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**CPRG IMPLEMENTATION GRANTS COMPETITION  
COVER PAGE FOR APPLICATION**

**APPLICANT INFORMATION**

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**Organization**

**Primary Contact Name**

**Phone Number**

**Email Address**

**TYPE OF APPLICATION**                      Individual Applicant                      Lead Applicant for a Coalition

*If lead applicant for a coalition, provide a list of the coalition members below.*

**FUNDING REQUESTED:** *Provide total EPA CPRG Implementation Grant funding requested.*

**APPLICATION TITLE:** *Provide the title of your proposed project.*

**BRIEF DESCRIPTION OF GHG MEASURES:** *Describe each GHG reduction measure contained in the application (1-2 sentences each).*

**SECTORS:** *Identify the sector(s) associated with the GHG reduction measures included in the application.*

Industry	Commercial and Residential Buildings
Electricity Generation	Agriculture/Natural and Working Lands
Transportation	Waste and Materials Management
Other (please describe)	

**EXPECTED TOTAL CUMULATIVE GHG EMISSION REDUCTIONS**

*For all proposed measures combined, provide the estimated cumulative GHG reductions:*

**Estimated cumulative GHG reductions for 2025-2030 (in metric tons)**

**Estimated cumulative GHG reductions from 2025-2050 (in metric tons)**

**LOCATIONS:** *List the primary location(s) where the proposed measures will be implemented*

**City**

**State; Territory; Federally recognized Tribe**

**APPLICABLE PRIORITY CLIMATE ACTION PLAN(S) (PCAP) ON WHICH MEASURES ARE BASED**

**PCAP Lead Organization(s):**

**PCAP Title(s):**

**PCAP Website link(s) (if applicable):**

**List of GHG reduction measures and PCAP page reference for each measure:**

# 1 Overall Project Summary and Approach

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Across California's Central Valley, communities are experiencing more deadly wildfires and storm surges, extreme drought and water scarcity, and dangerous levels of flooding that also affect their transportation infrastructure, among other impacts. The Fourth National Climate Assessment found that extreme weather, climate-related events, and changes in average climate conditions are expected to continue damaging infrastructure, ecosystems, and social systems that benefit communities. If left unchecked, future climate change is expected to further disrupt many areas of life and exacerbate existing challenges to prosperity posed by aging and deteriorating infrastructure and transportation systems, stressed ecosystems, and long-standing inequalities.

The Fresno Council of Governments (FCOG) has formed a coalition (the Coalition) with the City of Fresno and the Fresno County Rural Transit Authority (FCRTA) to apply for the Climate Pollution Reduction Grants Program to develop various transportation projects to reduce greenhouse gas (GHG) emissions within the Fresno Valley Region. This work plan outlines the primary GHG reduction measures that FCOG will implement to reach its reduction goals, demonstrates funding needs by providing a detailed list of actionable projects, outlines quantitative evidence of the anticipated GHG reductions resulting from project implementation, and provides a detailed description of the anticipated benefits for the region. The Coalition's multi-pronged approach includes electrifying the municipal fleet and establishing a robust system of charging infrastructure that will be used immediately and then increase in utilization over time as their full fleet transitions to zero-emission. By converting 14% of their total on-road vehicles (336 total) to zero-emission models, the city aims to achieve an annual reduction of approximately 4,353 metric tons of CO<sub>2</sub> equivalent emissions (MT CO<sub>2</sub>e). This will serve as the first step to transition the entire City fleet which will ultimately help reach 12% of FCOG's Priority Climate Action Plan (PCAP) transportation-related emissions target. This initiative goes beyond environmental benefits. The Coalition is committed to creating high-quality green jobs through targeted recruitment, skills training, and work experience training. This initiative empowers disadvantaged communities by providing job training and employment opportunities, while ensuring fair wages and strong labor standards.

CPRG funding will allow the Coalition and its supporting partners to invest in a cleaner future through innovative transportation projects leading to improved circulation and more resilient communities.

## A. Description of GHG Reduction Measures

The Coalition received a planning grant from the Climate Pollution Reduction Grants (CPRG) Program to complete the Priority Climate Action Plan (PCAP) as the first component of the Regional Climate Action Plan. The PCAP was published on February 29, 2024 and included priority GHG reduction measures for several sectors, including transportation.

The Coalition is made up of two primary members: FCOG and the City of Fresno. FCOG acts as the lead agency, overseeing the coordination and distribution of funds to all partners, and is responsible for overarching project management, reporting, and ensuring adherence to the grant's objectives. The City of Fresno implements specific projects, such as the FAX Light Duty ZEV and Charging Infrastructure, taking charge of execution, local coordination, and reporting. The Coalition declares that an MOA shall be signed and submitted by all Coalition members by July 1, 2024.

The Coalition's grant application requests funding to support the implementation of Transportation Measures 1, 2, 3 and 4, which are further explained below.

*Measure 1: EV Strategy*

This measure will develop a robust public electric vehicle charging network in Fresno County, emphasizing services to low-income and disadvantaged communities. The purpose of this project is to move FAX closer to its goal of achieving a 100% zero-emissions bus fleet by 2040, per the California Air Resources Board mandate. This goal is further driven by FAX's commitment to providing clean public transportation; particularly to priority populations disproportionately burdened by GHGs and the paratransit-reliant community. **This measure is estimated to reduce GHG emissions by 680,388 MT CO<sub>2</sub>e by 2030.**

*Measure 2: Municipal Fleet Conversion*

This measure involves electrifying municipal vehicle fleets (including transit) by cities and other governmental entities within Fresno County, in addition to supportive infrastructure such as charging facilities and personnel training. As part of a comprehensive municipal fleet conversion to zero-emission vehicles, the City of Fresno will expand its municipal EV charging infrastructure to include installation of 949 Level 2 and 690 DCFC stations, creating 1,639 new charging stations over the course of the five-year project term. In addition, to support Measure 2 in the FCOG's Priority PCAP, the City of Fresno is requesting grant funding to convert 181 light-duty vehicles and 155 medium-heavy-duty vehicles within the municipal fleet to zero-emission. This constitutes approximately 14% of the city's on-road fleet. By taking this step, the City aims to reduce approximately 4,318 MT CO<sub>2</sub>e from transportation-related greenhouse gas (GHG) emissions and directly benefit residents located in communities where the fleets operate. This initiative serves as a starting point for transitioning the City's entire fleet to ZEVs, ultimately resulting in an estimated total emissions reduction of 25,063 MT CO<sub>2</sub>e, achieving 4% of the PCAP transportation-related emissions reduction goals of 680,288 MT CO<sub>2</sub>e by 2030. **This measure is estimated to reduce GHG emissions by 12,954.20 MT CO<sub>2</sub>e by 2030.**

*Measure 3: Bike and Pedestrian Network*

This measure supports building a well-connected bike and pedestrian system that provides alternative transportation options for local residents. Examples will include the expansion and improvement of pedestrian networks, bike parking, expanded bikeway networks, electric bike-share programs, scooter-share programs, and dedicated land for bike and pedestrian trails. **This measure is estimated to reduce GHG emissions by 3,642 MT CO<sub>2</sub>e by 2030.**

*Measure 4: Public Transportation*

Enhance the public transportation system by maintaining/expanding the existing transit system and implementing other transit strategies such as micro transit. **This measure is estimated to reduce GHG emissions by 663 MT CO<sub>2</sub>e by 2030.**

**B. Demonstration of Funding Need**

Through this project, the Coalition aims to support partnering agencies in meeting the region's collective GHG reduction goals. As such, this proposal includes a subsection of projects that directly contribute to the success of the measures listed above by providing innovative transportation projects and improving connections between existing transportation systems, but that have yet to be funded or that only have partial funding. These projects have been organized by agency partner in Table 1.

FCOG awarded Active Transportation Program (ATP) and Congestion Mitigation and Air Quality (CMAQ) Improvement Program funding of \$48,629,382 to various jurisdictions for transportation

projects in the Fresno Valley Region between February 2023 and January 2024. Some projects included in Table 1 applied for these funds but were not selected as the funding needs for these projects greatly outweigh the available State funding. The chosen projects for this application have been reviewed for consistency with the goals of the CPRG and alignment with the GHG reduction measures presented in the FCOG PCAP and their benefit to underserved communities.

Many of the projects in Table 1 represent the organization's first opportunity for funding for these projects and opportunities to accelerate the transition to zero-emission fleets beyond the regulatory requirements through the Governor's Executive Order 79, Acc II, and ACF. The PCAP has created a roadmap for the Fresno Valley Region to reduce its GHG reductions through collaboration and has provided a new opportunity for partner agencies to identify and pursue additional transportation projects that promote connectivity between the Coalition agencies.

In response to the urgent need to address the environmental and health impacts of California's transportation sector, FCOG and the City of Fresno are taking proactive steps by identifying locations for EV charging infrastructure and promoting local EV adoption, starting with the City of Fresno municipal fleet. This effort ensures that the region contributes to the state's transition to a ZEV future as outlined in Executive Order 79, ACC II, and ACF.

