHG emissions.

Preferred Alternative

Direct Effects: The following is a discussion of the potential effects of the proposed project to air quality.

Air Quality Standards, Air Quality Plans, and Sensitive Receptors

Criteria Air Pollutants

The project would require construction activities including site preparation, earthmoving, and general construction. Site preparation includes activities such as general land clearing and grubbing. This project would require excavation of approximately 175,000 cubic yards of soil. For this analysis, it was assumed that soil haul trips to remove excavated soil from the site would entail 150 round trips per day and a travel distance of a maximum of 20 miles. Earthmoving activities include cut-and-fill operations, trenching, soil compaction, and grading. General construction includes adding improvements such as roadway surfaces, structures, and facilities. Construction-related emissions would be short-term, but may still cause adverse effects on air quality. The emissions generated from these construction activities include:

- Dust (including PM10 and PM2.5) primarily from "fugitive" sources (i.e., emissions released through means other than through a stack or tailpipe) such as soil disturbance;
- Combustion emissions of criteria air pollutants (ROG, NOx, carbon monoxide, carbon dioxide, PM10, and PM2.5) primarily from operation of heavy off-road construction equipment (primarily diesel-operated), portable auxiliary equipment, and construction worker automobile trips (primarily gasoline-operated); and
- Evaporative emissions (ROG) from asphalt paving and architectural coatings.

Construction-related fugitive dust emissions would vary from day to day, depending on the level and type of activity, silt content of the soil, and the weather. In the absence of mitigation, construction activities may result in significant quantities of dust and could adversely affect local

visibility and PM10 concentrations on a temporary and intermittent basis. In addition, the fugitive dust generated by construction would include not only PM10, but also larger particles, which would fall out of the atmosphere within several hundred feet of the site and could result in nuisance-type impacts. It is mandatory for all construction projects in the SCAB to comply with MDAQMD Rule 403 for fugitive dust (CARB, Nov 2008). Specific Rule 403 control requirements include, but are not limited to, applying water in sufficient quantities to prevent the generation of visible dust plumes, applying soil binders to uncovered areas, reestablishing ground cover as quickly as possible, utilizing a wheel washing system to remove bulk material from tires and vehicle undercarriages before vehicles exit the project site, and maintaining effective cover over exposed areas.

NOx, ROG, PM10, PM2.5, CO, and CO_2 construction emissions were estimated for a worst-case day based on criteria pollutant emission factors from URBEMIS 2007. The results of this analysis are summarized in **Table 4.7-2**. With the incorporation of MDAQMD Rule 403, criteria pollutant emissions would be less than significant.

TABLE 4.7-2
ESTIMATED WORST CASE DAY EMISSIONS FROM PROJECT CONSTRUCTION
(pounds per day)[a]

Project Data		ROG	NOx	CO	PM10[b]	CO_2
2010 Totals	Alternative 1 Mitigated	10	96	43	50	11,661
	Alternative 2 Mitigated	9	84	40	33	9,462
	Alternative 3 Mitigated	10	96	43	55	11,661
2011 Totals	Alternative 1 Mitigated	9	88	40	50	11,660
	Alternative 2 Mitigated	8	77	38	33	9,462
	Alternative 3 Mitigated	9	88	40	55	11,660
MDAQMD Thresholds of Significance		137	137	548	82	NA
Significance (Yes or No)?		No	No	No	No	NA

[a] Project construction emissions estimates for off-road equipment were made using URBEMIS2007, version 9.2. See Appendix B of the Draft EIR for more details.

[b] PM10 emission estimates are based on compliance with MDAQMD Rule 403 requirements for fugitive dust suppression.

NOTE: Values in **bold** are in excess of the applicable MDAQMD significance threshold. NA = Not Available

SOURCE: ESA, 2009.

Mitigation Measures from the Draft EIR

> ***Mitigation Measure 3.2-1*:** General contractors shall implement a fugitive dust control program pursuant to the provisions of MDAQMD Rule 403.

Toxic Air Contaminants

The greatest potential for TAC emissions would be related to diesel particulate emissions associated with heavy equipment operations during grading and excavation activities. According to MDAQMD methodology, health effects from carcinogenic air toxics are usually described in

terms of individual cancer risk. “Individual Cancer Risk” is the likelihood that a person exposed to concentrations of TACs for any duration will contract cancer from the exposure over a 70-year lifetime, based on the use of standard risk-assessment methodology. Projects such as this one that would have minimal TAC emissions over a short construction timeframe do not require a Health Risk Assessment (HRA) to determine the individual cancer risk. Also, moderate to high level construction emissions generally do not require an HRA because of the temporary exposure period with concentrations of TACs that are not considered to constitute a significant cancer risk. The Preferred Alternative would not result in a long-term substantial source of TAC emissions. In addition, there would be no residual emissions after construction and corresponding individual cancer risk. As such, this alternative would not release substantial amounts of toxic contaminants, and no significant impacts on human health would occur. The Preferred Alternative project does not warrant the need for a health risk assessment, and potential air toxic impacts would be less than significant.

Criteria Pollutants

Operational emissions for this alternative would be generated primarily from on-road vehicular traffic. Minimal employee trips would be required for inspection, maintenance and cleaning of the ponds twice a year. These minimal operations would result in a less than significant increase in emissions to the local air quality environment.

Objectionable Odors

During periods of recharge, odors could emanate from the basins. Odors may increase as water levels decline and the bottom soils dry out. Local land uses including residential properties located near the recharge basins would be adversely affected by odors. However, properly operated and maintained ponds do not have objectionable odors. The smell of drying dirt may occur after rain and would occur for a few days each year as the basins dry. Maintaining water levels in the basins would reduce odor levels emanated from damp soils. When water is not available, the basins would need to be dried out as efficiently as possible to minimize odors and the soil in the basins would be turned over to prevent grasses and algae from growing. With proper maintenance, the proposed project would result in less than significant impacts related to odors.

Mitigation Measures from the Final EIR

Mitigation Measure 3.2-3 was added to the project during the Final EIR stage in order to provide residents with contact information at the District in case of concerns regarding the operation of the basins.

> ***Mitigation Measure 3.2-3*:** JBWD will send notices to neighboring land owners.

Indirect and Cumulative Effects: Construction of the proposed project would generate emissions that would affect air quality conditions in the Mojave Desert Air Basin. According to the MDAQMD, any project that would individually have a significant air quality impact could also be considered to have a significant cumulative air quality impact. Concurrent construction of the

project with other projects in the air basin would generate short-term emissions of criteria pollutants and toxic air contaminants, including suspended and inhalable particulate matter and equipment exhaust emissions. Implementation of Mitigation Measure 3.2-1 would ensure implementation of the MDAQMD requirements to control fugitive dust at construction sites and other measures to limit construction dust and vehicle and equipment emissions. With implementation of Mitigation Measure 3.2-1, this alternative would not conflict with regional air quality plans and policies, which are intended to bring the air basin into attainment for all criteria pollutants. The regional cumulative air quality impacts due to the Preferred Alternative would be less than significant.

The construction and operational impacts of the proposed project would not exceed the MDAQMD's thresholds, and therefore, are not expected to be cumulatively considerable. Development of the Preferred Alternative would not result in a cumulatively considerable net increase of any criteria pollutant, and would be less than significant.

No Project Alternative

Direct Effects: The No Project Alternative would not involve any construction or operational activities at the project locations. Therefore, air quality impacts associated with construction activities would not occur under this alternative and odors that may result as part of operational activities would not occur. The No Project Alternative would result in no impacts on air quality, and therefore, would result in fewer impacts related to air quality than the Preferred Alternative.

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the No Project Alternative.

Existing Demand Recharge Capacity Alternative

Direct Effects: This alternative would result in a smaller recharge facility than that Preferred Alternative. This alternative would require less ground-disturbing activities and fewer haul trips than would be required under the Preferred Alternative due to the smaller facility size. Therefore, air quality impacts associated with construction activities would be less than those of the Preferred Alternative. Impacts related to odor could be similar as those of the Preferred Alternative; however, these ponds would be maintained such that odor should not result in adverse impacts to nearby sensitive resources. Overall, the Existing Demand Recharge Capacity Alternative would result in fewer air quality impacts than the Preferred Alternative.

Indirect and Cumulative Effects: Indirect and cumulative effects of the Existing Demand Recharge Capacity Alternative would be similar to that of the Preferred Alternative.

Increased Recharge Capacity Alternative

Direct Effects: Because the Increased Recharge Capacity Alternative would result in one larger recharge facility or multiple recharge facilities, air quality impacts associated with construction activities would be greater due to the greater number of truck trips that would be involved and the greater amount of ground disturbing activities that would be required. In addition, the potential

for odor generation that may result as part of operational activities would be greater due to the larger number of recharge basins. Therefore, the Increased Recharge Capacity Alternative would result in greater impacts on air quality than the Preferred Alternative.

Indirect and Cumulative Effects: Indirect and cumulative effects of the Increased Recharge Capacity Alternative would be similar to that of the Preferred Alternative.

4.8 Vegetation

Preferred Alternative

Impacts to non-sensitive vegetation communities would occur as a result of construction and implementation of the Preferred Alternative. Impacts to vegetation communities' ability to function as habitat for wildlife species is discussed below with respect to providing mitigation for specific species-related impacts. Impacts to Joshua trees and California Native Plant Society sensitive plant species are discussed below under Section 4.13, Environmental Sensitive Areas.

Recharge Basin Alternatives 1, 2 and 3 do not contain any riparian habitat onsite, however, plant species associated with riparian habitat can be found in close proximity to (but outside of) the Recharge Basin Alternative 3. The Preferred Alternative would be constructed within the boundaries of Recharge Basin Alternative 3, therefore, no impact would occur to the riparian habitat and no mitigation is required. In addition, Recharge Basin Alternatives 1 and 2 contain the California Department of Fish and Game (CDFG) threatened community of Joshua Tree Woodland.

Open space land is crucial for the survival and movement of wildlife species and though the proposed project would remove some of this land, it would not restrict wildlife movement within the area. The proposed pipeline routes would result in temporary construction along already existing roads and right-of-ways, and would not further restrict wildlife movement. Recharge Basin Alternatives 1 and 2 would be located in proximity to SR 62 and would not fragment any portion of the open space habitat, nor inhibit wildlife movement. Due to the level of disturbance that already exists at Recharge Basin Alternative 3, this location would also not result in fragmentation of open space habitat or inhibit wildlife movement. Therefore, impacts to wildlife movement would be less than significant and no mitigation is required.

No Project Alternative

Direct Effects: The No Project Alternative would not disturb the existing open space at the proposed recharge locations. In addition, the No Project Alternative would avoid impacts on drainage features that cross the recharge basin locations (Recharge Basin Alternatives 1 and 3). Therefore, the No Project Alternative would result in fewer impacts on vegetation than the proposed project.

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the No Project Alternative.

Existing Demand Recharge Capacity Alternative

Direct Effects: Under the Existing Demand Recharge Capacity Alternative, a smaller area of natural open space would be disturbed. Like the proposed project, this alternative has the potential to result in impacts on drainage features that cross the recharge basin locations (Recharge Basin Alternatives 1 and 3). Overall, because the disturbance area would be smaller, the Existing Demand Recharge Capacity Alternative would result in fewer impacts related to vegetation than the proposed project.

Indirect and Cumulative Effects: Indirect and cumulative effect of the Existing Demand Recharge Capacity Alternative would be similar to those of the Preferred Alternative.

Increased Recharge Capacity Alternative

Direct Effects: Under the Increased Recharge Capacity Alternative, a greater amount of the existing open space at the proposed recharge locations would be disturbed. Like the proposed project, the Increased Recharge Capacity Alternative would result in impacts on drainage features that cross the recharge basin locations (Recharge Basin Alternatives 1 and 3). Therefore, the Increased Recharge Capacity Alternative would result in greater impacts related to vegetation than the Preferred Alternative.

Indirect and Cumulative Effects: Indirect and cumulative effects of the Increased Recharge Capacity Alternative would be greater than that of the Preferred Alternative.

4.9 Threatened and Endangered Species and Critical Habitat

Methodology

A review of available background information including the proposed project layout, aerial photographs, and local soils survey, as well as a search and review of the current California Natural Diversity Data Base (CNDDB) within an approximately five-mile radius of the proposed project was conducted. The proposed project components fall within the "Joshua Basin North" U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle map. The CNDDB provided a list and mapped locations of special-status plant and wildlife species that have been recorded in the vicinity of the project site. The list was not presumed to include all species that could be present, but was used to help focus the field survey effort on specific species or habitat issues. ESA biologists conducted field reconnaissance site visits on October 27 and 28, 2008, to document the existing conditions of the site in terms of habitat for plant and wildlife species, and the potential to support wetland and/or riparian habitats.

Preferred Alternative

Direct Effects: The following is a discussion of the potential effects of the proposed project to threatened and endangered species and critical habitat resources.

Habitat Conservation Plans

None of the proposed project areas fall within the jurisdiction of an adopted habitat conservation plan or natural community conservation plan and therefore would not conflict with any such provisions. No impact would occur and no mitigation would be required.

Special-Status Ground Dwelling Wildlife Species

All three recharge basin alternative sites would be located on open space, vacant land. Recharge Basin Alternative 3 is a more disturbed site than the other two recharge basin alternatives and is in close proximity to other development; however, this site still contains native habitat suitable for ground-dwelling wildlife species.

Two special-status ground-dwelling species have the potential to occur within the proposed project site, desert tortoise (Federally and State Threatened) and pallid San Diego pocket mouse (State Species of Special Concern) (see Biological Resources Assessment in Appendix C of the Draft EIR). The pocket mouse has a low potential to occur at all three recharge basin alternative sites and pipeline route; the most recent occurrence data is from 1950. Impacts to the pallid San Diego pocket mouse and other special-status ground-dwelling species would be reduced to a less than significant level with implementation of Mitigation Measures 3.3-1a and 3.3-1b.

ESA biologists did not observe desert tortoise burrows or other sign of activity during the October 2008 site reconnaissance visit. However, Circle Mountain Biological Consultants Inc. (Circle Mountain) (CMBC, 2008) have recently conducted focused surveys and found active tortoise burrows and sign of activity on Recharge Basin Alternative 1 and sign of activity and tortoise remains on Recharge Basin Alternative 2. Circle Mountain did not perform any focused surveys within Recharge Basin Alternative 3. The potential for encountering desert tortoise on Recharge Alternative Basin 3 is low due to the disturbance on the site. Nonetheless, identification and avoidance measures would be necessary at each construction area including along the pipeline corridor. Implementation of Mitigation Measures 3.3-1b through 3.3-1d would ensure that impacts to ground-dwelling special status species would be less than significant.

Common ravens are successful desert tortoise predators. Construction activities, new development, and new water sources provide areas and structures for raven perching, which facilitates tortoise predation. Implementation of Mitigation Measure 3.3-1d would help reduce desert tortoise predation by common ravens to a less than significant level at all three proposed project recharge basin alternatives.

Mitigation Measures from the Draft EIR

> ***Mitigation Measure 3.3-1a*:** JBWD shall install a chain-link or tortoise fence (one-inch by two-inch welded wire mesh attached to the chin-link fence, with approximately two feet above ground and one foot buried below ground) to exclude small wildlife species from entering the active work areas. Exclusion fencing can be limited to areas of documented occurrences of special-status wildlife as determined during pre-construction surveys by a qualified biologist.

***Mitigation Measure 3.3-1b*:** JBWD shall conduct absence surveys for desert tortoise and pallid San Diego pocket mouse in all proposed disturbance areas that provide potential habitat. Surveys shall follow the USFWS protocol (USFWS, 1992) or other appropriate site-specific protocol as determined in coordination with USFWS.

***Mitigation Measure 3.3-1c*:** If USFWS-approved surveys do not identify desert tortoise or pallid San Diego pocket mouse within proposed disturbance areas, the following measures shall be implemented:

- Prior to working on the project, all site managers and construction employees shall be educated as to the natural history, endangerment factors, and appropriate protocol for dealing with tortoise encountered in and around the construction areas.
- In addition, if a tortoise is observed during construction, all construction shall be halted in the immediate area and the USFWS and CDFG must be immediately notified to determine necessary actions.

***Mitigation Measure 3.3-1d*:** If USFWS-approved surveys identify desert tortoise on any of the undeveloped lands to be cleared by JBWD, a Desert Tortoise Protection and Mitigation Plan shall be developed and adopted in consultation with the USFWS and CDFG. Elements of the plan shall include, but not be limited to the following:

- Pre-construction desert tortoise surveys and tortoise relocation to an approved off-site location by a qualified biologist;
- Staking of approved disturbance areas in the field and installation of temporary tortoise exclusion fencing around active construction areas;
- A worker education program including the natural history, endangerment factors, and appropriate protocol for dealing with tortoise encountered in and around the construction areas;
- Enforcement of speed limits and checking under vehicles for tortoise;
- Biological monitoring of all ground disturbance; and
- Measures to prevent increased use of the project site by common ravens through trash management, removal of unnatural sources of standing water, and other means.
- Compensatory mitigation for desert tortoise habitat loss shall be made available in perpetuity for the protection of the desert tortoise for the conversion of any potentially suitable habitat at a ratio determined in consultation with CDFG and USFWS. The location and conservation management of the identified compensatory lands shall be approved by USFWS pursuant to Sections 10a of the Federal ESA and by the CDFG pursuant to Section 2081 of the California Fish and Game Code.

Special-Status Bat and Avian Species

The federal Migratory Bird Treaty Act (16 USC, Sec. 703, Supp. I, 1989) prohibits killing, possessing, or trading in migratory birds, except in accordance with regulations prescribed by the Secretary of the Interior, including take of bird nests and eggs. Birds of prey are protected in California under the State Fish and Game Code, Section 3503.5, which states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this

code or any regulation adopted pursuant thereto." Project impacts to these species would not be considered significant unless they are known or have a high potential to nest in the project area or to rely on it for primary foraging.