**Table 1 Projects to be Funded**

Project Name	Implementation Measure Alignment	Previous Efforts
<b>City of Fresno</b>		
FAX Light Duty ZEV and Charging Infrastructure	Measure 1: EV Strategy	CMAQ – Insufficient Funding
City of Fresno Fleet Conversion	Measure 2: Municipal Fleet Conversion	First Funding Opportunity
First Street Phase 3 Protected Bikeway	Measure 3: Bike and Pedestrian Network	ATP – Insufficient Funding
Midtown Trail Tunnel and Regional Connectivity Project	Measure 3: Bike and Pedestrian Network	ATP – Insufficient Funding
Palm Bikeway	Measure 3: Bike and Pedestrian Network	ATP – Insufficient Funding
Orange and Butler Sidewalks	Measure 3: Bike and Pedestrian Network	CMAQ – Insufficient Funding
Dakota Avenue Safe Routes to School	Measure 3: Bike and Pedestrian Network	CMAQ – Insufficient Funding
Florence Avenue	Measure 3: Bike and Pedestrian Network	First Funding Opportunity
Southern Blackstone Smart Mobility	Measure 3: Bike and Pedestrian Network	First Funding Opportunity
FAX Bus Stop Improvements for New Bus Service and/or Route Extensions	Measure 4: Public Transportation	First Funding Opportunity
<b>City of Sanger</b>		
5th and 9th Street Sidewalks	Measure 3: Bike and Pedestrian Network	CMAQ – Insufficient Funding
<b>City of Firebaugh</b>		
WWTP Class I Multi-Use Path	Measure 3: Bike and Pedestrian Network	CMAQ – Insufficient Funding
<b>City of Clovis</b>		
Enterprise Trail Connection	Measure 3: Bike and Pedestrian Network	CMAQ – Insufficient Funding

Project Name	Implementation Measure Alignment	Previous Efforts
<b>City of Mendota</b>		
Marie Street Complete Street Improvements	Measure 3: Bike and Pedestrian Network	CMAQ – Insufficient Funding
<b>City of San Joaquin</b>		
Trail Extension and Pocket Park	Measure 3: Bike and Pedestrian Network	First Funding Opportunity
<b>City of Parlier</b>		
Class I Multi-Use Trail	Measure 3: Bike and Pedestrian Network	CMAQ – Insufficient Funding
Mendocino Avenue Trail	Measure 3: Bike and Pedestrian Network	CMAQ – Insufficient Funding
South Avenue Improvements	Measure 3: Bike and Pedestrian Network	CMAQ – Insufficient Funding
Milton Avenue Improvements	Measure 3: Bike and Pedestrian Network	CMAQ – Insufficient Funding
<b>City of Fowler</b>		
West Side Alternative Transportation	Measure 3: Bike and Pedestrian Network	ATP – Insufficient Funding
<b>Fresno County</b>		
Caballero Easton Project	Measure 3: Bike and Pedestrian Network	First Funding Opportunity
Mayfair – New Bikeways and Sidewalks	Measure 3: Bike and Pedestrian Network	First Funding Opportunity
New Fig Garden – New Bikeways and Sidewalks	Measure 3: Bike and Pedestrian Network	First Funding Opportunity
Old Fig Garden – New Bikeways and Sidewalks	Measure 3: Bike and Pedestrian Network	First Funding Opportunity
Sunnyside – New Bikeways and Sidewalks	Measure 3: Bike and Pedestrian Network	First Funding Opportunity
Tarpey – New Sidewalks	Measure 3: Bike and Pedestrian Network	First Funding Opportunity
<b>Fresno County Rural Transit Agency</b>		
Selma Maintenance Facility Phase II GHG Emission Reductions	Measure 1: EV Strategy	CMAQ – Insufficient Funding
ATP: Active Transportation Plan		
CMAQ: Congestion Mitigation and Air Quality funding program		

## C. Transformative Impact

Receiving an EPA implementation grant would mark a pivotal moment for the Fresno County region located in the San Joaquin Valley, profoundly altering its trajectory towards a more sustainable and equitable future. The Fresno County region suffers from poor air quality and extreme heat during the summer months due to its unique geography, not allowing pollution to escape. Extreme climate events (routine summer temperatures above 100 degrees) exacerbate air quality impacts on residents, causing severe health impacts on people living in the region. People living in low-income and disadvantaged communities bear the brunt of these extreme climate impacts as they lack resources to mitigate the impacts such as safe access to cooling centers. This proposal targets multiple levels of the transportation system, improving its cohesion and efficiency to reduce GHG emissions. Channeling funds into enhancing and connecting the region's active and transit transportation systems will not only address the immediate disproportionate environmental challenges posed by poor air quality and extreme heat but will also lay the groundwork for enduring change, specifically for those most affected. . To advance California's climate, air quality, and equity goals through a

robust ZEV multi-modal ecosystem, local jurisdictions must act alongside state and federal efforts. Through the ACC II and ACF rules, local governments are encouraged to prioritize the development and implementation of ZEV strategies across light-, medium-, and heavy-duty vehicles, as well as multi-modal options like transit, electric shuttles, and e-bikes, with a focus on serving underserved communities. The projects selected by the Coalition represent a strategic shift towards a low-carbon economy, aligning with broader climate action goals and contributing to global efforts to combat climate change.

Furthermore, EPA funding will act as a catalyst for environmental justice, ensuring that the benefits of cleaner transportation and reduced emissions are accessible to all, especially the most vulnerable communities. By prioritizing low-income and disadvantaged areas, the project acknowledges and addresses the disproportionate impact of environmental challenges on these populations, fostering a more inclusive approach to climate resilience.

Through capacity building and establishing robust frameworks for future projects, the Coalition will empower local municipalities, encouraging them to become proactive stakeholders in environmental stewardship. This empowerment will facilitate a ripple effect, where initial successes fuel further innovation and investment in sustainable practices.

In essence, the EPA implementation grant stands as a beacon of transformation for the Fresno region, promising not only to improve current environmental and transportation conditions, but also to inspire and enable a sustained commitment to a greener, more equitable future in the Fresno region.

## 2 Impact of GHG Reduction Measures

### A. Magnitude of GHG Reductions from 2025 – 2030

#### Measure 1: EV Strategy

**Table 2 Zero-Emissions Light Duty Vehicles and Associated Charging Infrastructure VMT and GHG Emission Reductions**

Data Inputs, Assumptions, and Results	2025-2030
Annual Passenger ICE VMT Reductions from Project	109,935
Cumulative VMT Reductions from Passenger ICE	329,805
Weighted Passenger ICE Emission Factor (MT CO <sub>2</sub> e/VMT)	0.0003176
Cumulative GHG Emissions from ICE VMT (MT CO <sub>2</sub> e)	105
Weighted Electricity/Mile Factor for Passenger EVs (kWh/VMT) <sup>1</sup>	0.367213
Cumulative Electricity Usage from Passenger EVs (kWh)	121,109
Weighted CAMX Emission Factor (MT CO <sub>2</sub> e/kWh) <sup>2</sup>	0.000124
Cumulative GHG Emissions from EV Electricity Usage (MT CO <sub>2</sub> e)	15
Cumulative GHG Emissions Reductions (MT CO <sub>2</sub> e)	90
Source: FCOG Project Quantification, Appendix A	

**Table 3 Selma Maintenance Facility Phase II GHG Emission Reductions**

Data Inputs, Assumptions, and Results	2025-2030
Annual Electricity Usage from EV Charging (kWh)	401,500
Cumulative Electricity Sourced from Solar-Powered Microgrid (kWh)	1,907,125
Cumulative Electricity Source from Electricity Grid (kWh)	100,375
Weighted CAMX Emission Factor (MT CO <sub>2</sub> e/kWh) <sup>1</sup>	0.0001326
Cumulative GHG Emissions from EV Charging (MT CO <sub>2</sub> e)	13
Weighted Electricity/Mile Factor for Commercial EVs (kWh/VMT) <sup>2</sup>	1.28
Cumulative VMT from Commercial EVs	1,563,299
Weighted Commercial Emission Factor (MT CO <sub>2</sub> e/VMT)	0.001361
Cumulative GHG Emissions from ICE <sup>3</sup> VMT (MT CO <sub>2</sub> e)	2,128
Cumulative GHG Emission Reductions (MT CO <sub>2</sub> e)	2,115

<sup>1</sup> This weighted emission factor considers the decreasing GHG emissions intensity of electricity from CAMX over time, in accordance with SB 100 and 1020.

<sup>2</sup> Sum of cumulative electricity usage (microgrid and electricity grid) divided by cumulative VMT.