Four special-status species were identified by the CNDDB as having the potential to occur at the proposed project locations; burrowing owl, loggerhead shrike, LeConte's thrasher, and western yellow bat. All four species are characterized as a State Species of Special Concern.

The yellow bat has a low potential to occur within the proposed recharge basin alternative sites and along the pipeline route due to a lack of suitable roosting sites. All three bird species have a moderate potential to occur with the proposed recharge basin alternative sites and pipeline route due to some habitat and the existence of nearby recorded occurrences. None of the four species were observed during the October 2008 site reconnaissance visit; however, suitable burrowing owl habitat was observed along the northern portion of Recharge Basin Alternative 1 and within Recharge Basin Alternative 3. Implementation of Mitigation Measures 3.3-2a through 3.3-2g would reduce impacts to special-status avian and bat species to less than significant at all three recharge basin alternative sites.

Mitigation Measures from the Draft EIR

> ***Mitigation Measure 3.3-2a*:** Prior to any ground-disturbing activities, JBWD shall have a qualified biologist conduct a pre-construction spring/summer active season reconnaissance survey for nesting/roosting special-status mobile bird and bat species, and other nesting birds within 300 feet (500 feet for raptors) of the construction limits of each project element to determine and map the location and extent of special-status species occurrence(s) that could be affected by the project.
>
> ***Mitigation Measure 3.3-2b*:** JBWD shall avoid direct impacts on any nesting birds located within the limits of construction. This could be accomplished by establishing the construction right of way and removal of plant material outside of the typical breeding season (February 1 through August 31).
>
> ***Mitigation Measure 3.3-2c*:** If construction and vegetation removal is proposed for the bird nesting period of February 1 through August 31, then pre-construction surveys for nesting/roosting bird and bats species shall begin 30 days prior to construction disturbance with subsequent weekly surveys, the last one being no more than three days prior to work initiation. The surveys shall include habitat within 300 feet (500 feet for raptors) of the construction limits. Active nest sites located during the pre-construction surveys shall be avoided and a non-disturbance buffer zone established dependent on the species and in consultation with the USFWS and CDFG. This buffer zone shall be delineated in the field with flagging, stakes or construction fencing. Nest sites shall be avoided with approved non-disturbance buffer zones until the adults and young are no longer reliant on the nest site for survival as determined by a qualified biologist. For species with high site fidelity, such as Swainson's hawk, if direct take of nests outside of the breeding seasons is required, JBWD shall contact CDFG to determine appropriate mitigation measures.
>
> ***Mitigation Measure 3.3-2d*:** If a natal bat roost site is located within the limits of construction during pre-construction surveys, it shall be avoided with non-disturbance

buffer zone established by a qualified biologist in consultation with the USFWS and CDFG until the site is abandoned.

***Mitigation Measure 3.3-2e*:** JBWD shall stake, flag, fence, or otherwise clearly delineate the construction right-of-way that restricts the limits of construction to the minimum necessary to implement the project that also would avoid and minimize impacts on special-status avian and bat species.

***Mitigation Measure 3.3-2f*:** JBWD shall instruct construction personnel on the importance of buffer zones and sensitivity of the delineated areas.

***Mitigation Measure 3.3-2g*:** JBWD shall conduct a burrowing owl survey per the *Burrowing Owl Survey Protocol and Mitigation Guidelines* of the California Burrowing Owl Consortium (1993) or per the *Staff Report on Burrowing Owl Mitigation* prepared by CDFG (1995). At a minimum, this mitigation shall include the following:

- A pre-construction survey shall be conducted by a qualified biologist within 30 days of the on-set of construction. This survey shall include two early morning surveys and two evening surveys to ensure that all owl pairs have been located.
- If pre-construction surveys are undertaken during the breeding season (February 1st through July 31st) active nest burrows should be located within 250 feet of construction zones and an appropriate buffer around them (as determined by the project biologist) shall remain excluded from construction activities until the breeding season is over.
- During the non-breeding season (August 15th through January 31st), resident owls may be relocated to alternative habitat. JBWD shall encourage owls to relocate from the construction disturbance area to off-site habitat areas and undisturbed areas of the project site through the use of one-way doors on burrows. If ground squirrel burrows, stand pipes, and other structures that have been documented during pre-construction surveys as supporting either a nesting burrowing owl pair or resident owl are removed to accommodate the proposed project, these structures and burrows shall be relocated or replaced on or adjacent to the project site. Relocated and replacement structures and burrows shall be sited within suitable foraging habitat within one half-mile of the project area. Suitable development-free buffers shall be maintained between replacement nest burrows and the nearest building, pathway, parking lot, or landscaping. The relocation of resident owls shall be in conformance with all necessary state and federal permits.

Essential Fish Habitat

The Pacific Fishery Management Council has not designated any Essential Fish Habitat (EFH) in the vicinity of the Preferred Alternative, as required by the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. §§1801-1891), as amended by the Sustainable Fisheries Act of 1996.

Special-Status Plant Species

Five special-status plant species were identified by the CNDDB as having the potential to occur at the proposed project locations: Parish's daisy (*Erigeron parishii*), Parish's club cholla (*Grusonia parishii*), Latimers woodland-gilia (*Saltugilia latimeri*), Robinson's monardella

(*Monardella robisonii*), and little San Bernardino Mountains linanthus (*Linanthus maculates*). None of these species are listed as Federally or State Threatened or Endangered. Impacts to these special-status plants are discussed below in Section 4.13, Environmental Sensitive Areas.

Indirect and Cumulative Effects: Construction of the pipeline extension and recharge basin(s) in and around undeveloped open space areas could result in destruction and/or disturbance of natural habitat. Habitat destruction/disturbance would contribute to the overall impacts to natural habitat in the vicinity of Joshua Tree resulting from cumulative development. The three proposed Recharge Basin Alternatives are all located on vacant, open space areas that would be disturbed as a result of the proposed project. These open spaces contain habitat suitable for six special-status wildlife species. Most notable among these species are the desert tortoise (*Gopherus agassizi*), burrowing owl (*Athene cunicularia*), loggerhead shrike (*Lanius ludovicianus*) and LeConte's thrasher (*Toxostoma lecontei*). In addition, Recharge Basin Alternatives 1 and 2 contain the California Department of Fish and Game (CDFG) threatened community of Joshua Tree Woodland.

Within the vicinity of the project site, a new 105 acre development is planned for development along the west side of Sunny Vista Road between Alta Loma Drive and Sunburst Road. This project will be built on a large swath of undeveloped, open land that may contain Joshua Tree Woodland and corresponding special-status plant and wildlife species. As a result, the construction of the two projects simultaneously may damage sensitive, Joshua Tree Woodland habitat and impact special-status plant and wildlife species within the vicinity of the two projects. The project would contribute to the cumulative loss of natural biological resources in the high desert. However, since mitigation measures would minimize the project's effects, the proposed project's contribution to cumulative habitat, plant, or wildlife loss in San Bernardino County would not be considerable.

No Project Alternative

Direct Effects: The No Project Alternative would not disturb the existing open space at the proposed recharge locations and potential impacts that could occur to special status animal and plant species, such as the desert tortoise, would not occur under this alternative. In addition, the No Project Alternative would avoid impacts on drainage features that cross the recharge basin locations (Recharge Basin Alternatives 1 and 3). Therefore, the No Project Alternative would result in fewer impacts to biological resources than the proposed project.

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the No Project Alternative.

Existing Demand Recharge Capacity Alternative

Direct Effects: Under the Existing Demand Recharge Capacity Alternative, a smaller area of natural open space would be disturbed and potential impacts that could occur to special status animal and plant species, such as the desert tortoise or Joshua Trees, would be less than those that would occur under the proposed project. Like the proposed project, this alternative has the potential to result in impacts on drainage features that cross the recharge basin locations

(Recharge Basin Alternatives 1 and 3). Overall, because the disturbance area would be smaller, the Existing Demand Recharge Capacity Alternative would result in fewer impacts related to biological resources than the proposed project.

Indirect and Cumulative Effects: Indirect and cumulative effect of the Existing Demand Recharge Capacity Alternative would be similar to those of the Preferred Alternative.

Increased Recharge Capacity Alternative

Direct Effects: Under the Increased Recharge Capacity Alternative, a greater amount of the existing open space at the proposed recharge locations would be disturbed and potential impacts that could occur to special status animal and plant species, such as the desert tortoise, would be greater under this alternative. Like the proposed project, the Increased Recharge Capacity Alternative would result in impacts on drainage features that cross the recharge basin locations (Recharge Basin Alternatives 1 and 3). Therefore, the Increased Recharge Capacity Alternative would result in greater impacts related to biological resources than the Preferred Alternative.

Indirect and Cumulative Effects: Indirect and cumulative effects of the Increased Recharge Capacity Alternative would be greater than that of the Preferred Alternative.

EPA consultation with FWS

In summer 2010, EPA made a request for formal consultation under Section 7 of the Endangered Species Act. In Spring 2011, the Fish and Wildlife Service's (FWS) Ventura Fish and Wildlife Office provided a biological opinion analyzing the effect of the proposed project on the endangered desert tortoise (*Gopherus agassizi*). The biological opinion stated that the proposed action is not likely to jeopardize the continued existence of the tortoise because: 1) the Joshua Basin Water District (JBWD) will implement measures to protect the tortoise during construction, operations, and maintenance; 2) JBWD will implement measures to reduce the potential for predation by common ravens; and 3) the proposed project will not result in a relevant loss of desert tortoise habitat.

4.10 Topography

Preferred Alternative

Direct Effects: Locations for the proposed facilities are of relatively gentle relief and are not be expected to be highly susceptible to landslides or other types of mass earth movements under normal circumstances. However, under the influences of ground shaking and/or increased saturation from the recharge of groundwater, the chances of such an event occurring would increase. Portions of Recharge Basin Alternatives 3, while not steep, could require some modification and/or terracing to address existing slope angles and to keep operational water surfaces below native ground level. Landslides would not be considered a significant hazard for the project. Overall the Preferred Alternative would not result in significant impacts related to topography. Impacts related to soil erosion are discussed below under Section 4.14, Geology, Seismic Considerations, and Soils.

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the Preferred Alternative.

No Project Alternative

Direct Effects: Under the No Project Alternative, the proposed basin locations would remain vacant and the recharge basins would not be built and the pipeline would not be extended. Therefore, the No Project Alternative would result in fewer impacts to the local topography than the proposed project.

Indirect and Cumulative Effects: Implementation of the No Project Alternative would not result in indirect or cumulative effects to topography within the area.

Existing Demand Recharge Capacity Alternative

Direct Effects: The Existing Demand Recharge Capacity Alternative would place recharge basins and a pipeline near the Pinto Mountain Fault. Impacts of this alternative related to local topography would be similar to those of the Preferred Alternative.

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the Existing Demand Recharge Capacity Alternative.

Increased Recharge Capacity Alternative

Direct Effects: The Increased Recharge Capacity Alternative would place recharge basins and a pipeline near the Pinto Mountain Fault,. Impacts of this alternative related to local topography would be similar to those of the Preferred Alternative.

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the Increased Recharge Capacity Alternative.

4.11 Groundwater Resources

Preferred Alternative

Direct Effects: The proposed project is intended to provide for more sustainable management of the groundwater basins. Currently, the Joshua Tree and Copper Mountain subbasins are in a state of overdraft. Implementation of the Preferred Alternative would reduce or eliminate overdraft conditions by providing for additional recharge to the basins. Therefore, this alternative would be beneficial to groundwater supplies and would not result in a lowering of the groundwater table.

Construction of the pipeline and recharge basins would involve earthmoving activities such as excavation, grading, soil stockpiling, and filing. Construction activities could result in soil erosion and the subsequent discharge of sediment to down gradient surface waters or drainages (i.e. Yucca Creek and Quail Wash). Sedimentation of down gradient waterways could degrade water quality. Construction activities would also involve the use and handling of chemicals such as, but not limited to, oil, fuels, and lubricants. In the event of accidental release of such chemicals, such

as spills during fueling of equipment or vehicles, the chemicals could come into contact with storm water runoff and flow into the nearby water bodies, thus affecting surface water quality and or absorb into the soil and affect groundwater quality. The construction activities could result in a significant impact to the water quality of Yucca Creek, Joshua Creek, and Quail Wash without mitigation.

Since surface water features near Joshua Tree are not considered waters of the U.S., JBWD would not be required to obtain coverage under the NPDES General Construction Permit or prepare a SWPPP. Nonetheless, BMPs to control erosion, sedimentation, and hazardous materials release would be implemented to ensure that water quality is not impaired. The CRBRWQCB would require that BMPs be implemented to obtain WDRs. Implementation of Mitigation Measure 3.7-1 from the Draft EIR would ensure impacts to water quality from construction activities are less than significant.

Salt Loading

Implementation of this alternative would result in the use of SWP water to recharge the Joshua Tree subbasin. As discussed above, SWP has a slightly higher TDS of 256 mg/L compared to the local groundwater's TDS of 180 mg/L. The higher TDS of the SWP water is mostly a function of the higher chloride content of the water.

Recharge of imported SWP water would add salt to the groundwater basin. **Table 4.11-1** summarizes future salt load estimates conducted by GEI Consultants in 2009 comparing the No Project Alternative with the Preferred Alternative. The estimated salt load analysis assumes an initial aquifer volume off 348,600 af (GEI, 2009). Existing salt load in the upper aquifer is approximately 85,300 tons (GEI, 2009). Under existing conditions, salts are accumulating in the basin at about 90 tons per year due to septic return flows. At 2022, salt load is estimated to increase by 4 percent and TDS concentrations by 8 percent. With implementation of the Preferred Alternative, importing 4,000 afy each year through 2022 is estimated to increase TDS by 16 percent and salt load by 44 percent.[10] However, the estimated TDS concentration of 208 mg/l remains well below the secondary drinking water standards (500-1,000 mg/l). Therefore this alternative would not significantly impair water quality. Nonetheless, an Anti-Degradation Analysis would be required to weigh the project's benefits with the estimated decrease in water quality attributable to the project.

TABLE 4.11-1
EXISTING AND ESTIMATED SALT LOADING AND TDS CONCENTRATIONS

	Volume (af)	TDS (mg/l)	Percent Increase from Existing	Salt Load (tons)	Percent Increase from Existing
Existing Condition	348,600	180	--	85,300	--
No Project at 2022 Demand	334,600	194	8%	88,300	4%

[10] This is a conservative estimate based on the maximum capacity of the proposed recharge basin as designed. However, recharge under the proposed project is anticipated to only yield approximately 2,000 afy.

With Preferred Alternative (4,000 afy) at 2022 Demand	434,600	208	16%	123,100	44%

SOURCE: GEI, 2009.

Nitrates

SWP water is generally low in nitrates. As noted earlier, USGS found concentrations as high as 43 mg/l in the Joshua Tree subbasin. This elevated nitrate concentration is attributed to septic return flows. It is assumed that septic return flows contribute significantly to groundwater recharge. If the proposed project inundated an existing septic system or raised groundwater levels to such an extent that septic systems were affected, nitrate levels could be substantially increased.

A review of septic systems and their nutrient pathogen contributions to groundwater by Cardona (2008) indicated that the concentrations of nutrient and pathogen decrease away from the systems. However, the study found that significant nitrate movement can occur away from septic systems in unsaturated soils with low organic matter content. The Preferred Alternative recharge site is currently undeveloped and has not been used to accommodate septic systems. Recharge Basin Alternative 3 is located within 50 feet of a multi-family development. If the Preferred Alternative were to affect neighboring septic systems, groundwater quality could be affected. Implementation of Mitigation Measures 3.7-1b through 3.7-1e from the Draft EIR would reduce impacts from existing and future septic systems to a less than significant level. Furthermore, since SWP has low levels of nitrates, recharging the groundwater with SWP water will benefit water quality by providing some dilution of existing groundwater nitrate concentrations.

Trihalomethanes

SWP water can contain concentrations of dissolved organic carbons (DOC) and bromide that may exceed the drinking water standard for trihalomethane (THM) forming compounds. In addition, the first flushing of soils by recharge water could also produce elevated levels of DOC. However, based on soil types in the proposed project area, a significant increase in DOC from soils is unlikely. Soil data from the State Soil Geographic database indicate that the soils contain one percent or less of organic material.

Elevated DOC levels can also occur from wastewater contamination. DOC can be produced by bacterial decomposition of sludge accumulated at the bottom of septic tanks. The USGS study reported elevated levels of dissolved organic carbon and fluorescent associated with septic systems in the Warren Valley subbasin.

Concentrations of THM forming compounds transported to the groundwater basin would be diluted within the larger groundwater basin resulting in increased concentrations from the Preferred Alternative. The potential for concentrations of THM forming compounds to exceed MCLs in extracted groundwater is low. Therefore, this alternative would not significantly impair

water quality. Nonetheless, an Anti-Degradation Analysis would be required to weigh the project's benefits with the estimated decrease in water quality attributable to the project.

Metals

Leaching of metals and other constituents can occur when recharge water reacts or passes through alluvial material high in these constituents. Leaching of iron, manganese, chromium, silver, and arsenic could occur if a source area for these constituents is present. However, based on the geology and alluvial descriptions of the area by Dibblee (1967), Lewis (1972), and Nishikawa, et al. (2004), the proposed project area is composed of alluvial material derived predominantly from granites and to a lesser extent from gneisses and felsic rocks. It is unlikely that it is a source area where high metals and other constituents would be leached.

Pharmaceuticals

Pharmaceuticals have been identified in low levels in the Warren Valley subbasin as a result of septic system return flow. They do not occur in SWP water. In addition, current analytical techniques capable of detecting these compounds at very low levels are not generally available. Recharge of SWP water would not increase groundwater concentrations of pharmaceuticals or other "emerging contaminants" found in wastewater.

Based on comparison of the SWP water and groundwater qualities, the effect on local groundwater would be minor compared to the anticipated benefits of nitrate dilution and increased water supply. This would be consistent with the SWRCB's Anti-Degradation Policy requirements. Impacts would be less than significant with implementation of the mitigation measures outlined below.

Mitigation Measures from the Draft EIR

Mitigation Measure 3.7-1a: JBWD shall include in contractor specifications that the contractor is responsible for developing and implementing BMPs to minimize impacts to water quality. The BMPs shall be maintained at the site for the entire duration of construction.

The objectives of the BMPs are to identify pollutant sources that may affect the quality of storm water discharges and to implement measures to reduce pollutants in storm water discharges. The BMPs for the proposed project shall include, but not be limited to, the implementation of the following elements:

- Identification of all pollutant sources, including sources of sediment that may affect the quality of storm water
- Identification of non-storm water discharges;
- Estimate of the construction area;
- Identification of erosion and sedimentation control measures, waste management practices, and spill prevention and control measures; and

Mitigation Measure 3.7-1b: Septic tank mapping shall be conducted to help locate where current and future nitrate levels in groundwater could increase.

Mitigation Measure 3.7-1c: Groundwater monitoring wells shall be installed to monitor the recharged water and groundwater. The exact number and location of monitoring wells will depend on the final recharge site configuration and the location of the mapped septic systems.

Mitigation Measure 3.7-1d: Water quality sampling of monitoring wells shall be conducted to provide early detection of potential nitrate problems, as well as other potential contaminants.

Mitigation Measure 3.7-1e: JBWD shall cease recharge operations if groundwater levels in neighboring properties are less than 50 feet below ground surface.

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the Preferred Alternative.

No Project Alternative

Direct Effects: Under the No Project Alternative, SWP water would not be imported to recharge the Joshua Tree sub-basin and the potential higher concentrations of TDS in the groundwater would not occur. In addition, the No Project Alternative would not result in structures being located within a 100-year floodplain, which would occur under the proposed project. However, the beneficial impact of imported SWP water into the existing groundwater, which would lower nitrate concentrations, would not occur under the No Project Alternative. Furthermore, the necessary recharge of the groundwater supply would also not occur under the No Project Alternative. The No Project Alternative would not involve any mitigation to address the existing nitrate concentrations or to remedy the overdraft condition. Therefore, the No Project Alternative would result in greater overall impacts related to hydrology, water quality, and groundwater than the Preferred Alternative.

Indirect and Cumulative Effects: Implementation of the No Project Alternative would not result in indirect or cumulative effects with hydrology, water quality and groundwater within the area.

Existing Demand Recharge Capacity Alternative

Direct Effects: The Existing Demand Recharge Capacity Alternative would result in similar adverse impacts related to hydrology, water quality and groundwater as the Preferred Alternative, While this alternative would include the beneficial impacts related to hydrology, water quality and groundwater, including improved water quality due to the dilution of existing nitrate concentrations and increased water supply, it would not result in the beneficial impact of replacing overdrawn water to the groundwater supply. Overall, this alternative would have similar impacts associated with hydrology, water quality and groundwater as the Preferred Alternative.

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the Existing Demand Recharge Capacity Alternative.

Increased Recharge Capacity Alternative

Direct Effects: The Increased Recharge Capacity Alternative would result in similar adverse impacts related to hydrology, water quality and groundwater as the Preferred Alternative. In addition, this alternative would include the beneficial impacts of improved water quality due to the dilution of existing nitrate concentrations and increased water supply. Overall, this alternative would have similar impacts associated with hydrology, water quality and groundwater as the Preferred Alternative.

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the Increased Recharge Capacity Alternative.

4.12 Hazardous Materials

The proposed project would result in significant impacts if it would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- Create a significant hazard to the public or the environment through foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- Result in hazardous emissions or the handling of hazardous or acutely hazardous materials, substances, or waste within a quarter mile of an existing or proposed school;
- Be located on a site that is included on a list of hazardous materials sites compiled pursuant to California Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment;
- Be located within an area covered by an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, and would result in a safety hazard for people residing or working in the project area;
- Be located within the vicinity of a private airstrip and would result in a safety hazard for people residing or working in the project area;
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or
- Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

Title 40 of the Code of Federal Regulations (40 CFR) and Title 22 of the California Code of Regulations define and identify hazardous materials and wastes and provide threshold levels for these substances. Regulatory agencies determine what constitutes a “substantial” hazard or an “insignificant” level of hazardous materials on a case-by-case basis, depending on the proposed uses, potential exposure, and degree and type of hazard.

Preferred Alternative

Direct Effects: The Preferred Alternative would not create a significant hazard to the public or environment through the routine transport, use, or disposal of hazardous materials. Construction activities would result in limited quantities of miscellaneous hazardous substances, such as gasoline, diesel fuel, hydraulic fluids, paint, and other similarly related materials brought onto the project site, used, and stored during the construction period. However, impacts would be temporary and resolved within a 9 to 12 month construction schedule and no impact would result.

The project site is not located on a hazardous materials site identified in the LUST, Cortese, Envirostor, or SWLF databases. Therefore, the project would not create a significant hazard to the public or the environment and no impacts related to this issue would occur.

The project site is not located in the vicinity of an airport or private airstrip. Therefore, the project would not need to adhere to an airport land use plan and would not present a safety hazard to people residing or working in the project area. No hazard impacts related to proximity to an airport or private airstrip would occur.

Construction activities could impede access for emergency response vehicles, which could interfere with an emergency response plan or emergency evacuation plan. Measures to avoid interference with emergency access would be mitigated to less-than-significant levels through the creation of a Traffic Control Plan (see Mitigation Measure 3.11-2 in Section 4.21, Transportation and Access).

Construction of the new pipeline and recharge basin would require equipment utilizing hazardous materials such as gasoline, diesel fuel, hydraulic fluids, paint, and oil. During construction and transportation activities, such hazardous materials could accidently be spilled or otherwise released into the environment exposing construction workers, the public and/or the environment to potentially hazardous conditions.

Operation of the proposed project would not require the use of any hazardous materials. Therefore, potential impacts would be limited to the construction phase of the project. With implementation of Mitigation Measure 3.6-1 from the Draft EIR, project impacts would be reduced to a less than significant level.

The proposed pipeline extension running east along SR 62 is located less than one-quarter mile from the Friendly Hills Elementary School, and Recharge Basin Alternative 3 is located less than one-eight mile from the Joshua Tree Elementary School. Potential impacts from the project are expected to occur only during construction activities, which would be temporary and localized. Construction of the pipeline and recharge basin would require equipment utilizing hazardous materials such as petroleum fuel and oil. During construction and transportation activities, such hazardous materials could accidently be spilled or otherwise released into the environment exposing students, teachers, and the public to potentially hazardous conditions.

Operation of the pipeline and recharge basin would not require the use of hazardous materials. Therefore, potential impacts would be limited to the construction phase of the project. With

implementation of Mitigation Measure 3.6-1, project impacts would be reduced to a less than significant level.

According to the Joshua Tree Community Plan, the intersection of SR 62 and Sunset Avenue is an area of high fire severity. Commercial, residential, and resource conservation land uses border this area, and the proposed pipeline would pass directly through it along SR 62 in order to reach the Recharge Basin Alternative 3, which is located between Shadow Ranch Avenue and Border Avenue north of SR 62. This area may be susceptible to wildland fires as construction of this alternative requires equipment and activities that use petroleum and oil and could result in accidental spills leading to fire-related hazards. Mitigation Measure 3.6-3a and Mitigation Measure 3.6-3b are required in order to reduce project impacts to a less than significant level.

Once operational, the recharge basin could hold water at varying depths for a few months or for most of the year. During periods when the basin is full, mosquito and other vectors such as midges could be generated. This would create a hazard and nuisance in the local area. However, the recharge basin generally would not contain water for more than two weeks at a time, limiting the ability for vectors to breed. Additional vector control measure that would be implemented if necessary would include vegetation removal, the use of mosquito fish, or non-toxic pesticide applications. The JBWD would maintain a wet-dry rotation cycle within the subbasins that would discourage vector development. Impacts associated with vector control would remain less than significant and no mitigation would be required.

Mitigation Measures from the Draft EIR

Mitigation Measure 3.6-1: Construction contractor(s) shall be required to implement best management practices (BMPs) for handling hazardous materials during the project. The use of the construction BMPs shall minimize negative effects on groundwater and soils, and will include, without limitation, the following:

- Follow manufacturers' recommendations and regulatory requirements for use, storage, and disposal of chemical products and hazardous materials used in construction;
- Avoid overtopping construction equipment fuel tanks;
- During routing maintenance of construction equipment, properly contain and remove grease and oils; and
- Properly dispose of discarded containers of fuels and other chemicals.

Mitigation Measure 3.6-3a: JBWD shall coordinate with local fire agencies to develop a fire safety plan, which describes various potential scenarios and action plans in the event of a fire.

Mitigation Measure 3.6-3b: During construction, all staging areas, welding areas, or areas slated for development using spark-producing equipment shall be cleared of dried vegetation or other material that could ignite. Any construction equipment that includes a spark arrestor shall be equipped with a spark arrestor in good working order. Construction

crews shall have a spotter during welding activities to look out for potentially dangerous situations, including accidental sparks.

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the Preferred Alternative.

No Project Alternative

Direct Effects: Under the No Project Alternative, no construction activities would occur and, therefore, no accidental upset of hazardous materials that could expose people or the environment to hazardous materials would occur. In addition, no hazardous materials would be handled within one-quarter mile of a school and there would be no potential to expose people or equipment to risk of loss, injury or death involving wildland fires. Finally, because no recharge ponds would be constructed under the No Project Alternative, there would be no increase in vector generation, i.e., mosquitoes, that could result from standing waters. Therefore, the No Project Alternative would result in fewer impacts associated with hazards and hazardous materials than the proposed project.

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the No Project Alternative.

Existing Demand Recharge Capacity Alternative

Direct Effects: Like the Preferred Alternative, the Existing Demand Recharge Capacity Alternative would involve construction activities that would include the use of some hazardous materials such as gasoline, diesel fuel, hydraulic fluids, paints, and oil that could be exposed to the environment and the public and could involve the handling of these hazardous materials within one-quarter mile of a school. In addition, because of where this alternative would be constructed, it could expose people or equipment to risk of loss, injury or death involving wildland fires. Furthermore, operation of this alternative could promote vector generation. Impacts of this alternative related to hazards and hazardous materials would be similar as those that would occur under the Preferred Alternative.

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the Existing Demand Recharge Capacity Alternative.

Increased Recharge Capacity Alternative

Direct Effects: Like the Preferred Alternative, the Increased Recharge Capacity Alternative would involve construction activities that would include the use of some hazardous materials such as gasoline, diesel fuel, hydraulic fluids, paints, and oil that could be exposed to the environment and the public and could involve the handling of these hazardous materials within one-quarter mile of a school. In addition, this alternative could expose people or equipment to risk of loss, injury or death involving wildland fires. Furthermore, operation of this alternative could promote vector generation. Impacts of this alternative related to hazards and hazardous materials would be similar as those that would occur under the Preferred Alternative.

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the Increased Recharge Capacity Alternative.

4.13 Environmental Sensitive Areas

Resources that are associated with cross-cutter environmental laws that have been eliminated from detailed consideration because there would be no impact to these resources from implementation of the Preferred Alternative due to their lack of presence on and in the vicinity of the project site are as follows:

- **Coastal Barrier Resources.** The Preferred Alternative would not be located within the Coastal Barrier Resources System, which is protected under the Coastal Barriers Resource Act (16 U.S.C §§3501-3510)
- **Coastal Zones.** The Preferred Alternative would not be located in the coastal zone as defined by the Coastal Zone Management Act (16 U.S.C §§1451-1466**).**
- **Wild and Scenic Rivers**. The Preferred Alternative would not affect any wild and scenic river, or adjacent lands, as designated under the Wild and Scenic Rivers Act (16 U.S.C. §§1271-1287).
- **Essential Fish Habitat.** The Pacific Fishery Management Council has not designated any Essential Fish Habitat (EFH) in the vicinity of the Preferred Alternative, as required by the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. §§1801-1891), as amended by the Sustainable Fisheries Act of 1996.
- **Prime and Unique Farmland.** The Preferred Alternative would not be located on or adjacent to lands identified as farmland as defined by the Farmland Protection Policy Act (7 U.S.C §§4201-4209). The Preferred Alternative would not adversely affect farmland or result in the conversion of farmland to non-agricultural use as identified by the California Department of Conservation's Farmland Mapping and Monitoring Program (see Section 4.7 for additional information).

Endangered Species Act / US Fish and Wildlife Service Consultation

A letter was sent from the EPA to the USFWS regarding the proposed project and potential impacts to biological resources. The letter included the following conclusions:

1. Construction of the pipeline from Yucca Mesa Road to the proposed recharge basin described in the approved project description is not likely to adversely affect the desert tortoise because the pipeline would be built immediately adjacent to Highway 62. The habitat in this area is highly disturbed and desert tortoises are unlikely to reside in the pipeline corridor because their density is usually reduced adjacent to heavily traveled roads. In the unlikely event that workers encounter a desert tortoise during construction of the pipeline, they would cease any work that could kill or injure the desert tortoise, assign someone to monitor it until it has left the work area, and immediately contact the Service and California Department of Fish and Game. JBWD would also implement measures to ensure workers and their equipment remain within the well-marked right-of-way while installing the pipeline.

2. Construction and operation of the recharge basin at the approved project location is not likely to adversely affect the desert tortoise because the potential for encountering desert tortoise at this site is low due to the level of human disturbance on the site and the site's proximity to the developed portions of the community of Joshua Tree. The site is bordered by the 10-foot high levee of the Quail Wash Flood Control Channel to the south and east, Joshua Creek to the north, and a multi-unit housing development to the west. Across Joshua Creek from the proposed recharge site a 30-foot escarpment separates the site from low density residential area to the north. Highway 62 crosses the valley approximately ½ mile to the south of the proposed recharge site. The site exhibits moderate to high levels of disturbance caused by numerous off-road vehicle trails and trash. The site is not within the boundaries of designated critical habitat for desert tortoise, and would not be considered a site that is essential to the recovery of the species due primarily to its proximity to the developed portions of the community of Joshua Tree and Highway 62.

3. Prior to construction, JBWD will conduct absence surveys for desert tortoise in all proposed disturbance areas that provide potential habitat. Surveys shall follow the USFWS protocol (USFWS, 2009) or other appropriate site-specific protocol as determined in coordination with USFWS. Survey results will be submitted to USFWS by USEPA. If survey results conclude that desert tortoise are utilizing the project site, the USEPA will initiate formal consultation pursuant to section 7(a)(2) with the USFWS. If these survey results conclude that desert tortoise are not utilizing the site, JBWD will implement the following measures to ensure that desert tortoises are not adversely affected by construction and operation of the proposed recharge basin:

    a. Fence the work site to exclude desert tortoises from all work areas following suggested methods described on the Service's website. A qualified biologist will be present during the installation of the fence to ensure desert tortoises are not present, if a desert tortoise is encountered at this time, any work that could kill or injure the desert tortoise will cease, a qualified biologist will monitor it until it has left the work area, and the Service and California Department of Fish and Game (CDFG) will be contacted immediately.

    b. After the fence has been installed, qualified biologists will survey the area inside the fence twice; the second survey will be perpendicular to the direction that the first survey was conducted. The biologists will cover the entire site with parallel lines spaced 15 feet apart during each survey. If no desert tortoises or their sign are found, ground-disturbing activities may commence. If desert tortoise sign is found, JBWD will contact the Service and CDFG to determine an appropriate course of action. Ground-disturbing activities will not commence until EPA and the Service have completed formal consultation.

    c. Prior to the onset of construction, all onsite workers will be provided an education program that describes the desert tortoise, its status as a threatened species, and the measures that are being implemented to protect it during construction.

    d. JBWD will ensure that any trash likely to attract common ravens must be disposed of in animal-proof containers and disposed of at approved disposal locations. Workers

will be informed that they are not to feed wildlife. JBWD will contact the Service if common ravens nest or attempt to nest within the recharge basin. These measures will be implemented both during construction and operation of the recharge basin.

4. The proposed project would provide water to the community of Joshua Tree, augmenting groundwater supplies that are currently the sole source of water to the community. There are currently numerous undeveloped parcels in the JBWD service area that may be developed in the future require connections to the water system. This new growth in the Joshua Tree area could affect desert tortoise utilizing the area. The community of Joshua Tree is not within the boundaries of designated critical habitat for desert tortoise, and would not be considered an area that is essential to the recovery of the species. Growth would be consistent with the County General Plan. Nonetheless, development could adversely affect desert tortoise in the area. To minimize the potential for development to adversely affect desert tortoise, JBWD will implement the following:

    a. JBWD will provide notices to each new customer outlining how to comply with the Endangered Species Act with respect to finding desert tortoise on privately owned parcels. This will include USFWS and CDFG contact information in case a tortoise is discovered on the parcel.

    b. JBWD will send USFWS notices of each new service connection.

Based on the above considerations, it is determined that the proposed project is "not likely to adversely affect" the desert tortoise and therefore no formal consultation with USFWS is required at this time.

Historic and Cultural Resources / National Historic Preservation Act

Tribal Lands/National Register of Historic Places (National Register)

Section 3.4 of the EIR evaluates potential impacts of the proposed project on historic and cultural resources. A Sacred Lands record search with the Native American Heritage Commission performed in both October 2008 and December 2009 failed to indicate the presence of Native American cultural resources in the immediate proposed project areas.

A records search performed by staff at the San Bernardino Archaeological Information Center at the San Bernardino County Museum in September 2008 revealed no listed National Register or California Register resources/sites. One site does appear eligible for listing on the National Register or California Register, but it is located outside of the proposed project areas, just south of Highway 62. A discussion of potential impacts to cultural resources and mitigation measures addressing impacts to these resources is included in Section 4.16, Historical, Architectural, Archaeological, and Cultural Sites, of this EA.