<sup>3</sup> ICE = Internal Combustion Engine

Source: FCOG Project Quantification, Appendix A



## Measure 2: Municipal Fleet Conversion

**Table 4 City of Fresno Fleet Conversion**

Data Inputs, Assumptions, and Results	2025-2030
Percent VMT Reduction from Project	2%
Cumulative Liquid Fuels Displaced	4,510,694
Cumulative GHG Emission Reductions (MT CO <sub>2</sub> e)	12,954
Source: TRC Industries, see <i>Technical Appendix</i>	

## Measure 3: Bike and Pedestrian Network

**Table 5 Magnitude of GHG Reductions for Measure 3 Projects from 2025 – 2030**

Project Name	Percent VMT Reduction from Project	Annual VMT Reduction from Project	Cumulative VMT Reduction <sup>1</sup>	Weighted Emission Factor (MT CO <sub>2</sub> e/VMT)	Cumulative GHG Emission Reductions (MT CO <sub>2</sub> e)
First Street Phase 3 Protected Bikeway	0.001%	n/a	100,484	0.0002998	30
Midtown Trail Tunnel and Regional Connectivity	0.0003%	n/a	18,882	0.0002937	6
Palm Bikeway	0.0003%	n/a	39,040	0.0002998	12
Orange and Butler Sidewalks	n/a	37,856	113,568	0.0002967	34
Dakota Avenue Safe Routes to School	n/a	3,172	12,688	0.0002999	4
Florence Avenue	0.0012%	n/a	138,228	0.0002998	41
Blackstone Avenue Smart Mobility	0.0005%	n/a	52,001	0.0002998	16
5 <sup>th</sup> and 9 <sup>th</sup> Street Sidewalks	n/a	7,450	29,800	0.0002999	9
WWTP Class I Multi-Use Trail	n/a	17,108	51,324	0.0002967	15
Enterprise Trail Connection	n/a	22,589	90,356	0.0002999	27
Marie Street Complete Street Improvements	0.1% (From Sidewalks)	425 (From Bike Facilities)	49,203	0.0003033	15
Trail Extension and Pocket Park	0.02%	n/a	3,035	0.0003032	0.92
Parlier Class I Multi-Use Trail	0.07%	n/a	97,227	0.0002998	29
Mendocino Avenue Trail	0.02%	n/a	12,652	0.0002937	4
South Avenue Improvements	0.04%	n/a	45,200	0.0002967	13
Milton Avenue Improvements	0.01%	n/a	11,936	0.0002967	4

Project Name	Percent VMT Reduction from Project	Annual VMT Reduction from Project	Cumulative VMT Reduction <sup>1</sup>	Weighted Emission Factor (MT CO <sub>2</sub> e/VMT)	Cumulative GHG Emission Reductions (MT CO <sub>2</sub> e)
West Side Alternative Transportation	0.06%	n/a	171,033	0.0002998	51
Caballero Easton Project	3.89%	n/a	2,980,560	0.0002967	864
Mayfair – New Bikeways and Sidewalks	0.003%	n/a	2,361	0.0002967	1
New Fig Garden – New Bikeways and Sidewalks	0.012%	n/a	10,638	0.0002967	3
Old Fig Garden – New Bikeways and Sidewalks	0.002%	n/a	2,208	0.0002967	1
Sunnyside – New Bikeways and Sidewalks	0.0012%	n/a	12,252	0.0002967	4
Tarpey – New Sidewalks	0.005%	n/a	3,243	0.0002967	1
<b>Total</b>					<b>1,184.92</b>

<sup>1</sup>The percent VMT reduction from project from sidewalk was applied to forecasted VMT for each year between 2025 and 2050 to find cumulative VMT reduction.

Source: FCOG Project Quantification, Appendix A

#### Measure 4: Public Transportation

**Table 6 Bus Stop Improvements for New Bus Service and Route Extensions VMT and GHG Emission Reductions**

Data Inputs, Assumptions, and Results	2025-2030
Percent VMT Reduction from Project	0.08%
Cumulative VMT Reduction <sup>1</sup>	7,087,926
Weighted Emission Factor (MT CO <sub>2</sub> e/VMT)	0.0002967
Cumulative GHG Emission Reductions (MT CO <sub>2</sub> e)	2,103

<sup>1</sup>The percent VMT reduction from project from sidewalk was applied to forecasted VMT for each year between 2025 and 2050 to find cumulative VMT reduction.

Source: FCOG Project Quantification, Appendix A

## B. Magnitude of GHG Reductions from 2025 – 2050

### Measure 1: EV Strategy

**Table 7 Zero-Emissions Light Duty Vehicles and Associated Charging Infrastructure VMT and GHG Emission Reductions**

Data Inputs, Assumptions, and Results	2025-2050
Annual Passenger ICE VMT Reductions from Project	109,935
Cumulative VMT Reductions from Passenger ICE	2,528,505
Weighted Passenger ICE Emission Factor (MT CO <sub>2</sub> e/VMT)	0.0002936
Cumulative GHG Emissions from ICE VMT (MT CO <sub>2</sub> e)	742
Weighted Electricity/Mile Factor for Passenger Evs (kWh/VMT) <sup>1</sup>	0.367213
Cumulative Electricity Usage from Passenger Evs (kWh)	931,996
Weighted CAMX Emission Factor (MT CO <sub>2</sub> e/kWh) <sup>2</sup>	0.0000357
Cumulative GHG Emissions from EV Electricity Usage (MT CO <sub>2</sub> e)	33
Cumulative GHG Emissions Reductions (MT CO <sub>2</sub> e)	709

Source: FCOG Project Quantification, Appendix A

**Table 8 Selma Maintenance Facility Phase II GHG Emission Reductions**

Data Inputs, Assumptions, and Results	2025-2050
Annual Electricity Usage from EV Charging (kWh)	401,500
Cumulative Electricity Sourced from Solar-Powered Microgrid (kWh)	9,535,625
Cumulative Electricity Source from Electricity Grid (kWh)	501,875
Weighted CAMX Emission Factor (MT CO <sub>2</sub> e/kWh) <sup>1</sup>	0.0000445
Cumulative GHG Emissions from EV Charging (MT CO <sub>2</sub> e)	22
Weighted Electricity/Mile Factor for Commercial Evs (kWh/VMT) <sup>2</sup>	1.24
Cumulative VMT from Commercial Evs	8,098,122
Weighted Commercial Emission Factor (MT CO <sub>2</sub> e/VMT)	0.001305
Cumulative GHG Emissions from ICE <sup>3</sup> VMT (MT CO <sub>2</sub> e)	10,569
Cumulative GHG Emission Reductions (MT CO <sub>2</sub> e)	10,547

<sup>1</sup> This weighted emission factor considers the decreasing GHG emissions intensity of electricity from CAMX over time, in accordance with SB 100 and 1020.

<sup>2</sup> Sum of cumulative electricity usage (microgrid and electricity grid) divided by cumulative VMT.

<sup>3</sup> ICE = Internal Combustion Engine

Source: FCOG Project Quantification, Appendix A

## Measure 2: Municipal Fleet Conversion

**Table 9 City of Fresno Fleet Conversion**

Data Inputs, Assumptions, and Results	2025-2050
Percent VMT Reduction from Project	15%
Cumulative Liquid Fuels Displaced (GGE)	38,581,984
Cumulative GHG Emission Reductions (MT CO <sub>2</sub> e)	99,316
Source: TRC Industries, see <i>Technical Appendix</i>	

## Measure 3: Bike and Pedestrian Network

**Table 10 Magnitude of GHG Reductions for Measure 3 Projects from 2025 – 2050**

Project Name	Percent VMT Reduction from Project	Annual VMT Reduction from Project	Cumulative VMT Reduction <sup>1</sup>	Weighted Emission Factor (MT CO <sub>2</sub> e/VMT)	Cumulative GHG Emission Reductions (MT CO <sub>2</sub> e)
First Street Phase 3 Protected Bikeway	0.001%	n/a	621,637	0.0002691	167
Midtown Trail Tunnel and Regional Connectivity	0.0003%	n/a	213,676	0.0002659	57
Palm Bikeway	0.0003%	n/a	241,521	0.0002691	65
Orange and Butler Sidewalks	n/a	37,856	870,688	0.0002677	233
Dakota Avenue Safe Routes to School		3,172	76,128	0.0002694	21
East Florence Avenue Sidewalks	0.0012%	n/a	855,139	0.0002	230
Blackstone Smart Mobility	0.0005%	n/a	321,702	0.0002691	87
5 <sup>th</sup> and 9 <sup>th</sup> Street Sidewalks	n/a	7,450	178,800	0.0002694	48
WWTP Class I Multi-Use Trail	n/a	17,108	393,484	0.0002677	105
Enterprise Trail Connection	n/a	22,589	542,136	0.0002694	146
Marie Street Complete Street Improvements	0.1% (From Sidewalks)	425 (From Bike Facilities)	250,125	0.0002711	68
Trail Extension and Pocket Park	0.02%	n/a	15,659	0.0002710	4
Parlier Class I Multi-Use Trail	0.07%	n/a	604,075	0.0002691	163
Mendocino Avenue Trail	0.02%	n/a	143,765	0.0002659	38
South Avenue Improvements	0.04%	n/a	358,451	0.0002674	96

Project Name	Percent VMT Reduction from Project	Annual VMT Reduction from Project	Cumulative VMT Reduction <sup>1</sup>	Weighted Emission Factor (MT CO <sub>2</sub> e/VMT)	Cumulative GHG Emission Reductions (MT CO <sub>2</sub> e)
Milton Avenue Improvements	0.01%	n/a	94,657	0.0002674	25
West Side Alternative Transportation	0.06%	n/a	1,070,327	0.0002690	288
Caballero Easton Project	3.89%	n/a	23,464,193	0.0002675	6,276
Mayfair – New Bikeways and Sidewalks	0.003%	n/a	18,100	0.0002677	5
New Fig Garden – New Bikeways and Sidewalks	0.012%	n/a	81,557	0.0002677	22
Old Fig Garden – New Bikeways and Sidewalks	0.002%	n/a	16,294	0.0002677	5
Sunnyside – New Bikeways and Sidewalks	0.0012%	n/a	93,934	0.0002677	25
Tarpey – New Sidewalks	0.005%	n/a	24,865	0.0002677	7
<b>Total</b>					<b>8,181</b>

<sup>1</sup>The percent VMT reduction from project from sidewalk was applied to forecasted VMT for each year between 2025 and 2050 to find cumulative VMT reduction.