Based on both record search results, the proposed project would not impact tribal lands or listed and eligible National Register resources. This resource is not present. The Environmental Protection Agency (EPA) sent a letter to SHPO requesting concurrence on February 26, 2010.

Tribal Consultation

Appendix D of the EIR contains correspondence pertaining to tribal consultation. A letter was sent to the Native American Heritage Commission (NAHC) on September 5, 2008, informing them of the project and requesting a record search of sacred lands or traditional cultural properties that may exists within the project area, in addition to the contact information of all Native American representatives who could be associated with the project area.

The NAHC responded on September 22, 2008, and indicated that the record search for its Sacred Lands File did not indicate the presence of Native American cultural resources in the immediate project area. A list of 10 Native American contacts with interest in the project area was included in the response. All ten contacts were sent letters describing the project on October 8, 2008. Two response letters were received from Native American contacts (see Appendix D of the EIR). One indicated that he had no interest in the project and the other requested to be included in any further project developments. This second commenter received a copy of the EIR, but did not comment further. A second letter was sent to the NAHC on November 19, 2009, and follow-up letters were sent to all 10 Native American contacts on December 2, 2009 (see Appendix D of the EIR).

Executive Order for Wetlands Protection

None of the drainage features at the three proposed recharge basin alternative locations meet the definition of waters of the U.S. Therefore, no impact to federally jurisdictional waters or wetland features would occur and no mitigation is required. However, Waters of the State are present in the study area and may be impacted at some of the proposed recharge basin locations. Impacts to these features are mitigated to a less than significant level under NEPA. Waters of the State are discussed above under Section 4.1, Surface Waters and Wetlands, of this EA. The Wetland Delineation and Jurisdictional Determination for the proposed project are included as Appendix C of the Draft EIR.

State and Local Resource Protections

Five California Native Plant Society sensitive plant species were identified by the CNDDB as having the potential to occur at the proposed project locations: Parish's daisy (*Erigeron parishii*), Parish's club cholla (*Grusonia parishii*), Latimers woodland-gilia (*Saltugilia latimeri*), Robinson's monardella (*Monardella robisonii*), and little San Bernardino Mountains linanthus (*Linanthus maculates*). Of these, only two are considered to have a moderate or high potential to occur at the proposed project locations. None of these species are listed as threatened or endangered by the federal or State government. Robinson's monardella has a moderate potential to occur, though most occurrences have been recorded within Joshua Tree National Park and this species requires a somewhat more mesic habitat than what is present at the proposed project locations. The little San Bernardino Mountains linanthus has a high potential to occur. This species was not observed during the October 2008 site reconnaissance visit; however, there are several nearby recorded occurrences and suitable habitat exists within all proposed project locations. Impacts to all special-status plant species would be reduced to less than significant with implementation of Mitigation Measures 3.3-3a through 3.3-3d.

Mitigation Measures from the Draft EIR

***Mitigation Measure 3.3-3a*:** JBWD shall have a qualified biologist conduct a pre-construction spring/summer floristic inventory and rare plant survey of the proposed project areas in accordance with CDFG's *Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities*, (revised May 8, 2000) to determine and map the location and extent of special-status plant species populations within the construction right-of-way. The survey shall be conducted during the appropriate flowering time for target plant species.

***Mitigation Measure 3.3-3b*:** If not possible to avoid, JBWD shall minimize impacts on special-status plant species by reducing the construction right-of-way through areas with potential occurrences of special-status plant species. For unavoidable direct impacts to special-status species, consultation with CDFG shall be required to determine the impact area and further mitigation, which could include acquisition of habitat of equal or superior value at a ratio of at least 1:1.

***Mitigation Measure 3.3-3c*:** JBWD shall stake, flag, fence, or otherwise clearly delineate the construction right-of-way that restricts the limits of construction to the minimum necessary to implement the project that would also avoid and minimize impacts on special-status plant species.

***Mitigation Measure 3.3-3d*:** Earth-moving equipment will avoid maneuvering in areas outside the identified limits of construction in order to avoid disturbing open space areas that will remain undeveloped. Prior to construction, the natural open space limits will be marked by the construction supervisor and a qualified biologist. These limits will be identified on the construction drawings. JBWD shall submit a letter to the appropriate agencies verifying that construction limits have been flagged and clearly delineated in the field. No earth-moving equipment will be allowed outside demarcated construction zones.

Natural Communities of Special Concern

Joshua trees are not listed as endangered or threatened species. Joshua tree woodland is a vegetation community considered a natural community of special concern by the CDFG and consists of species that are protected under the San Bernardino County Development Code (Chapter 88.01, Plant Protection and Management). While there are a large number of Joshua trees found over Recharge Basin Alternatives 1 and 2, the vegetation communities in these areas are better described as Mojavean creosote bush scrub (Holland, 1986). No CDFG listed natural communities of special concern occur within Recharge Alternative 3.

As per San Bernardino County Development Code Section 88.01, the County may require a Desert Native Plant Assessment to identify the numbers and locations of protected plants to ensure compliance with the County Plant Protection Ordinance. Joshua tree, Mojave yucca, barrel, hedgehog and beavertail cactuses, pencil cholla, silver cholla and catclaw acacia are species found on the recharge basin alternative sites that may be subject to the requirements. Removal of these or other protected species would require a removal permit from the County prior to construction activities. The County may require Joshua trees be transplanted to suitable locations or stockpiled for future transplanting. Implementation of Mitigation Measures 3.3-4a

and 3.3-4b would reduce impacts to Joshua trees and other protected plants to less than significant.

Mitigation Measures from the Draft EIR

> ***Mitigation Measure 3.3-4a*:** Prior to the commencement of ground disturbance activities for any component of the proposed project, a qualified biologist/arborist shall provide an inventory of the number and size of Joshua trees to be removed.
>
> ***Mitigation Measure 3.3-4b*:** JBWD shall apply for and receive a permit from the County of San Bernardino prior to removal of native vegetation protected under San Bernardino County Development Code Section 88.01 and shall transplant or stockpile Joshua trees as required under the conditions of the permit.

Indirect and Cumulative Effects: Construction of the pipeline extension and recharge basin(s) in and around undeveloped open space areas could result in destruction and/or disturbance of natural habitat. Habitat destruction/disturbance would contribute to the overall impacts to natural habitat in the vicinity of Joshua Tree resulting from cumulative development. The three proposed Recharge Basin Alternatives are all located on vacant, open space areas that would be disturbed as a result of the proposed project. These open spaces contain habitat suitable for special-status wildlife species, most notable the desert tortoise (*Gopherus agassizi*). In addition, Recharge Basin Alternatives 1 and 2 contain the California Department of Fish and Game (CDFG) threatened community of Joshua Tree Woodland.

Within the vicinity of the project site, a new 105 acre development is planned for development along the west side of Sunny Vista Road between Alta Loma Drive and Sunburst Road. This project will be built on a large swath of undeveloped, open land that may contain Joshua Tree Woodland and corresponding special-status plant and wildlife species. As a result, the construction of the two projects simultaneously may damage sensitive, Joshua Tree Woodland habitat and impact special-status plant and wildlife species within the vicinity of the two projects. The project would contribute to the cumulative loss of natural biological resources in the high desert. However, since mitigation measures would minimize the project's effects, the proposed project's contribution to cumulative habitat, plant, or wildlife loss in San Bernardino County would not be considerable.

No Project Alternative

Direct Effects: The No Project Alternative would not disturb the existing open space at the proposed recharge locations and potential impacts that could occur to special status animal and plant species, such as the desert tortoise or Joshua Trees, would not occur under this alternative. In addition, the No Project Alternative would avoid impacts on drainage features that cross the recharge basin locations (Recharge Basin Alternatives 1 and 3). Therefore, the No Project Alternative would result in fewer impacts to biological resources than the proposed project.

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the No Project Alternative.

Existing Demand Recharge Capacity Alternative

Direct Effects: Under the Existing Demand Recharge Capacity Alternative, a smaller area of natural open space would be disturbed and potential impacts that could occur to special status animal and plant species, such as the desert tortoise or Joshua Trees, would be less than those that would occur under the proposed project. Like the proposed project, this alternative has the potential to result in impacts on drainage features that cross the recharge basin locations (Recharge Basin Alternatives 1 and 3). Overall, because the disturbance area would be smaller, the Existing Demand Recharge Capacity Alternative would result in fewer impacts related to biological resources than the proposed project.

Indirect and Cumulative Effects: Indirect and cumulative effect of the Existing Demand Recharge Capacity Alternative would be similar to those of the Preferred Alternative.

Increased Recharge Capacity Alternative

Direct Effects: Under the Increased Recharge Capacity Alternative, a greater amount of the existing open space at the proposed recharge locations would be disturbed and potential impacts that could occur to special status animal and plant species, such as the desert tortoise or Joshua Trees, would be greater under this alternative. Like the proposed project, the Increased Recharge Capacity Alternative would result in impacts on drainage features that cross the recharge basin locations (Recharge Basin Alternatives 1 and 3). Therefore, the Increased Recharge Capacity Alternative would result in greater impacts related to biological resources than the Preferred Alternative.

Indirect and Cumulative Effects: Indirect and cumulative effects of the Increased Recharge Capacity Alternative would be greater than that of the Preferred Alternative.

4.14 Geology, Seismic Considerations, and Soils

A proposed project is considered to have significant geologic or seismic impacts if it would:

- Expose people or structures to potential 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;
  - Strong seismic ground shaking;
  - Seismic-related ground failure, including liquefaction; or
  - Landslides.
- Result in substantial soil erosion or the loss of topsoil;
- Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project, and potentially result in onsite or offsite landslide, lateral spreading, subsidence (i.e., settlement), liquefaction, or collapse;

- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property;
- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater;
- Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state; or
- Result in the loss of availability of a locally important mineral resource recovery site delineated on a local General Plan, Specific Plan, or other land use plan.

Preferred Alternative

Direct Effects:

Mineral Resources

The Preferred Alternative site has not been identified as a locally important mineral resource recovery site in the San Bernardino General Plan or Desert Region Joshua Community Area Plan. Therefore, the site would not limit access to mineral resources. Further, no residential, commercial, or industrial uses are proposed for the project and would not require construction of a new wastewater disposal system.

Seismic Activity

The Pinto Mountain Fault Alquist-Priolo (AP) Zone closely follows SR 62 in an east-west direction in the vicinity of the project site, and a small portion of Recharge Basin 3 (constructed as part of the Preferred Alternative) lies within the Alquist-Priolo Fault Zone (see Figure 3.4-2). Concealed portions of the fault also intersect the feeder pipeline on Yucca Mesa Road and on Wilton Road. A seismic event involving the Pinto Mountain Fault could cause considerable stress on the pipeline and recharge basins. Figure 3.4-2 identifies the location of the AP zone in the project area. The main conveyance pipeline would not cross the fault or be within the AP zone. Rupture along the Alquist-Priolo Zone could not significantly damage the proposed recharge basin, and any damage would be easily reparable and would not result in significant impacts associated with surface rupture.

The recharge basins would not hold water above the original grade elevation. The perimeter berms would not impound water, therefore, destruction of the berms during a surface rupture event would not release water into local drainages. Nonetheless, for elements of the project within the Alquist Priolo Zone, facility designs would be subject to Special Publication 117, "Guidelines for Evaluating and Mitigating Seismic Hazards in California." Conformance with this publication in addition to the CBC requirements would provide for protection from fault rupture.

The Preferred Alternative is located in the Mojave Desert Region, one of the most seismically active areas of Southern California. Strong ground shaking is likely to occur over the life of the project that could rupture the pipeline or damage the perimeter berms of the recharge basins. The pipeline would be designed to accommodate site-specific ground motions. The perimeter berms could experience damage during an earthquake event without severely damaging the function of

the basins and could be easily repaired. Standard geotechnical and structural design criteria required in the CBC would reduce excessive earthquake response and minimize potential damage or collapse of either the pipeline or the recharge basins. CBC requirements for the pipeline may include flexible pipe joints, shortened pipe lengths, automatic isolation valves, installation of the pipelines inside a protective casing, and shallow or above-ground installation of the pipelines. Compliance with the CBC would minimize the potential for damage from strong ground shaking.

Groundwater at the project site is estimated to be 350 to 530 feet below grade. It is not anticipated that the location of Recharge Basin Alternatives 3 would be currently prone to liquefaction. Liquefaction sites are categorized by the presence of loose, unconsolidated granular soils and shallow groundwater (typically 50 feet or less below ground surface).

The proposed project would create an approximately 20- to 25-acre subterranean vertical zone in which soils would be saturated as a result of percolation from the proposed Recharge Basin 3. The presence of saturated soils could increase the liquefaction hazard at the recharge basin sites; however, the anticipated infiltration rate of one to two feet per day, the depth of the groundwater basin, and the wet/dry nature of recharge operation would not allow soil saturation to occur at a level that would substantially increase liquefaction hazards. In addition, while horizontal movement of recharged water or saturated soils under neighboring properties could increase liquefaction hazards on neighboring properties, the recharged water of the proposed project would be expected to sink into the soils in a vertical column. Therefore, liquefaction within neighboring properties outside of the column or percolation mound would not increase due to recharge operations.

From a regional perspective, the overall quantity of water being contributed to the groundwater basin through the 20- to 25-acre groundwater recharge basins would not be sufficient to significantly raise the groundwater table to elevate liquefaction hazards beyond the immediate recharge zone.

Locations for the proposed facilities are of relatively gentle relief and are not be expected to be highly susceptible to landslides or other types of mass earth movements under normal circumstances. However, under the influences of ground shaking and/or increased saturation from the recharge of groundwater, the chances of such an event occurring would increase. Portions of Recharge Basin Alternatives 3, while not steep, could require some modification and/or terracing to address existing slope angles and to keep operational water surfaces below native ground level. Landslides would not be considered a significant hazard for the project. Overall the Preferred Alternative would not result in significant impacts.

Mitigation Measures from the Draft EIR

> ***Mitigation Measure 3.5-1a:*** Prior to the approval of construction plans for the project, JBWD shall complete a design-level geotechnical investigation, including a percolation test. The geotechnical evaluation shall identify soil properties and percolation rates needed for the development of site-specific design criteria. Recommendations made as a result of

these investigations to protect new structures from seismic hazards shall become incorporated into the proposed project.

Mitigation Measures from the Final EIR

Mitigation Measure 3.5-1b: Recharge Basin Alternative 1 would be designed to avoid construction over the known fault traces of the Pinto Mountains Fault as described by the USGS.

Soil Erosion / Unstable Soils

The proposed project includes the construction of a six-foot high earthen berm around the recharge basin(s). The berm would be constructed from soils excavated at the project site and would be designed to prevent the intrusion of flood water into the basin during heavy rain events. Soils at the project site are known to be sandy with little cohesiveness and are highly susceptible to erosion due to limited vegetation, low moisture content, common high winds, and infrequent high intensity rainfall events.

Recharge basin perimeter berms may require gentle slopes because of their coarse sandy texture. Analysis of soil conditions and properties would be required prior to final site design, as described in Mitigation Measure 3.5-2a. Mitigation Measure 3.5-2b would ensure that water levels in the recharge basins never exceeds the original grade elevation. Project construction and operation would result in land disturbance as a result of the movement of sandy soils. Soils in the region are highly susceptible to water and wind erosion. The recharge basin perimeter berms would be susceptible to erosion from both wind and water. Therefore, short-term losses of topsoil due to wind and water erosion could be substantial. Implementation of Mitigation Measures 3.5-2a and 3.5-2b, described below, would reduce the level of impacts to less than significant.

Mitigation Measures from the Draft EIR

Mitigation Measure 3.5-2a: Final design for recharge basins shall ensure that water elevation including freeboard requirements does not exceed original grade elevations.

Mitigation Measure 3.5-2b*:* JBWD shall install soil erosion control measures that could include but would not be limited to sediment barriers and landscape vegetation to act as a wind block as well as a soil stabilizer. Storm flow diversion structures shall be similarly designed with velocity dissipaters, detention capacity, and armoring needed to avoid scouring.

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the Preferred Alternative.

No Project Alternative

Direct Effects: Under the No Project Alternative, the proposed basin locations would remain vacant and the recharge basins would not be built and the pipeline would not be extended. Therefore, the No Project Alternative would not expose recharge ponds or a pipeline to seismic events, including surface rupture, ground shaking or liquefaction, along the Pinto Mountain Fault.

The No Project Alternative would also avoid construction of the project on soil that is unstable. Therefore, the No Project Alternative would result in fewer impacts related to geology and soils than the proposed project.

Indirect and Cumulative Effects: Implementation of the No Project Alternative would not result in indirect or cumulative effects to geology and soils within the area.

Existing Demand Recharge Capacity Alternative

Direct Effects: The Existing Demand Recharge Capacity Alternative would place recharge basins and a pipeline near the Pinto Mountain Fault, which could result in impacts related to ground shaking. Impacts of this alternative related to geology and soils would be similar to those of the Preferred Alternative.

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the Existing Demand Recharge Capacity Alternative.

Increased Recharge Capacity Alternative

Direct Effects: The Increased Recharge Capacity Alternative would place recharge basins and a pipeline near the Pinto Mountain Fault, which could result in impacts related to ground shaking. Impacts of this alternative related to geology and soils would be similar to those of the Preferred Alternative.

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the Increased Recharge Capacity Alternative.

4.15 National Natural Landmarks

Joshua Tree National Park is open year-round and offers recreational opportunities such as hiking and mountain biking trails and rock climbing areas. There are three entrances to the park that can be accessed from Interstate 10 and SR 62. The west entrance is located five miles south of SR 62 and Park Boulevard in the community of Joshua Tree (NPS, 2009). The Preferred Alternative would not affect these facilities. None of the project alternatives would affect Joshua Tree National Park.

4.16 Historical, Architectural, Archaeological, and Cultural Sites

Methodology

Archival

A records search was requested from the (SBAIC) at the San Bernardino County Museum in September, 2008. The records were accessed by utilizing the Joshua Tree North and Joshua Tree South U.S. Geological Survey (USGS) 7.5-minute quadrangle maps. The review included the proposed basin and pipeline project areas as well as a ½-mile radius around the proposed project

locations. This records search included an examination of previous survey coverage and reports, historic maps, and known cultural resources. Other sources that were reviewed included the California Points of Historical Interest (PHI), the California Historical Landmarks (CHL), the California Register of Historic Places (California Register), the National Register of Historic Places (National Register), and the California State Historic Resources Inventory (HRI).

Field Survey

Field survey was conducted on October 15 and 16, 2008, by ESA archaeologists Mitch Marken, Ph.D., and Madeleine Bray, M.A. Areas that were not built-up or otherwise disturbed were subject to intensive pedestrian survey. Survey was conducted in transects of 15-20 meters, with special attention paid to ridges, bedrock outcrops, and boulders. Any cultural resources encountered were documented and recorded on the appropriate DPR forms.

All of Recharge Basin Alternatives 1, 2, and 3 were intensively surveyed. The proposed pipeline alignment was surveyed intensively (in 20-meter wide transects on either side of the roads) from its westernmost terminus on Yucca Mesa Road to the intersection of SR 62 and Sunny Vista Road., and from its easternmost terminus on the west side of Recharge Basin Alternative 3, south to SR 62 and west to Sunburst Street. The portion of the pipeline alignment along SR 62 from Sunny Vista Road Sunburst Street was not intensively surveyed because this area had either been previously surveyed in 2003, or was built-up, paved, or otherwise disturbed. This section was subject to a cursory vehicular survey.

Native American Contact

A Sacred Lands record search with the NAHC was requested in October 2008 and follow-up consultation with all individuals and groups indicated by the NAHC as having affiliation with the project area was conducted. Follow-up consultation, conducted in October 2008, consisted of a letter describing the proposed project and a map indicating the project area. Recipients were requested to reply with any information they are able to share about Native American resources that might affected by the proposed project.

As noted above, Sacred Lands Search results prepared by the NAHC failed to indicate the presence of Native American cultural resources in the immediate project area. The NAHC results also noted, however, that the “absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in any project area.” Anthony Madrigal, Jr., of the Twentynine Palms Band of Mission Indians responded to ESA’s follow-up letter and asked that he be kept informed of any new project developments. A reply was sent to Mr. Madrigal assuring him that he would be kept informed and sent copies of project publications. Michael Tsosie of the Colorado River Indian Reservation also responded, indicating that the Tribe knew of no cultural resources in the project area.

Preferred Alternative

Direct Effects: The following is a discussion of the potential effects of the proposed project to cultural resources.

Historic and Archaeological Resources

The specific site for the 29-acre recharge basin has not yet been chosen; therefore, no specific impacts to those resources within recharge basin alternatives (JB-1, JB-2, JB-3, JB-5; JB-ISO-1 though -4) can be identified at this time. However, construction of the recharge basin on or near the cultural resources would result in significant impacts to the resources. Site JB-6 is not within the project area; however, it, too, should be avoided during project construction.

Site JB-4 is south of and immediately adjacent to the proposed pipeline alignment. The pipeline is anticipated to be built on the north side of SR 62, while JB-4 is on the south side of the highway.Although the site appears to fall outside of the area of direct impact, the site may be indirectly impacted by project construction and should be avoided.

There is insufficient information at this time to evaluate these sites for eligibility for the California Register; however, until they are evaluated, the resources should be considered potentially eligible to the California Register under criterion 4—the ability to yield information important to prehistory or history. With implementation of Mitigation Measures 3.4-1a through 3.4-1d, project impacts to cultural resources would be reduced to a less than significant level. The impact and mitigation measures would apply equally for each recharge basin alternative as well as during pipeline construction.

> ***Mitigation Measure 3.4-1a*: Avoidance of cultural resources.** JBWD shall avoid all cultural resources where feasible. Prior to construction, a qualified archaeologist (defined as an archaeologist meeting the Secretary of the Interior's Standards for professional archaeology) shall mark exclusion zones around known archaeological sites that exist near the construction areas but that can be avoided to ensure they are not impacted by construction.
>
> ***Mitigation Measure 3.4-1b*: Evaluation of cultural resources if avoidance is not feasible**. If avoidance is not feasible, prior to any ground disturbing activity, known cultural resources that cannot be avoided shall be evaluated further by a qualified archaeologist to determine the resources' eligibility to the California Register or local historic register and potential significance under CEQA. This can be accomplished by implementing extended Phase I archaeological testing, which would involve relocating the resources, thoroughly documenting them, and conducting limited subsurface testing to obtain more data. Any archaeological testing should be carried out by an archaeologist meeting the Secretary of the Interior's Standards for professional archaeology. If, after extended Phase I archaeological testing, a resource is determined to be eligible to the California Register or local historic register, a site treatment plan or additional protection measures will be developed. If the site evaluation results in an assessment that a resource is not eligible, no further work or protective measures will be necessary.
>
> ***Mitigation Measure 3.4-1c*: Monitoring by a qualified archaeologist and Native American representative during ground disturbing activities.** JBWD shall retain a qualified archaeological monitor for ground-disturbing activities, including brush clearance and grubbing as necessary to identify the presence of potential resources as determined by the qualified archaeologist. In the event that cultural resources are unearthed during ground-disturbing activities, the archaeological monitor shall be empowered to halt or

redirect ground-disturbing activities away from the vicinity of the find so that the find can be evaluated.

Due to the sensitivity of the project area for Native American resources, at least one Native American monitor shall also monitor ground-disturbing activities in the project area necessary to identify presence of potential resources as determined by a qualified Native American monitor. Selection of monitors shall be made by agreement of the Native American groups identified by the Native American Heritage Commission as having affiliation with the project area.

***Mitigation Measure 3.4-1d*: Cease Work if Prehistoric, Historic or Paleontological Subsurface Cultural Resources are Discovered During Ground-Disturbing Activities.** If cultural resources are encountered, excavation activity in the vicinity of the find shall cease until it can be evaluated by the archaeological monitor. If the archaeological monitor determines that the resources may be significant, the archaeological monitor will notify the lead agency and will develop an appropriate treatment plan for the resources. The archaeologist shall consult with Native American monitors or other appropriate Native American representatives in determining appropriate treatment for unearthed cultural resources if the resources are prehistoric or Native American in nature.

In considering any suggested mitigation proposed by the archaeologist in order to mitigate impacts to cultural resources, the project proponent will determine whether avoidance is necessary and feasible in light of factors such as the nature of the find, project design, costs, and other considerations. If avoidance is infeasible, other appropriate measures (e.g., data recovery) will be instituted. Work may proceed on other parts of the project site while mitigation for cultural resources is being carried out.

Paleontological Resources

As noted previously, the project area is underlain by Quaternary alluvium and older alluvium, which generally have a low potential to produce fossils and are not considered paleontologically sensitive. However, paleontological resources can be uncovered and inadvertently damaged even in areas of low sensitivity, which would be a significant impact. With the incorporation of Mitigation Measure 3.4-2, any impacts to paleontological resources from construction of the Preferred Alternative would be less than significant.

***Mitigation Measure 3.4-2*: Accidental discovery of paleontological resources.** If paleontological resources are encountered during the course of construction and monitoring, JBWD shall halt or divert work and notify a qualified paleontologist who shall document the discovery as needed, evaluate the potential resource, assess the significance of the find, and develop an appropriate treatment plan in consultation with JBWD.

Human Remains

There is no indication, either from the archival research results or the archaeological survey, that any particular location in the project area has been used for human burial purposes in the recent or distant past. However, the high level of prehistoric activity in the area, evidenced by the large number of prehistoric sites near or within the project area, suggests that burials could be present in the project area. In the event that human remains were discovered during subsurface activities,

the human remains could be inadvertently damaged, which could be a significant impact. However, this impact would be minimized by implementation of Mitigation Measure 3.4-3, in conjunction with Mitigation Measures 3.4-1a, 3.4-1b, 3.4-1c, and 3.4-1d.

> ***Mitigation Measure 3.4-3*: Halt Work if Human Skeletal Remains are Identified During Construction.** If human skeletal remains are uncovered during project construction, the project proponent (depending upon the project component) will immediately halt work, contact the San Bernardino County coroner to evaluate the remains, and follow the procedures and protocols set forth in Section 15064.5 (e)(1) of the CEQA Guidelines. If the County coroner determines that the remains are Native American, the project proponent will contact the NAHC, in accordance with Health and Safety Code Section 7050.5, subdivision (c), and Public Resources Code 5097.98 (as amended by AB 2641). Per Public Resources Code 5097.98, the landowner shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices, where the Native American human remains are located, is not damaged or disturbed by further development activity until the landowner has discussed and conferred, as prescribed in this section (PRC 5097.98), with the most likely descendents regarding their recommendations, if applicable, taking into account the possibility of multiple human remains.

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the Preferred Alternative

No Project Alternative

Direct Effects: The No Project Alternative would not involve any ground-disturbing activities, such as excavation or grading, and would not disturb any known or unknown archaeological or paleontological resources. Therefore, this alternative would result in fewer impacts to cultural resources than the proposed project.

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the No Project Alternative.

Existing Demand Recharge Capacity Alternative

Direct Effects: The Existing Demand Recharge Capacity Alternative would require a smaller amount of ground-disturbing activities, which could result in fewer impacts to known or unknown archaeological or paleontological resources. Therefore, this alternative would result in fewer impacts related to cultural resources than the Preferred Alternative.

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the Existing Demand Recharge Capacity.

Increased Recharge Capacity Alternative

Direct Effects: The Increased Recharge Capacity Alternative would result in a greater amount of ground-disturbing activities. This alternative would require a greater amount of excavation due to the increased number of recharge ponds, which could disturb more known or unknown archaeological or paleontological resources than could be disturbed under the Preferred

Alternative. Therefore, this alternative would result in greater impacts than the Preferred Alternative.

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the Increased Recharge Capacity Alternative.

EPA consultation with SHPO

EPA consulted with the California State Historic Preservation Office (SHPO). In fall 2010, the SHPO concurred that this project will not adversely affect cultural or historic resources. The SHPO further recommend that one particular site (CA-SBR-13305-H) adjacent to the proposed pipeline not only be closely monitored, but also slowly excavated to ensure cultural or historic resources are not adversely affected.

4.17 Aesthetic Resources

The significance determination is based on several evaluation considerations, including the extent of project visibility from sensitive viewing areas such as designated scenic routes or public open space; the degree to which the various project elements would contrast with or be integrated into the existing landscape; the extent of change in the landscape's composition and character; and the number and sensitivity of viewers. For the purposes of this analysis, a scenic vista shall be considered any views visible from either a Designated or Eligible Scenic Highway, as identified by the Caltrans State Scenic Highway Program, or from any County-designated scenic routes. A scenic resource shall be considered for any outstanding views, flora, geology, or other unique natural or man-made attributes that contribute to the aesthetic quality or character of the area. For the Preferred Alternative, this would include boulder outcroppings, nighttime sky-views, and Joshua trees.

Preferred Alternative

Direct Effects: This alternative would result in temporary short-term visual impacts related to during construction. Construction activities would require the use of heavy equipment and storage of materials at construction sites and staging areas along SR 62 as well as at the recharge basin sites. The construction easement and staging areas would introduce contrasting aesthetic elements into the visual landscape that would be visible from SR 62, an Eligible State Scenic Highway (Caltrans, 2009). Incorporation of Mitigation Measures 3.1-1 and 3.1-2 would ensure that construction areas within the pipeline corridor would be restored to preconstruction conditions. Restoration of the construction corridor would reduce the temporary impact to less than significant level. The recharge basin (Recharge Basin Alternative 3), constructed as part of the Preferred Alternative, would not be visible from SR 62. The Preferred Alternative would require the removal of scenic resources, including Joshua trees; however, due to the location of the recharge basin, impacts on scenic vistas associated with this alternative would be less than significant with the incorporation of Mitigation Measures 3.1-1 and 3.1-2.

> ***Mitigation Measure 3.1-1:*** Following construction, JBWD shall restore disturbed areas along the pipeline corridor by reestablishing pre-existing conditions including topography

and vegetation if applicable along the edge of SR 62 in coordination with Caltrans and County requirements.

Mitigation Measure 3.1-2: JBWD shall establish a visual screen around the perimeter of the recharge basins using native, drought-tolerant vegetation.

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the Preferred Alternative.

No Project Alternative

Direct Effects: Under the No Project Alternative, no changes would occur at any of the alternative recharge basin locations and potential aesthetic changes relating to the replacement of existing site features would not occur. Features associated with the natural setting, including Joshua trees, would remain in place. As a result, the project site would continue in its existing form and existing visual character, and the aesthetic character of the project and vicinity would not be altered. The No Project Alternative would result in no impacts to aesthetic resources.

Indirect and Cumulative Effects: Implementation of the No Project Alternative would not result in direct or cumulative effects to aesthetic resources within the area.

Existing Demand Recharge Capacity Alternative

Direct Effects: The size of the recharge facility under this alternative would be smaller than the recharge facility constructed under the Preferred Alternative. Should Recharge Basin Alternative 3 be constructed as part of this alternative, impacts on aesthetic resources would be similar to the Preferred Alternative. The use of other recharge basin alternatives (Alternatives 1 and 2) would result in the basins being visible from SR 62, an Eligible State Scenic Highway, and could result in significant and unavoidable impacts to this scenic route.

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the Preferred Alternative.

Increased Recharge Capacity Alternative

Direct Effects: The Increased Recharge Capacity Alternative would include two to three recharge basins and/or one larger recharge basin constructed instead of one moderately sized recharge basin. Should Recharge Basin Alternative 3 be constructed as part of this alternative, impacts on aesthetic resources would be similar to the Preferred Alternative. The use of other recharge basin alternatives (Alternatives 1 and 2) would result in the basins being visible from SR 62, an Eligible State Scenic Highway, and could result in significant and unavoidable impacts to this scenic route.

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the Preferred Alternative.

4.18 Land Use and Zoning

A proposed action would result in a significant impact if it would:

- Physically divide an established community
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect
- Conflict with any applicable habitat conservation plan or natural community conservation plan
- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated
- Include recreation facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment

Preferred Alternative

Direct Effects: The proposed project is not located within an area subject to an adopted habitat conservation plan (HCP) or natural or an Area of Critical Environmental Concern. Therefore, there would be no impact.

The proposed project includes the construction of an underground water pipeline and a recharge basin facility. Construction of the pipeline would not divide an established community as it would be installed within the road right-of-way along Yucca Mesa Road and SR 62 and other local roadways and would be below ground. Though the recharge basins would be constructed on land designated for residential uses, the recharge basins would not create a physical barrier that would divide an established community, as they are surrounded by open space and there are few existing residences nearby. Also, the basins would serve the surrounding land uses, and therefore would be complementary in purpose. Impacts would be less than significant.

The recharge basins would be constructed on land within areas designated for residential uses by the County General Plan. The recharge basins are considered a compatible accessory public utility use that supports neighboring residential land uses. The pipeline would be installed within the road right-of-way. Construction within City streets would require encroachment permits from San Bernardino County. Once installed, the pipeline would be underground and would not be visible. Therefore, they would be compatible with existing overlying land uses. With the acquisition of easements and encroachment permits, land use impacts would be less than significant.

The recharge basin (Recharge Basin Alternative 3), constructed as part of the Preferred Alternative, would be located adjacent to the Community Center. The proposed project would also be located approximately five miles from the west entrance to Joshua Tree National Park. However, the Preferred Alternative would not result in unplanned population growth, which could increase use of recreational facilities beyond what is anticipated, and result in accelerated deterioration of these facilities. This alternative would not result in the construction or expansion

of any recreational facilities. Additionally, it would not traverse planned bikeways as there are currently no bikeways designated by the Joshua Tree Community Plan. Impacts on recreational facilities would be less than significant.

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the Preferred Alternative.

No Project Alternative

Direct Effects: Under the No Project Alternative, no development would occur and the project location would remain as vacant open space. Because the No Project Alternative would not involve the removal of Joshua trees, it would not conflict with an applicable land use plan, including the County Plant Protection Ordinance. Therefore, the No Project Alternative would result in fewer impacts overall related to land use than the Preferred Alternative.

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the No Project Alternative.

Existing Demand Recharge Capacity Alternative

Direct Effects: Like the Preferred Alternative, the Existing Demand Recharge Capacity Alternative would involve the removal of Joshua trees, which could conflict with the County Plant Protection Ordinance. This alternative would not result in any further impacts to agricultural or recreational resources or to land use. Overall, this alternative would result in similar impacts to land use, agriculture and recreation as the Preferred Alternative.

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the Existing Demand Recharge Capacity Alternative.

Increased Recharge Capacity Alternative

Direct Effects: The Increased Recharge Capacity Alternative would involve the removal of Joshua trees, which could conflict with the County Plant Protection Ordinance. This alternative would not result in any further impacts to agricultural or recreational resources or to land use. Overall, this alternative would result in similar impacts to land use, agriculture and recreation as the Preferred Alternative.

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the Increased Recharge Capacity Alternative.

4.19 Socioeconomic Impacts

Disproportionate Effects on Minority and Low-income Populations

This resource is not present. Construction of the proposed project is needed to alleviate the overdraft condition, replenish the groundwater basin to offset historic over-drafting, and increase

water supply reliability for the region. Therefore, the proposed project is designed to increase water supply reliability for all residents of the Joshua Tree Community. The proposed project would not disproportionately impact minority or low income groups within the study area. All demographic groups within Joshua Tree would face the same impacts, including air quality, visual and traffic impacts.