Source: FCOG Project Quantification, Appendix A

#### Measure 4: Public Transportation

**Table 11 Bus Stop Improvements for New Bus Service and Route Extensions VMT and GHG Emission Reductions**

Data Inputs, Assumptions, and Results	2025-2050
Percent VMT Reduction from Project	0.08%
Cumulative VMT Reduction <sup>1</sup>	7,087,926
Weighted Emission Factor (MT CO <sub>2</sub> e/VMT)	0.0002967
Cumulative GHG Emission Reductions (MT CO <sub>2</sub> e)	2,103

<sup>1</sup>The percent VMT reduction from project from sidewalk was applied to forecasted VMT for each year between 2025 and 2050 to find cumulative VMT reduction.

Source: FCOG Project Quantification, Appendix A

## C. Cost Effectiveness of GHG Reductions

### Measure 1: EV Strategy

**Table 12 Cost Effectiveness of Measure 1**

Project Name	Estimated Grant Funds Project Cost	Total Cost/MT CO <sub>2</sub> e
FAX Light Duty ZEV and Charging Infrastructure	\$2,750,000	\$3,877.66
Selma Maintenance Facility Phase II GHG Emission Reductions	\$2,830,603	\$268.38
<b>Total</b>	<b>\$5,580,603</b>	<b>\$4,146.04</b>

### Measure 2: Municipal Fleet Conversion

**Table 13 Cost Effectiveness of Measure 2**

Project Name	Estimated Project Cost	Total Cost/MT CO <sub>2</sub> e
FAX Fleet Conversion	\$117,092,890	\$1,179.00
<b>Total</b>	<b>\$117,092,890</b>	<b>\$1,179.00</b>

### Measure 3: Bike and Pedestrian Network

**Table 14 Cost Effectiveness of Measure 3**

Project Name	Estimated Project Cost	Total Cost/MT CO <sub>2</sub> e
First Street Phase 3 Protected Bikeway	\$4,513,211	\$26,975.39
Midtown Trail Tunnel and Regional Connectivity	\$11,352,494	\$199,800.10
Palm Bikeway	1,879,000	\$28,906.21
Orange and Butler Sidewalks	\$1,442,284	\$6,188.89
Dakota Avenue Safe Routes to School	\$1,236,579	\$60,295.27
Florence Avenue	\$2,432,736	\$10,570.05
Southern Blackstone Smart Mobility	\$11,633,854	\$134,365.63
5 <sup>th</sup> and 9 <sup>th</sup> Street Sidewalks	\$1,061,000	\$22,026.91
WWTP Class I Multi-Use Trail	\$493,378	\$4,684.65
Enterprise Trail Connection	\$1,228,150	\$8,409.09
Marie Street Complete Street Improvements	\$3,058,019	\$45,096.96
Trail Extension and Pocket Park	\$800,000	\$188,508.80
Parlier Class I Multi-Use Trail	\$2,250,000	\$13,841.45
Mendocino Avenue Trail	\$875,000	\$22,886.39
South Avenue Improvements	\$2,595,000	\$27,071.56
Milton Avenue Improvements	\$1,000,000	\$39,505.19
West Side Alternative Transportation	\$2,735,000	\$9,497.53
Caballero Easton Project	\$3,000,000	\$477.98
Mayfair – New Bikeways and Sidewalks	\$2,596,449	\$535,946.93
New Fig Garden – New Bikeways and Sidewalks	\$4,338,316	\$198,740.34

Project Name	Estimated Project Cost	Total Cost/MT CO <sub>2</sub> e
Old Fig Garden – New Bikeways and Sidewalks	\$2,933,250	\$647,533.48
Sunnyside – New Bikeways and Sidewalks	\$5,413,664	\$215,323.15
Tarpey – New Sidewalks	\$730,100	\$109,701.14
<b>Total</b>	<b>\$69,597,484</b>	<b>\$2,556,353.09</b>

*Measure 4: Public Transportation*

**Table 15 Cost Effectiveness of Measure 4**

Project Name	Estimated Project Cost	Total Cost/MT CO <sub>2</sub> e
FAX Bus Stop Improvements for New Bus Service and/or Route Extensions	\$5,578,000	\$372.63
<b>Total</b>	<b>\$5,578,000</b>	<b>\$372.63</b>

**D. Documentation of GHG Reduction Assumptions**

Please refer to the *Technical Appendix* submitted with this application for additional information regarding GHG emissions reductions, methodologies, and cost effectiveness of each measure.

### 3 Environmental Results – Outputs, Outcomes, and Performance Measures

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This section outlines the environmental results expected from the strategic implementation measures identified in Section 1. This section defines specific outputs and outcomes, sets performance metrics for evaluation, and identifies the implementation timeline and milestones.

#### A. Expected Outputs and Outcomes

Outputs	Outcomes
<ul style="list-style-type: none"> <li>Installation of 949 Level 2 chargers</li> <li>Installation of 690 DC fast chargers</li> <li>Deployment of 181 zero-emission light-duty vehicles</li> <li>Deployment of 155 zero-emission medium- and heavy-duty vehicles</li> <li>Construction of new bike lanes</li> <li>Construction of new sidewalks</li> <li>Construction of new trails</li> <li>Extension of transit routes</li> <li>Monthly progress reports</li> <li>Final Report</li> </ul>	<ul style="list-style-type: none"> <li>Increased EV adoption rates among County residents</li> <li>Increased EV adoption rates in the City of Fresno municipal fleet</li> <li>Demonstrated model for other municipal fleets considering similar transitions</li> <li>Increased use of active transportation modes, leading to decreased vehicular traffic and associated emissions.</li> <li>Improved public health for the local population through increased physical activity.</li> <li>Enhanced connectivity within communities, fostering greater social cohesion and accessibility to services.</li> <li>Reduction in cumulative metric tons of GHG emissions               <ul style="list-style-type: none"> <li>From 2025 through calendar year 2030, and</li> <li>From 2025 through calendar year 2050.</li> </ul> </li> <li>Reduction in annual amount of CAP and/or HAP emissions in 2030, and</li> <li>Reduction in annual amount of CAP and/or HAP emissions in low-income and disadvantaged communities in 2030.</li> </ul>

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#### Measure 1: EV Strategy

- Outputs:** Implementation will include the establishment of a comprehensive network of EV charging stations across Fresno County, focusing on accessibility in low-income and disadvantaged communities. This will consist of the installation and activation of a network of publicly available charging stations strategically placed in community centers, municipally owned buildings, and along major transportation corridors.
  - Outcomes:** The expected outcomes are a significant increase in EV adoption rates among County residents, a decrease in GHG emissions of 11,256 MT of CO<sub>2</sub>e between 2025-2050, and a reduction in local and regional air pollutants. Enhanced EV infrastructure will also foster broader community adoption of electric vehicles, contributing to a long-term dynamic shift towards cleaner transportation options and cleaner Valley air for all.
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### *Measure 2: Municipal Fleet Conversion*

- **Outputs:** The measure focuses on the conversion of the City of Fresno’s municipal fleet,, including 181 light-duty vehicles, 155 medium- and heavy-duty vehicles to zero-emission vehicles. It encompasses vehicle procurement, infrastructure development for charging, including 949 Level 2 chargers and 690 DC fast chargers, and training and administrative costs for maintenance and operational staff.
- **Outcomes:** The expected outcome is a substantial reduction in tailpipe emissions from traditional vehicles, leading to improved local and regional air quality and an annual expected GHG emission reduction of 4,354 MT of CO<sub>2</sub>e. The increased adoption of municipal EVs will contribute directly to the county’s emission reduction goals, contributing to approximately 12% of the transportation-related emissions reduction target outlined in the PCAP. Additionally, this measure will serve as a demonstrative model for other regions considering similar transitions.