To ensure full and fair participation by all affected communities, the EIR was made available to the public and governmental agencies to provide information about the potential adverse effects on the local and regional environment associated with construction and operation of the proposed project. The EIR provides the interested parties information from which to make an informed decision.

Opportunities for Disproportionate Groups to Comment on the ER and NEPA Process

No minority or low-income populations would be adversely affected by the project. To ensure full and fair participation by all affected communities, the JBWD prepared and circulated an EIR that provided the public and governmental agencies information about the potential adverse effects on the local and regional environment associated with construction and operation of the Recharge Basin and Pipeline Project (proposed project). There would be no disproportionate impacts to minority or low income groups within the study area; therefore, no mitigation is required. For additional analysis of environmental justice impacts associated with the proposed project, please refer to Section 4.24, Environmental Justice Considerations.

4.20 Utilities

A proposed action would result in a significant impact if it would:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered 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 public services:
  - Fire protection;
  - Police protection;
  - Schools; and
  - Other public facilities.
- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board;
- 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 environmental effects;
- Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- Require new or expanded water supply resources or entitlements;

- Result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the projects projected demand in addition to the provider's existing commitments;
- Be served by a landfill with insufficient permitted capacity to accommodate the project solid waste disposal needs;
- Not comply with federal, state, and local statutes and regulations related to solid waste; or
- Effect local and regional energy supplies such that additional electrical capacity is required.

Preferred Alternative

Direct Effects: This alternative would not increase the need for any public services within the vicinity of the project site. Because the project would generate neither employment opportunities nor increase pedestrian and vehicle traffic to the site, expanded police and fire services would not be required. Further, no additional schools, parks, hospitals or other public facilities would be needed as the project would not induce population growth to the region. Thus, the project would have no impact to these public services, and these topics are not discussed further.

This alternative would import and channel water into a recharge basin and would not require the construction of new treatment facilities. The proposed project would improve water delivery reliability. No wastewater treatment requirements of the Colorado River Regional Water Quality Control Board would be violated and no storm drainage or wastewater treatment facilities would need to be constructed.

The Landers Sanitary Landfill has sufficient permitted capacity to handle the project's solid waste disposal needs. In addition, the project would comply with all federal, state, and local statutes related to solid waste.

Proposed construction activities would require connections to existing power sources, which would slightly increase short-term electricity demand during the nine to 12-month construction period. Water would be delivered to the recharge basin from the SWP, by gravity. Long-term electricity demand would remain unchanged. The Preferred Alternative would result in a less than significant increase in electricity demand.

Construction activities associated with both the pipeline and recharge basin could disrupt utility services within the vicinity of the project area. During the trenching, jack and bore tunneling, and excavation phases of pipeline and recharge basin construction, utility disruptions could occur in areas where project components run parallel to, cross under or over, or are situated adjacent to existing utility service lines. In most cases, impacts to local utilities and services involve a temporary disruption that would not exceed one day. All utility lines and cables that could be disrupted during excavation activities would be identified during preliminary design. Utilities would be avoided or rerouted during construction to maintain services. The excavator would be required to contact a regional notification center (e.g., Underground Services Alert or Dig Alert) at least two days prior to excavation of any subsurface installations. Impacts would be less than significant.

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the Increased Recharge Capacity Alternative.

No Project Alternative

Direct Effects: Under the No Project Alternative, no construction activities that would result in increased energy demand or potential encounters with buried utilities would occur. However, the No Project Alternative would also not result in the beneficial impacts associated with the proposed project, including importation of SWP water, which would recharge the Joshua Tree sub-basin and help stabilize water supply within the region. Therefore, the No Project Alternative would result in greater impacts associated with public services and utilities than the Prefered Alternative.

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the No Project Alternative.

Existing Demand Recharge Capacity Alternative

Direct Effects*:* The Existing Demand Recharge Capacity Alternative would slightly increase energy usage at the project site during construction activities. In addition, construction of the pipeline under this alternative has the potential to encounter buried utilities. However, this alternative would have the beneficial impact on water supply by assuring a more reliable water supply for the region's existing customers. However, it would not result in the replacement of groundwater that has been overdrawn. Overall, impacts on public services and utilities associated with this alternative would be similar to those of the Preferred Alternative.

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the Existing Demand Recharge Capacity Alternative.

Increased Recharge Capacity Alternative

Direct Effects: The Increased Recharge Capacity Alternative would slightly increase energy usage at the project site during construction activities. In addition, construction of the pipeline under this alternative has the potential to encounter buried utilities. However, this alternative would have the beneficial impacts on water supply as the Preferred Alternative, including groundwater recharge as well as providing a reliable water supply for future use. Therefore, impacts on public services and utilities associated with this alternative would be similar to those of the Preferred Alternative.

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the Increased Recharge Capacity Alternative.

4.21 Transportation and Access

A proposed action that would cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system is considered to have a significant impact on the environment. The action is also considered to have a potentially significant impact if:

- Traffic generated by construction workers and construction vehicular activities substantially affects roadway traffic flow, especially during peak traffic hours;
- Construction activities pose a traffic safety hazard to motor vehicles, bicyclists, or pedestrians;
- Construction substantially affects parking availability, causing traffic safety/operational problems;
- Construction activities significantly affect local transit service;
- Movement of heavy vehicles causes substantial damage or wear of public roadways; or
- Construction activities affect air traffic patterns and result in substantial safety risks.

Preferred Alternative

Direct Effects: The Preferred Alternative would result in a slight increase of a few vehicle trips per day to provide maintenance on the pipeline and recharge basin. However, this minimal increase would not cause any long-term traffic effects and, once completed, the upgraded pipeline and recharge basin would not employ additional workers and would not need to construct new parking facilities. Therefore, the potential significant impacts would be limited to the period of time needed to construct the project. Mitigation measures for traffic-related impacts focus on reducing the short-term construction effects.

The following is a discussion of the potential effects of the Preferred Alternative on traffic and circulation.

LOS Standard

LOS standards for roadways that are part of the San Bernardino County CMP network are intended to regulate long-term traffic increases resulting from the operation of new development, and do not apply to temporary construction projects. The CMP's LOS standard requires that all CMP segments operate at LOS E or better. Further, the Joshua Tree Community Plan includes a policy ensuring that all new development proposals do not degrade LOS on State Routes and Major Arterials below LOS C. Local roadways within the vicinity of the project site all have A or B LOS ratings, and SR 62 – a regional roadway – has an LOS rating of C. Since the operation of the project would result in a negligible amount of a few maintenance trips per day, the minimal increase would not affect LOS standards relative to existing traffic conditions on roads within the vicinity of the project. Therefore, no impact would result and these effects are not discussed further.

Air Traffic

There are no aviation facilities on or near this alternative. The construction and operation of this alternative would have no effect on air traffic patterns, levels, or locations.

Alternative Transportation

There are no bus stops, sidewalks, or bike routes located immediately adjacent to the project site; thus, the project will not conflict with any plans or policies supporting alternative transportation. Therefore, no impact would result and these effects are not discussed further.

Traffic Load, Parking Capacity, and Emergency Access

Construction of the water recharge basin(s) and connecting pipeline would result in temporary disruption of traffic due to truck movements to and from the project area during activities associated with project construction. Construction related traffic would cause a temporary and intermittent lessening of the capacities of access streets and haul routes because of the slower movements and turning radii of construction trucks compared to personal vehicles. Installation of the pipeline within the existing roadway right-of-way is not anticipated to cause road closures, although traffic control would be necessary.

Construction activities are anticipated to generate approximately 250 trips per day on local and regional roadways. This accounts for approximately 50 worker commute trips (assumes 25 workers), 50 delivery truck trips per day, and 150 round trip truck loads for soil excavation. Deliveries would include pipeline and equipment deliveries. At this time, it is anticipated that 175,000 cubic yards (cy) of soil would be hauled from the recharge basin site. Assuming truck capacity of 25 cy and 150 truck loads per day, it should take no more than six months to export the entire 175,000 cy of cut. Construction equipment used for the proposed project would include bulldozers, excavators, scrapers, cranes, rollers, dump trucks, concrete trucks, pre-stressing equipment, construction delivery tractor-trailers, backhoes, shoring equipment, haul trucks, and traffic control devices.

Prior to pipeline and recharge basin construction, staging areas would be prepared for materials delivery, storage, and preparation prior to construction. Staging areas would be identified by the contractor(s) and established in areas near construction zones that are easily accessible. The construction of the staging area would increase construction worker and truck trips along regional and local roads near the staging areas. Project impacts would be less than significant after implementation of Mitigation Measures 3.11-1a and 3.11-1b from the Draft EIR and Mitigation Measure 3.11-1c from the Final EIR.

> ***Measure 3.11-1a:*** JBWD shall obtain the necessary road encroachment permits prior to construction and shall comply with the applicable conditions of approval. Road encroachment permits may be necessary on SR 62 and Yucca Mesa Road.
>
> ***Measure 3.11-1b:*** JBWD shall require the contractor(s) to prepare a Traffic Control Plan in accordance with professional engineering standards prior to construction. The Traffic Control Plan could include the following requirements:
>
> - Access for local land uses including residential driveways, commercial properties, and agricultural lands shall be maintained during construction activities.
> - Emergency services access to local land uses shall be maintained at all times for the duration of construction activities. Local emergency service providers will be informed of road closures and detours.
>
> ***Measure 3.11-1c:*** JBWD shall monitor road-wear resulting from construction vehicle trips on side roads and will repair roadways to their original condition consistent with County road standards following construction.

Indirect and Cumulative Effects: The geographic scope of this impact area lies within the community of Joshua Tree in southern San Bernardino County. The roadway network on which construction workers and construction vehicles (including trucks that would transport equipment and material to and from the worksite) would travel to access the site consists of regional highways and local roadways.

As described above, this alternative would result in short-term increases in vehicle trips, reduced access to and parking at adjacent land uses, increased potential for traffic safety conflicts, and increased wear-and-tear on designated haul routes. While the project impacts would be reduced to a less-than-significant level with implementation of proposed mitigation measures listed above, the project could contribute to cumulative traffic and circulation impacts when considered in combination with area projects.

Potential cumulative traffic impacts could occur as a result of: (1) projects that would generate increased traffic at the same time on the same roads as the proposed project, causing increased congestion and delays, and (2) infrastructure projects in roads that would be used by the construction workers and trucks, which could delay project-generated vehicles traveling past the work zones of the other projects. In addition to cumulative (additive) effects on traffic flow conditions, this alternative and other cumulative projects would extend the period of time when there would be disruptions (albeit not all disruptions would be significant) to traffic flow on area roadways.

The Preferred Alternative would not add a significant number of truck trips to local roadways. Most of the truck trips would occur within the Joshua Tree vicinity. JBWD would coordinate with the surrounding jurisdictions and with other utility districts and agencies regarding the timing of construction projects that would occur near the recharge basin and pipeline project. Such coordination would help to minimize multiple disruptions in the same areas. JBWD would also submit plans related to, and comply with the requirements of, encroachment permits with local jurisdictions, which would provide further opportunities to coordinate multiple projects. Specific measures to mitigate significant impacts would be determined as part of the interagency coordination.

No Project Alternative

Direct Effects: Under the No Project Alternative, there would be no temporary disruptions of traffic in the project area due to construction activities. In addition, the increased demand on parking spaces for construction worker vehicles would also not occur. Therefore, the No Project Alternative would result in fewer impacts related to traffic and circulation than the Preferred Alternative.

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the No Project Alternative.

Existing Demand Recharge Capacity Alternative

Direct Effects: During construction activities, the Existing Demand Recharge Capacity Alternative could result in temporary traffic disruptions, including increased truck traffic and potential lane closures along SR 62 for pipeline construction. In addition, this alternative would result in an increased demand for parking of worker vehicles during construction. This alternative would result in similar impacts to traffic and circulation as the Preferred Alternative.

Indirect and Cumulative Effects: Indirect and cumulative effects from the Existing Demand Recharge Capacity Alternative would be similar to those of the Preferred Alternative.

Increased Recharge Capacity Alternative

Direct Effects: During construction activities, the Increased Recharge Capacity Alternative could result in temporary traffic disruptions, including increased truck traffic and potential lane closures along SR 62 for pipeline construction. In addition, this alternative would result in an increased demand for parking of worker vehicles during construction. Overall, this alternative would result in similar impacts to traffic and circulation as the Preferred Alternative.

Indirect and Cumulative Effects: Indirect and cumulative effects from the Increased Recharge Capacity Alternative would be similar to those of the Preferred Alternative.

4.22 Climate

GHG and Global Climate Change

As with other individual and relatively small projects (i.e., projects that are not cement plants, oil refineries, electric generating facilities/providers, co-generation facilities, or hydrogen plants or other stationary combustion sources that emit more than 25,000 metric tons/year of CO_2e), the specific emissions from this project would not be expected to individually have an impact on global climate change (AEP, 2007). Furthermore, GHG impacts are considered to be exclusively cumulative impacts (CAPCOA, 2008).

Three types of analyses are used to determining whether the project could be in conflict with the State goals for reducing GHG emissions. The analyses are as follows:

A. Any potential conflicts with the ARB's nine (9) discrete early action strategies.

B. The relative size of the project. The project's GHG emissions will be compared to the size of major facilities that are required to report GHG emissions (25,000 metric tons/year of CO_2e)[11] to the state; and the project size will be compared to the estimated greenhouse reduction state goal of 174 million metric tons per year of CO_2e emissions by 2020. As noted above, the 25,000 metric ton annual limit identifies the large stationary point sources in California that make up approximately 94 percent of the stationary emissions. If the

[11] The State of California has not provided guidance as to quantitative significance thresholds for assessing the impact of greenhouse gas emissions on climate change and global warming concerns. Nothing in the *CEQA Guidelines* directly addresses this issue.

project's total emissions are well below this limit, its total emissions are equivalent in size to the smaller projects in California that as a group only make up 6 percent of all stationary emissions. It is assumed that the activities of these smaller projects generally would not conflict with State's ability to reach AB 32 overall goals. In reaching its goals, the ARB will focus upon the largest emitters of GHG emissions.

C. The basic energy efficiency parameters of a project to determine whether its design is inherently energy efficient.

With regard to Item A, the project correlates with the List of Recommended Actions by Sector W-1, water use efficiency to help reduce GHGs to meet the long-term 2050 goal of reducing California's GHG emissions to below 1990 levels and, therefore, would not conflict with the ARB's early action strategies.

With regard to Item B, project construction GHG emissions would be approximately 641 tons/year CO_2 for both Alternative 1 and Alternative 3; Alternative 2 emissions would be approximately 520 tons/year of CO_2. Operations would be minimal (limited to a few employee trips for inspection, maintenance, and cleaning of the ponds once a year). These minimal operations would result in a less than significant increase in CO_2 emissions.

With regard to Item C, the project would provide additional groundwater recharge, storage, and recovery capacity in the Joshua Basin region, allow the storage of water during wet hydrologic periods for recovery and use during dry periods to provide JBWD customers with increased water supply reliability, and reduce the demand for local groundwater. The water is conveyed in the Morongo Basin Pipeline through the proposed pipeline extension to the recharge basins using gravity. No additional pump stations or energy requirements would be needed to implement the project. Therefore, the project would be energy efficient.

The review of Items A, B, and C indicate that the project would not conflict with the State goals in AB 32 and therefore this impact would be less than significant.

Indirect and Cumulative Effects:

Construction emissions would temporarily contribute carbon dioxide (CO_2) emissions from vehicle exhaust that could contribute to the cumulative emissions of greenhouse gases that are suspected of contributing to global warming. The emissions would be small and considered less than significant based on local thresholds of significance; therefore, the contribution to a global warming effect by this alternative is considered negligible.

No Project Alternative

Direct Effects: The No Project Alternative would not involve any construction or operational activities at the project locations. Therefore, air quality impacts associated with construction activities would not occur under this alternative and odors that may result as part of operational activities would not occur. The No Project Alternative would result in no impacts on air quality, and therefore, would result in fewer impacts related to air quality than the Preferred Alternative.

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the No Project Alternative.

Existing Demand Recharge Capacity Alternative

Direct Effects: This alternative would result in a smaller recharge facility than that Preferred Alternative. This alternative would require less ground-disturbing activities and fewer haul trips than would be required under the Preferred Alternative due to the smaller facility size. Therefore, air quality impacts associated with construction activities would be less than those of the Preferred Alternative. Impacts related to odor could be similar as those of the Preferred Alternative; however, these ponds would be maintained such that odor should not result in adverse impacts to nearby sensitive resources. Overall, the Existing Demand Recharge Capacity Alternative would result in fewer air quality impacts than the Preferred Alternative.

Indirect and Cumulative Effects: Indirect and cumulative effects of the Existing Demand Recharge Capacity Alternative would be similar to that of the Preferred Alternative.

Increased Recharge Capacity Alternative

Direct Effects: Because the Increased Recharge Capacity Alternative would result in one larger recharge facility or multiple recharge facilities, air quality impacts associated with construction activities would be greater due to the greater number of truck trips that would be involved and the greater amount of ground disturbing activities that would be required. In addition, the potential for odor generation that may result as part of operational activities would be greater due to the larger number of recharge basins. Therefore, the Increased Recharge Capacity Alternative would result in greater impacts on air quality than the Preferred Alternative.

Indirect and Cumulative Effects: Indirect and cumulative effects of the Increased Recharge Capacity Alternative would be similar to that of the Preferred Alternative.

4.23 Noise Considerations

A proposed action would have a significant effect on the environment with respect to noise and/or ground-borne vibration if it would result in:

- 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;
- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;
- Exposure of people residing or working in the project area to excessive noise levels (for a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport);

- Exposure of people residing or working in the project area to excessive noise levels (for a project within the vicinity of a private airstrip); or
- Exposure of persons to, or generation of, excessive ground-borne vibration or ground-borne noise levels.

Preferred Alternative

Direct Effects: Construction activity noise levels at and near the construction areas would fluctuate depending on the particular type, number, and duration of uses of various pieces of construction equipment. Construction-related material haul trips would raise ambient noise levels along haul routes, depending on the number of haul trips made and types of vehicles used. **Table 4.23-1** shows typical noise levels during different construction stages. **Table 4.23-2** shows typical noise levels produced by various types of construction equipment.

Noise from construction activities generally attenuates at a rate of 6 to 7.5 dBA per doubling distance. Based on the proposed project site layout and terrain, an attenuation of 6 dBA will be assumed.

Recharge Basin Alternative 3 (Preferred Alternative)

The nearest sensitive receptors to Recharge Basin Alternative 3 are multifamily residential units approximately 50 feet from construction activities. Table 4.23-2 shows noise associated with excavation, the loudest of construction activities that would occur, is 89 dBA at 50 feet. These

TABLE 4.23-1
TYPICAL CONSTRUCTION NOISE LEVELS

Construction Phase	Noise Level (dBA, Leq)[a]
Ground Clearing	84
Excavation	89
Foundations	78
Erection	85
Finishing	89

[a] Average noise levels correspond to a distance of 50 feet from the noisiest piece of equipment associated with a given phase of construction and 200 feet from the rest of the equipment associated with that phase.

SOURCE: U.S. Environmental Protection Agency, Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances, 1971.

TABLE 4.23-2
TYPICAL NOISE LEVELS FROM CONSTRUCTION EQUIPMENT

Construction Equipment	Noise Level (dBA, Leq at 50 feet)
Dump Truck	88
Portable Air Compressor	81
Concrete Mixer (Truck)	85
Scraper	88
Jack Hammer	88
Dozer	87
Paver	89

Construction Equipment	Noise Level (dBA, Leq at 50 feet)
Generator	76
Pile Driver	101
Backhoe	85

SOURCE: Cunniff, Environmental Noise Pollution, 1977.

noise levels would attenuate by distance to the nearest residence to approximately 89 dBA Leq during excavation.

Pipeline

The nearest sensitive receptor to pipeline construction is a single-family home on Yucca Mesa Road located approximately 100 feet from construction activities. Table 4.23-1 shows noise associated with excavation, the loudest of construction activities that would occur, is 89 dBA at 50 feet. These noise levels would attenuate by distance to the nearest residence to approximately 83 dBA Leq during excavation.

Construction noise at these levels would be substantially greater than existing noise levels at nearby sensitive receptor locations. Since the construction activities would occur during day time hours only, and would be temporary in nature, they would not be considered significant increases in ambient noise levels. Furthermore, construction activities would comply with the County Noise Ordinance that limits construction to the hours between 7:00 AM and 7:00 PM, Monday through Saturday, and prohibits work on Sundays and federal holidays. Therefore, impacts would be less than significant and no mitigation would be required.

As shown in **Table 4.23-3** below, use of heavy equipment during construction generates vibration levels of up to 0.089 peak particle velocity (PPV) or 87 root mean square (RMS) (caisson drilling) at a distance of 25 feet. Construction of the proposed project may require jack and bore drilling depending on the local geology and locations. The proposed pipeline could get as close as 100 feet from sensitive receptors and if drilling is needed at those areas, sensitive receptors would potentially be exposed to approximately 0.01 PPV and 69 RMS. Vibration levels at these receptors would below the potential building damage threshold of 0.2 PPV and the annoyance threshold of 80 RMS. Therefore this impact would be considered a less than significant impact without mitigation.

TABLE 4.23-3
VIBRATION VELOCITIES FOR CONSTRUCTION EQUIPMENT

Construction Equipment	PPV at 25 feet (inches/second)[a]	RMS at 25 feet (VDB)[b]
Loaded Trucks	0.076	86
Caisson Drilling	0.089	87
Jackhammer	0.035	79

a. Buildings can be exposed to ground-borne vibration levels of 0.2 PPV without experiencing structural damage.
b. The human annoyance response level is 80 RMS.

SOURCE: Federal Transit Administration, Transit Noise and Vibration Impact Assessment, May 2006.

The Preferred Alternative would not involve construction of any new facilities that would generate operational noise (e.g., pumps, transformers, emergency generators, etc.). Therefore, operation is not expected to increase ambient noise levels in the vicinity. Maintenance would require cleaning of the ponds once a year. However, this is so infrequent that it would result in a less-than-significant operational noise impact.

Traffic generated by the Preferred Alternative would be infrequent. Only a few daily vehicle trips would be expected for routine inspection and maintenance. These vehicle trips would have a negligible effect on the ambient noise environment along the roadway network. Therefore, noise from the additional project-related traffic would be a less than significant impact and no mitigation would be required.

Indirect and Cumulative Effects: The primary source of noise in rural, residential areas such as the project site is roadway traffic. Construction of this alternative would generate noise that is different from typical background noise in the project area. Related projects in the surrounding area would also temporarily generate noise associated with construction activities. Construction noise impacts would be localized, affecting areas in the immediate vicinity of the construction site. The closest sensitive receptors to the project site are multifamily residential units located 50 feet away from Recharge Basin Alternative 3, and would not be subjected to noise levels that exceed acceptable levels per the San Bernardino County Noise Element. In addition, construction and maintenance noise would occur only during daytime hours in accordance with the County Noise Ordinance. Therefore, the Preferred Alternative would not contribute significantly to cumulative ambient noise conditions.

No Project Alternative

Direct Effects: The No Project Alternative would not involve any construction activities, such as haul trips, site clearing, or jack-and-bore tunneling that could result in noise impacts on nearby sensitive uses. Therefore, the No Project Alternative would result in fewer impacts related to noise than the Preferred Alternative.

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the No Project Alternative.

Existing Demand Recharge Capacity Alternative

Direct Effects: Under the Existing Demand Recharge Capacity Alternative, construction activities related to site clearing would result in noise impacts on nearby sensitive receptors. In addition, ground-bourne vibration may impact nearby sensitive receptors during construction of the pipeline due to potential jack-and-bore tunneling activities. Operation of the recharge basins under this alternative is not expected to increase ambient noise levels in the area. Overall, noise impacts under this alternative would be similar to those that would occur under the Preferred Alternative.

Indirect and Cumulative Effects: Indirect and cumulative effects from the Existing Demand Recharge Capacity Alternative would be similar to the Preferred Alternative.

Increased Recharge Capacity Alternative

Direct Effects: Under the Increased Recharge Capacity Alternative, construction activities related to site clearing activities would result in noise impacts on nearby sensitive receptors. In addition, ground-bourne vibration may impact nearby sensitive receptors during construction of the pipeline due to potential jack-and-bore tunneling activities. Operation of the recharge basins under this alternative is not expected to increase ambient noise levels in the area. Overall, noise impacts under this alternative would be similar to those that would occur under the Preferred Alternative.

Indirect and Cumulative Effects: Indirect and cumulative effects from the Increased Recharge Capacity Alternative would be similar to the Preferred Alternative.

4.24 Environmental Justice Considerations

To meet Environmental Justice goals, a proposed action must:

- Avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority and low-income populations.
- Ensure the full and fair participation by all potentially affected communities in the decision making process.
- Prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

Preferred Alternative

Direct Effects: Construction of the Preferred Alternative is needed to alleviate the overdraft condition, replenish the groundwater basin to offset historic over-drafting, and increase water supply reliability for the region. Therefore, the Preferred Alternative is designed to increase water supply reliability for all residents of the Joshua Tree Community. There would be no disproportionate impacts to minority or low income groups within the study area, as all demographic groups within Joshua Tree would face the same impacts, including air quality, visual, and traffic impacts.

To ensure full and fair participation by all affected communities, the Joshua Basin Water District (JBWD) prepared a Draft Environmental Impact Report (Draft EIR) to provide the public and governmental agencies information about the potential adverse effects on the local and regional environment associated with construction and operation of the Recharge Basin and Pipeline Project (proposed project). This EA also provides the public and governmental agencies information from which to make an informed decision.

The Preferred Alternative would result in temporary impacts to the transportation system within the Joshua Tree Community as the pipeline is constructed under SR-62 and permanent visual and biological impacts from the construction of the recharge basins. However, the adverse environmental impacts would affect all residents of Joshua Tree similarly; there would not be a disproportionate impact to minority or low-income residents. Also, the benefit from water supply reliability and replenished groundwater would affect all residents of Joshua Tree similarly; there would not be a reduction in or significant delay in the receipt of benefits by minority or low-income populations.

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the Preferred Alternative.

No Project Alternative

Direct Effects: Under the No Project Alternative, no changes would occur at any of the alternative recharge basin locations. There would be no impacts to minority or low income groups within the study area.

Indirect and Cumulative Effects: Implementation of the No Project Alternative would not result in direct or cumulative effects to minority or low income groups within the area.

Existing Demand Recharge Capacity Alternative

Direct Effects: The size of the recharge facility under this alternative would be smaller than the recharge facility constructed under the Preferred Alternative. Like the Preferred Alternative, the Existing Demand Recharge Capacity Alternative would not disproportionately affect low-income or minority groups within the Joshua Tree Community. All residents of the project area would be affected similarly.

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the Existing Demand Recharge Capacity Alternative.

Increased Recharge Capacity Alternative

Direct Effects: The Increased Recharge Capacity Alternative would include two to three recharge basins and/or one larger recharge basin constructed instead of one moderately sized recharge basin. Like the Preferred Alternative, the Increased Recharge Capacity Alternative would not disproportionately affect low-income or minority groups within the Joshua Tree Community. All residents of the project area would be affected similarly.

Indirect and Cumulative Effects: There would be no indirect or cumulative effects associated with the implementation of the Increased Recharge Capacity Alternative.

4.25 Tribal Issues

Impacts related to tribal issues are discussed under Section 4.13, Environmental Sensitive Areas, and Section 4.16, Historical, Architectural, Archaeological, and Cultural Sites.

4.26 Energy Use

Impacts related to energy are discussed under Section 4.20, Utilities, and Section 4.22, Climate.

4.27 Water Use

As discussed in Sections 1 and 2 of this EA, the proposed project would provide additional groundwater recharge, storage, and recovery capacity in the Joshua Basin. Potable water for the community of Joshua Tree area is supplied entirely by groundwater. Recent studies conducted by the U.S. Geological Survey (USGS) in 2003-04 have concluded that about 1,600 acre-feet per year (afy) of groundwater is pumped from the basins. With an inflow estimated at approximately 1,200 afy, the Joshua Tree Sub-basin is currently overdrafted each year by approximately 400 af (GEI, 2009). Future water demand is projected to increase over the next 25 years, which will cause further overdraft. Providing a source of imported water is necessary to alleviate the overdraft condition, replenish the groundwater basin to offset historic over-drafting, and increase water supply reliability for the region.

Currently, JBWD has an agreement in place with MWA in which JBWD is entitled to 1,959 afy of SWP water until the year 2022 delivered by the Morongo Pipeline. The proposed project would enable JBWD to receive water entitled under this agreement. The project would not increase the water usage in the Basin; rather it would alleviate the groundwater overdraft condition. For additional information about water-related impacts, please refer to Section 4.11, Groundwater Resources

4.28 Summary of Impacts

A comprehensive summary of project impacts as well as mitigation measures designed to minimize these impacts can be found in the Executive Summary of the Draft EIR (see Table ES-1).

4.29 Project Benefits

The proposed action would include beneficial impacts related to hydrology, water quality and groundwater, including improved water quality due to the dilution of existing nitrate concentrations and increased water supply. The proposed action is intended to provide for more sustainable management of the groundwater basins. Currently, the Joshua Tree and Copper Mountain subbasins are in a state of overdraft. Implementation of the Preferred Alternative would reduce or eliminate overdraft conditions by providing for additional recharge to the basins. Therefore, this alternative would be beneficial to groundwater supplies and would not result in a lowering of the groundwater table. Furthermore, since SWP has low levels of nitrates, recharging the groundwater with SWP water will benefit water quality by providing some dilution of existing groundwater nitrate concentrations.

4.30 Short-Term Use of the Environment versus Long-Term Productivity

Any alternative would involve short-term and long-term tradeoffs. The fiscal goal of any project of this nature is that the ultimate benefit should justify the initial expenditure. In the context of this discussion, "short-term" refers to the immediate direct consequences of the project while "long-term" refers to its direct or indirect effects on future generations.

Short-term consequences to the environment resulting from the alternatives are discussed throughout this section, and could include:

- Temporary air, noise, water quality and soil erosion caused by construction
- Removal of selected Joshua trees, considered a visual resource
- Disturbance to homes and businesses in the area because of construction
- Conversion of open space to groundwater recharge usage

Long-term benefits which may be realized from the proposed action are discussed in Section1, Purpose and Need, and Section 2, Analysis of Alternatives. These long-term benefits would include:

- Prevent historic overdraft of groundwater
- Increase water supply reliability
- Reduce demand for local groundwater
- Provide additional groundwater recharge, storage, and recovery capacity in the Joshua Basin region

4.31 Irreversible and Irretrievable Commitment of Resources

The irreversible commitment of resources is the use of non-renewable resources including fossil fuels, manufactured structural materials, and land converted to long term business and industrial use. The proposed site and facilities and the energy required to build and operate the facilities represent irreversible commitments of resources. Irretrievable commitments of resources cause the lost production or use of renewable resources such as timber, rangeland, or wildlife habitat.

Implementation of the proposed action would result in the commitment of natural and man-made resources to the construction and operation of the JBWD recharge basin and pipeline. The primary commitment of resources would come from the construction phase, but there would be some commitment of resources for operation of the proposed action. For this project, irretrievable commitments of resources include the following:

Construction Materials and Labor

Human effort would be irretrievably committed during the planning, construction, and operation phases of the project. The commitment of time and available labor in the construction of the proposed action would represent an irretrievable commitment of resources.

If the proposed action is implemented, the pipeline would require 24,000 linear feet of 16- to 24-inch diameter pipe. Approximately 175,000 cubic yards of earthwork would be generated from construction of the recharge basin and would need to be disposed of or sold for re-use. The basins would fill by gravity, and while no pumping equipment would be needed, control valves would be used to add water to the subbasins, if necessary. These valves would be placed within a small building that would be constructed on-site.

Land Resources

The pipeline would be installed predominantly within road rights-of-way and would be buried underground. Construction of the recharge basin would require permanent alterations in topography and the commitment of approximately 29 acres. The recharge basin site could be re-graded and filled if the project were abandoned.

Water Resources

Water that would be sprayed on the basins to prevent dust during scarification would represent a minor irretrievable commitment of resources. The water discharged into the recharge basins would be available for use and does not therefore represent irretrievable commitment of resources. This additional recharge capacity would help replace water that has not been restored to the groundwater supply due to many years of overdraft and would ensure that the overdraft condition would not continue into the future.

Energy Resources

Construction of the proposed action would require connections to existing power sources, which would result in a short-term irretrievable commitment of electricity during the nine to 12-month construction period. All construction activities associated with the proposed action would consume fuel, mostly in the form of diesel. This would be an irreversible use of nonrenewable fossil fuels.

Biological Resources

The recharge basin would be irreversibly removed from natural habitat for the life of the proposed project, and the disturbances of areas for temporary construction activity could result in changes that would be irreversible over the long term. The permanent conversion of vegetation resources and wildlife habitat at the recharge basin could represent an irreversible commitment of biological resources unless the area is restored following abandonment, or if former vegetation cover and composition did not recover. Losses of wildlife during pipeline construction or recharge basin construction and operation would represent an irretrievable commitment of biological resources, although mitigation measures have been incorporated into this document to

minimize the incidence of wildlife mortality.. Impacts to Waters of the State from construction of the project could represent an irreversible commitment of resources unless these resources are restored following abandonment of the project.

Cultural Resources

While mitigation measures designed to prevent losses of historic, cultural, and paleontological resources, losses of such resources during construction would be irreversible.

Financial Resources

The commitment of financial resources to the construction and operation of the recharge and pipeline project would be irretrievable.

CHAPTER 5
Cumulative Impacts

The combined, incremental effects of human activity, referred to as cumulative impacts, pose a serious threat to the environment. While they may be insignificant by themselves, cumulative impacts accumulate over time, from one or more sources, and can result in the degradation of important resources.

Cumulative impacts result when the effects of an action are added to or interact with other effects in a particular place and within a particular time. It is the combination of these effects, and any resulting environmental degradation, that should be the focus of cumulative impact analysis. While impacts can be differentiated by direct, indirect, and cumulative, the concept of cumulative impacts takes into account all disturbances since cumulative impacts result in the compounding of the effects of all actions over time.

5.1 Related Projects

Cumulative impacts are assessed for related project within a similar geographic area. This geographic area may vary, depending upon the issue area discussed and the geographic extent of the potential impact. For example the geographic area associated with construction noise impacts is limited to areas directly adjacent to construction sites, whereas the geographic area that is affected by construction-related air emissions may include the larger airshed. Construction impacts associated with increased noise, dust, erosion, and access limitations tend to be localized and could be exacerbated if other development or improvement projects are occurring within the same or adjacent locations as the proposed project.

Geographically, the proposed project is located in southern San Bernardino County within the community of Joshua Tree, approximately 5 miles east of Yucca Valley and 14 miles west of Twentynine Palms. For the purposes of this analysis, related projects within a five-mile radius around the project site were considered when evaluating potential cumulative impacts due to construction of the proposed project. These projects are listed in **Table 5-1**.

The projects considered in this analysis include those that have recently been completed, are currently under construction, or are in planning. Although the timing of the future projects described are likely to fluctuate due to schedule changes or other unknown factors, this analysis assumes these projects would be implemented concurrently with construction of the JBWD Recharge Basin and Pipeline Project, between 2010 and 2011.