### *Measure 3: Bike and Pedestrian Network*

- **Outputs:** The measure aims to create and maintain cohesive transportation systems by supporting targeted improvements of local bicycle and pedestrian systems across multiple areas in the region. The measure also includes community outreach and education initiatives to promote active transportation.
- **Outcomes:** Expected outcomes include increased use of active transportation modes, leading to decreased vehicular traffic and associated emissions. Additional benefits include improved public health for the local population through increased physical activity and enhanced connectivity within communities, fostering greater social cohesion and accessibility to services.

### *Measure 4: Public Transportation*

- **Outputs:** The measure aims to improve the public transit system by extending and expanding transit coverage, improving connectivity between communities, and exploring innovative public transit options such as micro transit. The measure also aims to reduce barriers for transit riders, such as lowering transportation costs.
- **Outcomes:** Expected outcomes include reduced vehicle miles traveled and reduced noise in the region due to decreased individual vehicle use. This measure will also result in decreased criteria air pollutants and improved cohesion and connection between residents and communities within the region. This measure will also result in improved connectivity to necessary services such as access to education, jobs, and greenspace.

## B. Performance Measures and Plan

Measure 1: EV Strategy	Measure 2: Municipal Fleet Conversion	Measure 3: Bike and Pedestrian Network	Measure 4: Public Transportation
<ul style="list-style-type: none"> <li>Number of EVs adopted through program support</li> <li>Number of new charging units available and ongoing use of chargers</li> <li>Annual GHG emissions from vehicles</li> <li>Annual criteria air pollutants released</li> <li>Percentage of vehicles electrified</li> <li>Percentage of vehicle miles travelled (VMT) electrified</li> <li>Total number of new charging stations installed</li> </ul>	<ul style="list-style-type: none"> <li>Number of new municipal fleet EVs</li> <li>Quantity of GHG emission reductions</li> <li>Annual GHG emissions from vehicles</li> <li>Annual criteria air pollutants released</li> <li>Percent of vehicles electrified</li> <li>Percent of VMT electrified</li> <li>Total number of new charging stations created</li> </ul>	<ul style="list-style-type: none"> <li>Miles of bike lanes constructed</li> <li>Miles of sidewalks constructed</li> <li>Miles of trails constructed</li> <li>Reduced conflicts between vehicles and pedestrians</li> <li>Reduced conflicts between vehicles and cyclists</li> <li>Increased promotion and outreach on safe active transportation alternatives</li> <li>Increased number of bicycle ridership</li> </ul>	<ul style="list-style-type: none"> <li>New service miles</li> <li>Public transit ridership</li> <li>Reduced vehicle miles traveled</li> <li>Increased promotion and outreach on public transportation alternatives</li> <li>Annual GHG emissions from vehicles</li> <li>Annual criteria air pollutants released</li> </ul>

## C. Authorities, Implementation Timeline, and Milestones

This section outlines the comprehensive framework for the implementation of the GHG measures identified by the Coalition and its partners. It details the division of responsibilities, the authority each entity holds, and a schedule to ensure timely completion of each measure.

### *Authorities and Responsibilities*

- **FCOG:** Acts as the lead agency, overseeing the coordination and distribution of funds to all partners. Responsible for overarching project management, reporting, and ensuring adherence to the grant's objectives.
- **City of Fresno:** Implements specific projects, such as the municipal ZEV procurements and associated charging infrastructure, leading the execution, local coordination, and reporting of City-specific projects.
- **Subawardees:** Partners responsible for implementing sub-awarded projects; their roles will be defined by specific contracts outlining their deliverables, timelines, and reporting structures. These subawards will be required to align with the overarching goals and comply with all grant requirements, specifically reducing GHG emissions.
- Additional entities, like utility companies for EV infrastructure or local government bodies for approvals and public land use, are also critical to successful implementation of each measure.

### *Implementation Timeline and Milestones*

The following sections outline the desired timeline for each implementation measure along with the required milestones.

**MEASURE 1: EV ADOPTION STRATEGY**

- Planning and Approval: Q1-Q2 2025
- Infrastructure Development: Q3 2025- Q2 2026
- Activation and Monitoring: Q3 2026 onwards
- Milestones: Site approval, procurement, installation completion, operational commencement.

**MEASURE 2: MUNICIPAL FLEET CONVERSION**

- Fleet Assessment: Q1 2025
- Procurement and Training: Q2-Q4 2025
- Implementation and Evaluation: Q3 2026 onwards
- Milestones: Fleet conversion completion, training sessions, emissions reduction assessments.

**MEASURE 3: BIKE AND PEDESTRIAN NETWORK**

- Design and Community Engagement: Q1-Q2 2025
- Construction and Implementation: Q3 2025 – Q2 2026
- Usage Monitoring and Impact Assessment: Q3 2026 onwards
- Milestones : Construction completion, public usage initiation, impact reports.

**MEASURE 4: PUBLIC TRANSPORTATION**

- Design and Community Engagement: Q1-Q2 2025
- Construction and Implementation: Q3 2025 – Q2 2026
- Usage Monitoring and Impact Assessment: Q3 2026 onwards
- Milestones : Construction completion, public usage initiation, impact reports.

*Reporting*

The projects will incorporate semi-annual and final reporting into project-specific timelines, ensuring that progress, challenges, and outcomes are transparently communicated to the EPA. This will include detailed progress on milestones, budget adherence, and the tangible GHG reduction impacts.

## 4 Low-Income and Disadvantaged Communities

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### A. Community Benefits

#### *Measure 1: EV Strategy*

The proposed projects will offer direct benefits to low-income, underserved, and disadvantaged communities across the entire county. By introducing more EVs and related infrastructure, this initiative aims to lessen the transportation challenges these communities face, reduce their transportation expenses, and cut down on diesel consumption. This will not only provide financial benefits and relief but also contribute to a cleaner, healthier environment.

In addition, the EV strategy aligns with and enhances local efforts, such as the transition of city and public transportation fleets to electric power (Measure 2, municipal fleet conversion). Data from the Climate and Economic Justice Screening Tool indicate that the census tracts containing the primary infrastructure installation locations, as well as the City of Fresno as a whole, are considered disadvantaged, overburdened, and underserved communities with existing burdens such as low income and environmental quality issues. This strategy offers a dual benefit: alleviating economic strain and breaking down transportation barriers. In addition to reducing household transportation costs, the measure will also improve accessibility to essential services, businesses, jobs, and green spaces by reducing household transportation costs to increase affordable transportation options for families and the community.

As more people transition to EVs, we will see a reduction in air pollution and community exposure to PM<sub>2.5</sub> and noise reduction. This is particularly beneficial in densely populated areas and environmental justice communities that face environmental quality issues, where the shift from combustion engines to electric motors can markedly improve the quality of life. The environmental indicators analyzed for project benefits include particulate matter 2.5, ozone, diesel particulate matter, air toxics cancer risk, air toxics respiratory hazard index, toxic releases to air, traffic proximity and volume, hazardous waste proximity, and so on.

#### *Measure 2: Municipal Fleet Conversion*

Direct project benefits to communities include local reductions in PM<sub>2.5</sub> resulting from combustion in vehicles, and reduced exposure to diesel particulate emissions, ozone, and noise. Transitioning to EVs is not just an environmental decision, it is also a vital driver for community development. Air quality impacts improvements and improved public health from municipal fleet conversion will have a broader regional impact, particularly given the directional flow of air across the county from southeast to northwest, which carries pollutants from one area to another. This initiative will help mitigate these effects, especially in the Fresno Region within the Central Valley, where geographical features can trap air pollutants. Measure 2 offers a comprehensive strategy with important benefits to uplift underserved communities, foster economic growth, and build a resilient and sustainable community infrastructure.

*Measure 3: Bike and Pedestrian Network*

This measure will promote a higher share of active transportation modes and support reductions in car trips that will reduce PM<sub>2.5</sub> emissions, reduce traffic congestion in high concentration areas, and improve health and life expectancy. Low-income and disadvantaged communities stand to gain significantly from Measure 3. These neighborhoods experience disproportionately high air pollution and lower life expectancy burdens. By offering cleaner transportation alternatives, this measure can help alleviate these burdens, enhancing the overall well-being of the residents.

Accessible and safe active transportation options can also positively impact households financially by reducing the costs of transportation. They also improve access to primary services, businesses, jobs, and education. In addition, there are co-benefits from fostering a more connected community. As more people can safely bike or walk, social interactions in public spaces can increase, contributing to a lively community atmosphere.

*Measure 4: Public Transportation*

This measure will support the implementation of transit projects identified by three transit agencies in Fresno County. The transit improvement projects include new services, expanded services, amenity improvements, facility upgrades and maintenance, capital/operational improvements, etc. Implementing these projects will incentivize more people to use public transportation to travel throughout the region and reduce VMT. Direct benefits from this measure include reduced PM<sub>2.5</sub> emissions, diesel, ozone, and noise (traffic proximity) levels in the region due to fewer private vehicles on the road. The expansion of transit routes will reduce barriers to travel for low-income households that depend on public transit and improve connectivity to the rest of the city including access to services, education, jobs, parks, and green spaces. In addition, improvements in access to public transit may reduce poverty burdens due to reduced transportation costs. Increasing service times, routes, and transit vehicle trip frequencies will result in the creation of new jobs (e.g., transit drivers and maintenance operators).

**B. Community Engagement**

The Coalition and all partner organizations are dedicated to conducting a robust community engagement strategy that encourages equitable inclusion, communication and engagement with all community members residents, stakeholders, low-income and disadvantaged communities. The region is known for its poor air quality and extreme heat conditions during the summer months. The extreme climate events exacerbate air quality issues, causing severe impacts on people living in the region. Individuals living in low-income and disadvantaged communities bear the brunt of the extreme climate conditions as they lack resources to mitigate the impacts. Meaningful, consistent and transparent engagement will ensure that feedback from communities will be incorporated into the project plan and strategy throughout development and implementation. The goal of targeted engagement with low-income and disadvantaged communities is to ensure that community input and feedback will be continuously incorporated in the project, create transparent planning for early risk mitigation, and gather community feedback on local benefits and prioritizing what they value the most.

The Coalition is committed to a comprehensive and engaging public process with the following approach to begin immediately upon project funding:

- A far-reaching public outreach plan with multi-media platform to reach the general public, especially focusing on low-income/ disadvantaged communities, and inform them of the project,

timeline, benefits, impacts and solicit input and feedback, perspectives and meaningful consultation with community residents;

- Multilingual communication will ensure clear and accessible communication with diverse community members throughout the grant period. Culturally appropriate communication channels will be utilized, including multilingual materials, translated flyers, partnership with faith-based organizations, community centers, and utilize trusted community leaders for outreach.
- Regularly scheduled meetings in collaboration with the City's Office of Community Affairs will ensure residents are informed about project progress, concerns are addressed, and benefits are delivered effectively. Community meetings and annual public forums will be hosted for ongoing communication and collaboration throughout the project lifecycle.
- A Stakeholder Steering Committee with representation from the local governments, sector representatives, transit agencies, workforce centers, community groups and other interested general public, which will provide guidance and input on the overall project development and implementation;
- FCOG's three standing committees (Transportation Technical Committee, Policy Advisory Committee, and the Policy Board) will review and recommend approval of all deliverables.
- Workforce efforts include: Building partnerships with the local workforce board, Fresno Community College, CBOs, and local unions. Host targeted recruitment efforts in collaboration with the local workforce board, local contractors, CBOs to target disadvantaged and low-income communities. Town Hall meetings will be hosted to deploy workforce development & job quality programs.
- Collaborate with the City OCA to deploy Community Awareness Plan and host quarterly Community Awareness meetings/townhalls.

Each project that would be carried out as part of implementation of the PCAP and the Fresno Valley Region's transportation and greenhouse gas emissions reduction goals has been determined by thorough engagement and outreach with the public.

### *Stakeholder Committee*

FCOG convened a Stakeholder Steering Committee comprised of representatives of all 16 local governments in Fresno County and other key stakeholders in developing the PCAP and determining the priority projects in the region. The role of the Stakeholder Steering Committee was to provide input and guidance to the PCAP process and approve recommendations by considering comments and perspectives from external stakeholders and connecting staff with tribes, community groups, additional industry stakeholders, and the public.

### *Outreach to Low-Income and Disadvantaged Communities*

Similar to the strategy used for the development of the PCAP, FCOG will enlist and assign a representative on the Stakeholder Steering Committee to aid in representing and consistently communicating with the low-income and disadvantaged communities (LIDAC) and share insight on how each of the projects included in this application can uplift and improve the quality of life for residents. The representative assigned to LIDAC community outreach came from the Central Valley Community Foundation (CVCF), which has sponsored initiatives and projects aimed at transforming entire systems, not just fixing symptoms. The distinction between CVCF and other community-based organizations is their inclination, experience, and success in working with climate initiatives not only in Fresno, but the San Joaquin Valley and the State.

To supplement and guide the efforts of the project team and the Stakeholder Steering Committee, the outreach to the public was a significant factor in selecting the GHG reduction priority measures and selecting projects in the region that would have the greatest impact on overall GHG reductions. Public surveys were launched for all Fresno County residents to respond and share their comments. The project team partnered with Leadership Counsel for Justice and Accountability (the Leadership Counsel) in the outreach to low income and disadvantaged communities in Fresno County. The Leadership Counsel works alongside the most impacted communities to advocate for sound policy and secure equal access to opportunities regardless of wealth, race, income, and place. They aim to influence land use and transportation planning and public investment priorities, guide environmental policy, and promote the provision of basic infrastructure and services through community organizing.

The project team conducted community workshop presentations in Spanish to three unincorporated rural communities: Cantua Creek, Lanare, and Tombstone. The attendees at these community workshops were all residents of the LIDACs who were interested in the development of the PCAP, and improvement of their community transportation networks. They did not want their demographic and region to go unnoticed or without representation. At each workshop there were opportunities for residents to ask questions and fill out the survey to rank priority measures for GHG reduction under the four sectors.

## 5 Job Quality

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The City of Fresno recognizes the importance of creating high-quality green jobs alongside implementing GHG reduction measures. This commitment is evident in our successful track record of generating local jobs through past solar and energy efficiency projects. The Coalition is dedicated to ensuring the success of the projects funded by this grant and ensuring that the project offers a robust workforce development strategy that will create high-quality jobs, employ strong labor standards, and draw from a diverse and highly skilled workforce, as reflected in the grant budget request. The City of Fresno's goal is to actively upskill the existing workforce, recruit and hire a diverse workforce that reflects the demographics of Fresno, promoting equal opportunities for all qualified candidates. Project partners have carefully analyzed and selected professional staff to ensure that the goals and objectives of the project are met to implement the following workforce tasks and strategies.

**Incumbent Worker Training:** The project will provide specialized training programs and opportunities with high quality training models for drivers and municipal staff on EV use and maintenance, to e. Partnerships with local community colleges will offer nationally recognized occupational skills training and certification in Advance Technology Vehicles, EV Infrastructure and green jobs. The project goal is to train 25 incumbents each year. Training will also include anti-harassment and OSHA training to ensure a healthy and safe work environment. This training and on-the-job learning will equip workers with the skills and knowledge needed to advance in their careers, transition to clean energy jobs or adapt to evolving technologies within their current roles.

**Workforce Experience Training:** Hands-on work experience will be offered to individuals seeking careers in clean energy, or to new trainees each year. Workforce training opportunities will also be targeted to communities that face low median incomes with the goal to improving their access to opportunities and reducing their unemployment rates. LIDAC communities census tract IDs facing socio-economic burdens are adjacent to the census tracts where the mitigation measure will be implemented and therefore stand to benefit. Partnerships with the local workforce, Community Based Organizations, and the existing partner - One Fresno Youth Jobs Corps Program to recruit and offer work-experience, internships to youth and adults from the disadvantaged and low-income communities.

**High-Quality Jobs:** Infrastructure construction for EV charging stations will create high-quality jobs and local employment opportunities, while fostering job growth in EV manufacturing, technology sectors, and infrastructure development. While we anticipate a shift in the job landscape, with less need for traditional vehicle maintenance roles, this transition opens the door to new, sustainable career paths. For both EV and active transportation, new infrastructure in the Fresno County region will create high-road jobs with competitive wages and benefits and have a significant positive impact on local economies including supportive services, family sustaining benefits and retirement contributions. Each potential worker for the project would be evaluated based on their skill and relevant experience to ensure that all potential workers are being compared equitably. Job quality will be assessed and measured by conducting job quality monitoring and annual audits.

**Job Quality Monitoring:** As part of City's Labor Agreement for construction projects, the City will collaborate with the Construction Management Division from the Capital Project Management Department to conduct regular assessments and audits to ensure fair wages, benefits, and adherence to labor standards are being met by all contractors and subcontractors Workers will be respected, empowered, and treated fairly by their employers to ensure that systemic barriers are not presented



within the workplace. All workers would be guaranteed a stable, predictable, and livable wage before overtime, tips, and commissions. In addition, workers will be compensated for their skills and improvement. As a workers' ability improves, their wage will increase as a reflection of their work and commitment. Advancements in transportation infrastructure also provide opportunities for personal and professional growth and development, with workers acquiring unique, yet applicable, skills for the changing future.