TABLE 5-1
PLANNED AND APPROVED PROJECTS IN THE PROJECT AREA

Planning Jurisdiction	Project	Location
Joshua Tree	(A)Planned development for a 260 lot residential development including two detention basins, a sewer treatment plant and a community center on 105 acres. (B) Tentative tract map 18255 to create 260 numbered lots and 39 letter lots on 105 acres.	Extending between Alta Loma Drive and Sunburst Road; West side of Sunny Vista Road
Joshua Tree	Merge three parcels on 1.37 acres.	Northeast corner of Commercial Street and Reposo Street
Caltrans Joshua Tree	Widen SR 62 and install continuous two-way left turn lanes and standard shoulders.	SR 62 between Sunny Vista Road and Hallee Road
Caltrans Joshua Tree	Pavement repair.	SR 62 between Elwood Street and Mantonya Road

SOURCES: San Bernardino County, Applications, January 2009; Caltrans, District 8, Joshua Tree Projects.

As described in Chapter 4 of this EA, the majority of impacts associated with implementation of the proposed project are short-term and related to construction rather than long-term project operation. Therefore, the project could contribute to cumulative effects when considered in combination with impacts of other construction projects in the project area**.** For this analysis, other past, present, and reasonably-foreseeable future construction projects, particularly other infrastructure and commercial projects, in the area have been identified. Long-term cumulative impacts of the project in conjunction with the other projects in the area are assessed as well. In addition to the projects listed in Table 5-1, additional development that has not been identified as of this time could occur within the project area, as planned by the County of San Bernardino and nearby cities.

5.2 Cumulative Effects Analysis

5.2.1 Construction Related Impacts

Impact 5-1: Concurrent construction of several projects in the vicinity of Joshua Basin could result in cumulative short-term impacts associated with construction activities. These include short-term impacts associated with aesthetics, air quality, biological resources, noise, traffic, and water quality. Less than Significant.

Construction of the JBWD Recharge Basin and Pipeline Expansion is scheduled to begin in early 2010. The construction schedule for the proposed facilities would depend on funding. For the purposes of this analysis, the related projects identified in Table 5-1 are all presumed to be implemented concurrently within the 2010-2011 timeframe. These related projects, which include capital improvement and development projects in the vicinity of Joshua Basin, may contribute to certain types of cumulative construction impacts to aesthetics, air quality, biological resources, noise, traffic, and water quality, as described below. There would be no cumulative impacts to cultural resources; geology, soils and seismicity; hazards and hazardous materials; land use and recreation; or utilities and public services. Due to the nature of these resources as geographically

confined and/or distinct, any impacts to these resources can be mitigated for individual projects and collectively do not compound to create cumulatively considerable impacts.

Aesthetics

The geographic scope of cumulative aesthetic impacts is the viewsheds affected by construction of the JBWD Recharge Basin and Pipeline project. Construction activities would require the use of heavy equipment and storage of materials at the construction zone. During construction, excavated areas, stockpiled soils, and other materials within the construction easement would constitute negative aesthetic elements in the visual landscape that would affect views of the area. However, with incorporation of CEQA Mitigation Measure 3.1-1, fencing installed surrounding construction sites shall conceal all ground disturbing activities and construction related debris and materials. Therefore, as noted in chapter 3, the construction-related effects would be temporary and are not considered significant on a project basis.

Operation of the proposed project could cause permanent long-term impacts to aesthetic resources. The construction of one or two, 10 - to 15- foot deep recharge basins would be constructed in close proximity to SR 62, a County-designated scenic route. As described in Chapter 2, Project Description, construction of the recharge basins would involve recontouring of site soils to form earthen berms that could be as tall as six feet above ground level. Depending on the alternative location selected, recharge basins could still be visible from SR-62, and would bring new visual elements to the existing visual character and quality of the site and its surroundings. With the implementation of CEQA Mitigation Measures 3.1-2 and 3.1-3, impacts related to scenic resources and site aesthetics would be reduced, but remain significant and unavoidable.

Potential cumulative aesthetic impacts would result if the proposed project were within visual line-of-site range of one or more of the projects listed in Table 4.1. Currently, the only projects within visual range of the proposed project are the Caltrans maintenance and widening projects taking place on SR 62. These two projects will impact aesthetic resources during their construction phase due to the presence of large machinery and heavy equipment. However, because these projects are related to highway maintenance and widening efforts, no impacts will result from their operation. Therefore, although the proposed project will impact visual resources surrounding the site that are significant and unavoidable, it will not cause any cumulative impacts as a result of concurrent construction within a visual line-of-site range with another project listed in Table 4.1.

Air Quality

Construction of the proposed project would generate emissions that would affect air quality conditions in the Mojave Desert Air Basin. According to the MDAQMD, any project that would individually have a significant air quality impact could also be considered to have a significant cumulative air quality impact. Concurrent construction of the project with other projects in the air basin would generate short-term emissions of criteria pollutants and toxic air contaminants, including suspended and inhalable particulate matter and equipment exhaust emissions. Other projects that would contribute to cumulative impacts on air quality are shown in Table 5-1.

Implementation of CEQA Mitigation Measure 3.2-2 would ensure implementation of the MDAQMD requirements to control fugitive dust at construction sites and other measures to limit construction dust and vehicle and equipment emissions. With implementation of CEQA Mitigation Measure 3.2-1, the proposed project would not conflict with regional air quality plans and policies, which are intended to bring the air basin into attainment for all criteria pollutants. The regional cumulative air quality impacts due to the proposed project would be less than significant.

Construction emissions would temporarily contribute carbon dioxide (CO_2) emissions from vehicle exhaust that could contribute to the cumulative emissions of greenhouse gases that are suspected of contributing to global warming. The emissions would be small and considered less than significant based on local thresholds of significance; therefore, the contribution to a global warming effect by the project is considered negligible.

Biological Resources

Construction of the pipeline extension and recharge basin(s) in and around undeveloped open space areas could result in destruction and/or disturbance of natural habitat. Habitat destruction/disturbance would contribute to the overall impacts to natural habitat in the vicinity of Joshua Tree resulting from cumulative development. The three proposed Recharge Basin Alternatives are all located on vacant, open space areas that would be disturbed as a result of the proposed project. These open spaces contain habitat suitable for 5 special-status plant species and 6 special-status wildlife species. Most notable among these species are the San Bernardino Mountains linanthus (*Linanthus maculatus*), desert tortoise (*Gopherus agassizi*), burrowing owl (*Athene cunicularia*), loggerhead shrike (*Lanius ludovicianus*) and LeConte's thrasher (*Toxostoma lecontei*). In addition, Recharge Basin Alternatives 1 and 2 contain the California Department of Fish and Game (CDFG) threatened community of Joshua Tree Woodland.

Within the vicinity of the project site, a new 105 acre development is planned for development along the west side of Sunny Vista Road between Alta Loma Drive and Sunburst Road. This project will be built on a large swath of undeveloped, open land that may contain Joshua Tree Woodland and corresponding special-status plant and wildlife species. As a result, the construction of the two projects simultaneously may damage sensitive, Joshua Tree Woodland habitat and impact special-status plant and wildlife species within the vicinity of the two projects. In order to compensate for this, the proposed project would implement CEQA Mitigation Measures 3.3-4a and 3.3-4b to ensure that no significant impacts would result to either special plant and wildlife species or native Joshua Tree Woodland. The project would contribute to the cumulative loss of natural biological resources in the high desert. However, since the impact would be mitigated through compensation with property to be conserved for habitat value, the proposed project would not contribute significantly to cumulative habitat, plant, or wildlife loss in San Bernardino County.

Noise

The primary source of noise in rural, residential areas such as the project site is roadway traffic. Construction of the proposed project would generate noise that is different from typical

background noise in the project area. Related projects in the surrounding area would also temporarily generate noise associated with construction activities. Construction noise impacts would be localized, affecting areas in the immediate vicinity of the construction site. As described in Section 3.10, Noise, the proposed project would not result in significant noise impacts. The closest sensitive receptors to the project site are multifamily residential units located 50 feet away from Recharge Basin Alternative 3, and would not be subjected to noise levels that exceed acceptable levels per the San Bernardino County Noise Element. In addition, construction and maintenance noise would occur only during daytime hours in accordance with CEQA Mitigation Measures 3.9-1 and 3.9-2. Therefore, the proposed project would not contribute significantly to cumulative ambient noise conditions.

Hydrology and Water Quality

The geographic scope of potential cumulative water quality impacts encompasses Joshua Creek, Yucca Creek, and their tributaries and associated drainage areas within the Joshua Tree community area. As discussed in Chapter 3, construction activities associated with the project could degrade water quality, from sedimentation as a result of increased erosion or from the release of fuel or hazardous materials. The other projects listed in Table 5-1 could have similar construction-related impacts on water quality in the project area. Construction activities at other project sites also could increase erosion and subsequent sedimentation, with impacts on water quality as well as storm drain capacity. Cumulative projects also could adversely impact surface water quality through the release of fuels or other hazardous materials, or discharges from excavation dewatering activities, to stream extensions or storm drains. Implementation of CEQA Mitigation Measure 3.7-1 requires JBWD to prepare and implement a SWPPP that identifies potential pollutant sources and BMPs to reduce pollutants in storm water discharges. Therefore, the contribution of the proposed project to regional water quality would not be cumulatively considerable.

Traffic

The geographic scope of this impact area lies within the community of Joshua Tree in southern San Bernardino County. The roadway network on which construction workers and construction vehicles (including trucks that would transport equipment and material to and from the worksite) would travel to access the site consists of regional highways and local roadways.

As described in Chapter 3, the proposed project would result in short-term increases in vehicle trips, reduced access to and parking at adjacent land uses, increased potential for traffic safety conflicts, and increased wear-and-tear on designated haul routes. While the project impacts would be reduced to a less-than-significant level with implementation of proposed mitigation measures, the project could contribute to cumulative traffic and circulation impacts when considered in combination with projects listed in Table 5-1.

Potential cumulative traffic impacts could occur as a result of: (1) projects that would generate increased traffic at the same time on the same roads as the proposed project, causing increased congestion and delays, and (2) infrastructure projects in roads that would be used by the proposed project construction workers and trucks, which could delay project-generated vehicles traveling past

the work zones of the other projects. In addition to cumulative (additive) effects on traffic flow conditions, the proposed project and other cumulative projects would extend the period of time when there would be disruptions (albeit not all disruptions would be significant) to traffic flow on area roadways.

The proposed project would not add a significant number of truck trips to local roadways. Most of the truck trips would occur within the Joshua Tree vicinity. JBWD would coordinate with the surrounding jurisdictions and with other utility districts and agencies regarding the timing of construction projects that would occur near the recharge basin and pipeline project. Such coordination would help to minimize multiple disruptions in the same areas. JBWD would also submit plans related to, and comply with the requirements of, encroachment permits with local jurisdictions, which would provide further opportunities to coordinate multiple projects. Specific measures to mitigate significant impacts would be determined as part of the interagency coordination.

5.2.1 Growth Related Impacts

A project can have direct and/or indirect growth inducement potential. Direct growth would result if a project involved construction of new housing. A project can have indirect growth inducement if it would establish substantial new permanent employment opportunities (e.g., commercial, industrial or governmental enterprises) or if it would involve a substantial construction effort with substantial short-term employment opportunities and indirectly stimulate the need for additional housing and services to support the new employment demand. A project would also have an indirect growth inducement effect if it would remove an obstacle to additional growth and development, such as removing a constraint on a required public service.

Methodology

Growth inducement may result in adverse impacts if the growth is not consistent with the land use plans and growth management plans and policies for the area affected. Local land use plans provide for land use development patterns and growth policies that allow for the orderly expansion of urban development supported by adequate urban public services and utilities, such as water supply, roadway infrastructure, sewer service and solid waste service. A project that would induce “disorderly” growth that is in conflict with local land use plans could indirectly cause additional adverse environmental impacts and impacts to other public services. Thus, it is important to assess the degree to which the growth accommodated by a project would or would not be consistent with applicable land use plans.

To determine direct growth inducement potential, the proposed project is evaluated to verify whether an increase in population or employment, or the construction of new housing would occur as a direct result of the project. If either of these scenarios occurs, the proposed project could result in direct growth-inducement within the community of Joshua Tree. To determine indirect growth inducement potential, the proposed project is reviewed to ascertain whether it

would remove an obstacle to additional growth and development, such as removing a constraint on a required public service or utility

Population Projections

Joshua Tree Community Plan Population Projections

The Joshua Tree Community Plan provides population projections from the County General Plan that are based on historic and expected growth trends. The County projections estimate a population range of between 9,387 and 15,500 people by the year 2030. The larger projections are based on regional permit data.

JOSHUA TREE POPULATION PROJECTIONS 2000–2030

Year	2000	2030	Projected Average Annual Growth Rate 2000-2030
Population	8,103	9,387 to 15,500	0.5% to 0.9%
Households	3,465	4,170 to 6,625	0.6% to 0.9%

SOURCE: Joshua Tree Community Plan 2007.

SCAG Population Projections

The Southern California Association of Governments (SCAG) analyzes demographic data as part of the published *Regional Transportation Plan Growth Forecast*. The SCAG projections assume that growth potential is not constrained by a lack of public services or utilities. As such, the population estimates are not target levels, but rather reasonably foreseeable levels, based on the current trends. SCAG has projected the population and the number of households within the unincorporated community of Joshua Tree to be similar to projections used for the Joshua Tree Community Plan. The table below shows the projected population and number of households for the region from the census year from 2010 to the year 2035:

SCAG PROJECTIONS 2008

Location	2010	2015	2020	2025	2030	2035	Change 2010–2035
Joshua Tree							
Population	9,873	11,284	12,482	13,617	14,696	15,717	5,844
Households	3,907	4,664	5,275	5,854	6,393	6,896	2,989

SOURCE: SCAG, 2008.

Urban Water Management Plan Projections

JBWD prepared an Urban Water Management Plan (UWMP) in 2005 that projected population based on existing parcels. There are currently approximately 5,470 parcels with water meters (active and inactive) in the JBWD. There are approximately 7,380 parcels, primarily residential, that remain to be metered. Based on the current zoning, some of these parcels could be developed with high density uses requiring more than one meter, which could ultimately result in a total of approximately 36,000 connections within the JBWD. The table bellow summarizes these projections:

UWMP PROJECTIONS

Location	2010	2015	2020	2025	2030	Change 2010–2030
JBWD Service Area						
Projected Population	13,107	15,643	22,280	26,589	31,732	18,625
Demand (af)	2,611	3,610	4,514	5,026	5,566	2,955

Note: Growth assumptions in the UWMP are greater than those projected by SCAG in Table 5-3 because the SCAG projections are based on general County-wide growth rates. However, growth rates in the Joshua Tree area are greater than the general County growth-rates. Therefore, the UWMP population projections use a growth rate specific to the Joshua Tree area in order to provide a more accurate projection of growth within the JBWD service area and more accurate future water demand projections (JBWD 2005 UWMP).

SOURCE: JBWD UWMP, 2005.

Growth Inducement Potential

Direct Growth

The proposed project would provide for additional groundwater recharge capacity in the Joshua Basin region in order to protect the resource as a long-term water supply. This additional recharge capacity would help replace water that has not been restored to the groundwater supply due to many years of overdraft and would ensure that the overdraft condition would not continue into the future. Because the project is limited to the provision of water supply and management infrastructure, as opposed to housing and commercial development that would directly affect the number of residents or employees within the area, the proposed project would not directly contribute to the creation of additional housing or jobs within the community of Joshua Tree and thus would not result in direct growth inducement.

Indirect Growth

To determine indirect growth inducement potential, the proposed project was reviewed to ascertain whether it would remove an obstacle to additional growth and development, such as removing a constraint on a public service or utility. The proposed project would increase the reliability of water supply for the community of Joshua Tree. The JBWD Urban Water

Management Plan (UWMP) acknowledges that there is growth occurring in the region and accounts for the water demand in its regional future demand projections.

Currently, the JBWD relies exclusively on groundwater for its water supply. The USGS estimates that the groundwater basin is being overdrafted each year as there is no natural recharge to the basins. Extension of the Morongo Basin Pipeline would allow JBWD to import water to augment groundwater supplies, decreasing Joshua Tree's reliance on the native groundwater. Depending on the amount imported each year, the water would either reduce the amount of overdraft, eliminate the overdraft condition by meeting existing demand, or eliminate overdraft and reverse the basin's water deficit caused by many years of overdraft. Essentially, JBWD has the opportunity to put water in the ground that can be used to meet future demands as well as restore the basin to some degree from past extractions. This would indirectly induce growth by removing an obstacle to growth (i.e., limited water supply). This conclusion would be the case regardless of the ultimate demand in 2030 since the natural local supply needed to meet both existing and future demand exceeds the annual recharge of the basin.

Secondary Effects of Growth

Implementation of the proposed project could result in indirect increase in population. The proposed project itself, therefore, may be growth inducing and could induce secondary effects of growth. Some potentially adverse secondary effects could result from development of planned land uses in the project area from implementation of the County General Plan. The County General Plan EIR identifies significant and unavoidable impacts to the following resources as a result of its implementation: aesthetics, agricultural resources, air quality, biological resources, hazards and hazardous materials, and traffic and circulation.

As the specific magnitude, type, location or other characteristics of development that could be generated by the project (beyond that projected in the General Plan) cannot be known at this time, determination of specific secondary effects is somewhat speculative. Nonetheless, for the purposes of this analysis, it is considered likely that the new development would be similar to existing growth, and result in similar impacts to those reported in the County General Plan EIR. Such new development would be subject to review and approval by the County, including review for CEQA and possibly NEPA documentation requirements.

It should also be noted that water alone is not a guarantee of development or growth inducement. Other infrastructure and economic requirements would contribute to the likelihood of secondary growth effects, such as roadway infrastructure, electricity and sewage treatment capacity, and economic demand for development. Although determining the magnitude and characteristics of the secondary growth, and in turn its impacts, is speculative and on its own would not guarantee growth inducement, this analysis conservatively determines that the project could contribute to a secondary adverse impact on the environment with regard to aesthetics, agricultural resources, air quality, biological resources, hazards and hazardous materials, and traffic and circulation.