## 6 Programmatic Capability and Past Performance

### A. Past Performance

Award Name	Funding Source	Award Amount	Description	Reporting Status	Contact
Climate Pollution Reduction Planning Grant No. 66.046	US Environmental protection Agency	\$1 Million	Planning funds for the Fresno County Climate Action Plan	Providing quarterly reports and working on project deliverables	Paul Herman
Regional Infrastructure Accelerator Program No. 20.223	US Department of Transportation	\$1.75 Million	Support preliminary planning for public-private partnerships for a system of inland ports in Central California	Provide quarterly reports, produce and adhere to project scope, and meet bi-weekly with Federal partners	Paul Herman
Regional Infrastructure Accelerator Program No. 20.223	US Department of Transportation	\$1 Million	Identify sites best suited to support an inland port	Provide quarterly reports, produce and adhere to project scope, and meet bi-weekly with Federal partners	Paul Herman

### B. Reporting Requirements

FCOG, in addition to the three listed Federal grant programs, routinely manages Federal formula funding streams for various projects throughout the region. The two projects managed by the FCOG staff include the Congestion Mitigation and Air Quality program and Surface Transportation Block Grant. However, FCOG works closely with the Fresno County Transportation Authority in securing and adhering to guidelines from the following programs: Yosemite Area Regional Transportation System, Fresno County Rural Transit Agency Maintenance Facility, and Bus Procurements. All requirements under each assistance agreement have been consistently met. FCOG has adequately and timely reported on its progress toward achieving the expected outputs and outcomes under agreements (State/Federal). FCOG has maintained strong communication between grant administrators and stakeholders from the region alike to ensure projects are delivered on time and with accuracy.

### C. Staff Expertise

The Lead Agency for the partnership is FCOG, with a team of seven people to manage components of each of the three measures. At FCOG, our staff's expertise is pivotal for our EPA grant application, showcasing a dynamic team led by **Executive Director Robert Phipps**, who ensures the integrity and success of our diverse projects in the Central Valley. With over two decades of leadership, Mr. Phipps' experience in urban and transportation planning is complemented by **Finance Director Les Beshears'** meticulous management of regional financial plans, including a significant transportation development fund and the Federal Transportation Improvement Program. **Principal Planner Paul Herman** brings a decade of specialized experience in regional transportation and environmental planning, leading pivotal projects like the 2026 Regional Transportation Plan. Additionally, **Senior Regional Planner Simran Jhutti's** expertise in goods movement, active transportation, and climate

action planning, alongside her commitment to diversity and equity, reinforces our team's ability to tackle environmental challenges and improve community quality of life in the San Joaquin Valley. This collective expertise underlines our commitment to advancing sustainable transportation and environmental solutions, aligning with the goals of the EPA grant.

The City of Fresno, as the second member of the Coalition, also plays an integral role in the success of the Grant implementation. The City of Fresno's leadership team, under **City Manager Georgeanne White's** nearly two decades of executive experience, showcases a blend of expertise crucial for our EPA grant application. Georgeanne's background in government operations and policy, combined with her strategic leadership, sets a strong foundation for our team. **Assistant City Manager Nick Mascia** brings extensive engineering and public-sector experience, enhancing our capabilities in managing public utilities and capital projects. **TJ Miller, Assistant City Manager**, contributes deep knowledge in personnel services and community engagement, demonstrating a commitment to improving city life. **Director of Capital Projects, Randall Morrison**, with his expertise in civil engineering and project management, ensures the successful delivery of significant city projects. Lastly, **Brian Barr, the Director of General Services**, with his background in project management and municipal fleet management, further enriches our team's ability to deliver efficient and effective services.

Together, this team's diverse expertise and dedicated leadership are instrumental in driving our city's initiatives and aligning with the goals of the EPA grant.

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## 7 Budget

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### A. Budget Detail

The budget includes all projects that will be carried out by the Coalition and partner organizations upon awarding grant funds. Since FCOG will be the overseeing entity for the distribution and use of funds, most budget needs are considered contractual. Individual budget breakdowns for each project, all needed materials, staffing needs, and other categories are provided on a project-by-project basis to ensure proper use of funds. The budget table attached to this application also includes costs for materials and personnel costs for coalition organizations where applicable.

Note that the budget sheet accounts for any matching funds anticipated as a part of each project application. These funds are also shown in Table 1 below. The total requested amount is \$199,134,008. By measure, the total requested amounts are \$5,636,968 for Measure 1, \$118,246,205 for Measure 2, \$69,617,055 for Measure 3, and \$5,633,780 for Measure 4.

### B. Expenditure of Awarded Funds

Project Directors and the Lead Applicant will utilize its existing accounting and management system to move funding through organization auditing checks. Grant agreements and payments to subgrantees will proceed quickly and in compliance with EPA's Subaward Policy and the Automated Standard Application Payments (ASAP) and Proper Payment Draw General Term and Conditions of EPA Financial Assistance Agreements.

The Coalition will:

1. Ensure subawards and contracted services are clearly identified in reporting to EPA;
2. Evaluate contractors and partner risk of noncompliance with Federal statutes, regulations, and other terms and conditions of the subaward for purposes of determining the appropriate subrecipient monitoring;
3. Consider imposing specific conditions upon a funded entity, if appropriate;
4. Monitor the activities of the recipients to ensure funds are used for authorized purposes;
5. Employ monitoring tools, as necessary, to ensure proper accountability and compliance with program requirements and performance goals;
6. Verify that every subrecipient is regularly audited and provides sufficient reporting documentation;
7. Consider whether the results of the subrecipient's audits, on-site reviews, or other monitoring indicate conditions that necessitate adjustments to organizational practice or partnering obligations; and
8. Consider taking enforcement action against noncompliant subrecipients. The Coalition will utilize the EPA Subaward Policy Appendix D: Subaward Agreement Template to ensure compliance with the subaward content requirements in 2 CFR 200.332(a).

## C. Reasonableness of Costs

To ensure the effective and efficient use of grant funds, this section outlines the reasonableness of costs associated with the proposed project under the CPRG. Our commitment is to ensure that each dollar is allocated judiciously, maximizing the impact of the project while adhering to federal cost principles.

### *Cost Justification and Transparency*

All costs within the budget are itemized, ensuring transparency and ease of understanding. Each line item is clearly defined, with a comprehensive explanation provided to illustrate how each cost contributes to the project's objectives. Both direct and indirect costs are scrutinized for reasonableness. Direct costs are tied explicitly to project activities, while indirect costs are allocated based on a justified and consistent method, aligning with federal regulations and accepted accounting principles.

### *Cost Efficiency and Effectiveness*

As shown in Table 1, the project leverages additional resources, including matching contributions from other funding sources, to enhance the value and impact of the EPA's investment. This approach demonstrates a commitment to cost-effectiveness and resource optimization. Where possible, the project capitalizes on economies of scale, purchasing in bulk or consolidating resources to lower costs without compromising quality or project outcomes. Furthermore, the budget is adaptable, allowing for adjustments based on project monitoring and evaluation outcomes. This flexibility ensures that funds are allocated to the most impactful activities, enhancing cost-effectiveness.

**Table 1 Matching Funds per Project**

Project Name	Matching Funds
<b>City of Fresno</b>	
FAX Light Duty ZEV and Charging Infrastructure	n/a
FAX Bus Stop Improvements for New Bus Service and/or Route Extensions	n/a
City of Fresno Fleet Conversion	See below.
First Street Phase 3 Protected Bikeway	\$845,526
Midtown Trail Tunnel and Regional Connectivity Project	n/a
Palm Bikeway	n/a
Orange and Butler Sidewalks	n/a
Dakota Avenue Safe Routes to School	n/a
Florence Avenue	n/a
Southern Blackstone Smart Mobility	\$1,171,685
<b>City of Sanger</b>	
5th and 9th Street Sidewalks	n/a
<b>City of Firebaugh</b>	
WWTP Class I Multi-Use Path	n/a
<b>City of Clovis</b>	
Enterprise Trail Connection	n/a

Project Name	Matching Funds
<b>City of Mendota</b>	
Marie Street Complete Street Improvements	\$152,900.95 (5%)
<b>City of San Joaquin</b>	
Trail Extension and Pocket Park	n/a
<b>City of Parlier</b>	
Class I Multi-Use Trail	\$112,500 (5%)
Mendocino Avenue Trail	\$43,750 (5%)
South Avenue Improvements	\$129,740 (5%)
Milton Avenue Improvements	\$50,000 (5%)
<b>City of Fowler</b>	
West Side Alternative Transportation	n/a
<b>Fresno County</b>	
Caballero Easton Project	n/a
Mayfair – New Bikeways and Sidewalks	n/a
New Fig Garden – New Bikeways and Sidewalks	n/a
Old Fig Garden – New Bikeways and Sidewalks	n/a
Sunnyside – New Bikeways and Sidewalks	n/a
Tarpey – New Sidewalks	n/a
<b>Fresno County Rural Transit Agency</b>	
Selma Maintenance Facility Phase II GHG Emission Reductions	n/a

## C. City of Fresno Fleet Conversion Budget Narrative

### *Vehicle Replacement*

This section outlines the funding allocation for municipal fleet vehicle replacements over the five-year CPRG grant period. The total budget for these activities is \$36,470,000. This cost will replace 181 light-duty vehicles and 155 medium- and heavy-duty vehicles operated by the City of Fresno. The cost estimates per vehicle type are listed below and were developed based on an analysis of costs of current electric vehicle models in the market of similar operational function and gross vehicle weight rating to the replacement vehicle. The total cost also includes estimates for both inflation as well as projected decreases in the cost of EVs over time that may result from market changes. It does not factor in any specific tax rate, however the budget numbers are rounded to the nearest \$1,000, so they should be within a reasonable margin of error for actual purchase prices.

**Table 2 Cost per Vehicle Type**

Vehicle Class	Cost Estimate
Class 1 – Sedans	\$45,000
Class 1 – SUVs, Vans, and Pickups	\$70,000
Class 2	\$100,000
Class 3	\$100,000
Class 4	\$250,000
Class 5	\$250,000
Class 6	\$250,000
Class 7	\$570,000
Class 8	\$570,000

Based on expected timelines for vehicle procurement and deployment, the costs per year are outlined below.

**Table 3 Cost per Year**

Year	Total Cost
2025	\$3,054,000
2026	\$3,800,000
2027	\$17,400,000
2028	\$11,145,000
2029	\$1,071,000
<b>Total</b>	<b>\$36,470,000</b>

### *EV Infrastructure*

This section outlines the project budget for installation of 949 Level 2 and 690 DCFC fast chargers to service the City's of Fresno's electric vehicle fleet. The total budget for this project is approximately \$109M; however, nearly \$340k of the make-ready costs will be covered by the Pacific Gas and Electric's EV Fleet program so the total funding request to CPRG for these installations is \$77,021,600. This amount will cover the installed equipment cost including commissioning, design, permitting, and construction management. It also includes a 20% cost contingency amount to account for site specific cost variances like trench length additions, in-ground infrastructure navigation, and unforeseen design changes.



**Table 4 EV Infrastructure Costs**

# of Chargers	Type	Installed Equipment Cost (incl. Commissioning)	Design/Permitting /Construction	Contingency	TOTAL
\$ 718	9.6kW	\$ 1,346,250	\$ 1,938,600	\$ 1,292,400	\$ 4,577,250
\$ 231	19.2kW	\$ 669,900	\$ 963,270	\$ 642,180	\$ 2,275,350
\$ 109	25kW	\$ 2,725,000	\$ 1,177,200	\$ 784,800	\$ 4,687,000
\$ 511	75kW	\$ 28,105,000	\$ 13,337,100	\$ 8,891,400	\$ 50,333,500
\$ 69	180kW	\$ 7,590,000	\$ 4,222,800	\$ 2,815,200	\$ 14,628,000
\$ 1	350kW	\$ 286,000	\$ 140,700	\$ 93,800	\$ 520,500
Total Cost		\$ 40,722,150	\$ 21,779,670	\$ 14,519,780	\$ 77,021,600

The funds for design, permitting, construction management and contingency will largely be spent in the first year, with the remaining installed equipment costs spent evenly over the five-year grant period.

**Table 5 Budget Allocation**

CATEGORY	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	TOTAL
EVSE design/construction/permitting	\$ 21,779,670					\$21,779,670
EVSE charging hardware installed	\$ 8,144,430	\$ 8,144,430	\$ 8,144,430	\$ 8,144,430	\$ 8,144,430	\$40,722,150
EVSE Contingency	\$ 2,903,956	\$ 2,903,956	\$ 2,903,956	\$ 2,903,956	\$ 2,903,956	\$14,519,780
Total						\$77,021,600

### *Workforce Development & Community Awareness*

This section outlines the funding allocation for workforce development and community awareness activities over the five-year CPRG grant period. This budget prioritizes continuous investment in workforce development to create a skilled and qualified clean energy workforce. Community awareness activities will ensure inclusive participation and project transparency. The consistent annual allocations across most categories provide stability and predictability for program implementation. The total budget for these activities is \$687,500 distributed across the following categories:

#### **Workforce Development & Job Quality (\$612,500):**

- Incumbent Worker Training (\$162,500): This allocation will support training programs for existing workers to equip them with the skills and knowledge needed to transition to clean energy jobs or adapt to evolving technologies within their current roles. Annual funding of \$32,500 will ensure consistent training opportunities throughout the grant period.
- Work Experience Program (\$400,000): This funding will provide hands-on work experience for individuals seeking careers in clean energy. The annual allocation of \$80,000 will allow for continuous program operation and participation of new trainees each year.
- Job Quality Monitoring (\$60,000): This allocation will support efforts to ensure wages, safe working conditions, and adherence to labor standards within the clean energy sector. \$12,000 will be dedicated to job quality monitoring activities annually.

## Community Awareness (\$75,000):

- Multilingual Communication (\$15,000): This annual allocation of \$3000 will ensure clear and accessible communication with diverse community members throughout the grant period. Funding will support the development and dissemination of multilingual materials and ongoing community awareness efforts.
- Regular Meetings (\$60,000): This allocation will facilitate ongoing communication and collaboration with the community throughout the project lifecycle. \$12,000 will be used to conduct regular meetings and public forums each year.

*Personnel Cost*

The City of Fresno is dedicated to ensuring the success of its fleet electrification program and, in particular, the goals of this CPRG-funded project. The City has carefully analyzed the professional staff required to ensure that goals and objectives of the project are met and tasks will be implemented effectively and efficiently.

The City plans to utilize the skills, knowledge, and expertise of the following staff professionals: two Engineer II, one Licensed Professional Engineer, one Engineering Inspector II, one Senior Engineering Inspector, one Chief Engineering Technician and one Licensed Engineer Manager. The titles, utilization rates and associated costs are reflected in the table below and reflect the salaries, fringe and overhead associated with those job categories at that utilization rate, over the five-year project period.

Table 6 details the cost categories for the personnel cost share.

**Table 6 Municipal Fleet Conversion Project Matching Funds**

Job Class	Utilization	Salary	Fringe	Overhead	Total
(2) Engineer II	30%	516,090.61	128,393.47	250,616.32	895,100.41
(1) Licensed Professional Engineer	15%	183,312.33	41,701.10	86,796.13	311,809.55
(1) Engineering Inspector II	90%	492,520.09	148,758.48	249,153.28	890,431.85
(1) Sr Engineering Inspector	50%	296,353.30	83,541.27	146,925.50	526,820.07
(1) Chief Engineering Inspector	10%	65,166.65	18,511.79	32,387.91	116,066.35
(1) Chief Engineering Technician	5%	36,655.78	10,160.04	18,029.03	64,844.86
(1) Licensed Engineer Manager	5%	58,173.37	13,160.75	27,383.17	98,717.28
<b>Total</b>		<b>1,648,272.13</b>	<b>444,226.90</b>	<b>811,291.34</b>	<b>2,903,790.38</b>

*Compliance with Federal Regulations*

All costs adhere to the principles outlined in 2 CFR Part 200, ensuring that expenditures are necessary, reasonable, and allocable to the project. The project's financial management system is designed for transparency and accountability, maintaining audit-ready records to demonstrate compliance with federal spending requirements. Lastly, the budget excludes costs that are unallowable under federal regulations, ensuring that all expenses are eligible and directly related to project objectives.

The budget narrative presented demonstrates a thorough approach to ensuring the reasonableness of costs. It reflects a strategic allocation of resources, emphasizing transparency, compliance with federal guidelines, and a commitment to maximizing the impact of the CPRG Program's investment. Through careful planning and adherence to regulatory standards, this project exemplifies fiscal responsibility and dedication to achieving environmental and community benefits in a cost-effective manner.

# 1 Technical Appendix

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## A. Methodological Approach

Each of the proposed projects is related to updating and enhancing the mobility network, including projects that will bridge gaps in existing active and public transportation networks and provide wayfinding, while other projects will increase the distribution of electric vehicle (EV) chargers and related infrastructure. Reductions to vehicle miles traveled (VMT) from all active transportation projects presented here were quantified following methodology described in the California Air Pollution Control Officers Association's (CAPCOA) *Handbook for Analyzing Greenhouse Gas Emissions Reductions, Assessing Climate Vulnerabilities and Advancing Health and Equity*, hereafter referred to as the Handbook.<sup>1,2</sup> CAPCOA is a non-profit organization formed to promote clean air and provides a forum for sharing knowledge, experience, and information among California's 35 air quality regulatory agencies.<sup>3</sup> The Handbook provides methods to quantify VMT reductions from specific measures based on user inputs (i.e., community or project specific information) and constants, assumptions, and default values derived from peer reviewed studies. Community specific data used to quantify VMT reductions is based on best available data from CAPCOA, City of Fresno, County of Fresno, and FCOG.

As mentioned above, the emissions estimates summarized in this report are conservative as the calculations consider the specific reductions associated with the proposed projects, and do not include the emissions reductions associated with closing gaps in the network. Many of the projects outlined below align with goals of the United States Department of Transportation (DOT), as outlined in the Fiscal Year 2022-2026 DOT Strategic Plan, which has a goal of increasing the percentage of trips by transit and active transportation modes by 50% from 2020 levels. These interconnected networks will have benefits that are far reaching, including increased safety; improved air quality through reduced traffic congestion; improved access to economic opportunity for the community; and more connected communities.<sup>4</sup>

Project specific data used to quantify VMT reductions was provided by the applicant (FCOG and the City of Fresno) within the project grant application. Most of the projects proposed by the Coalition include components that improve the active transportation network by increasing the length of bikeways and sidewalks, or public transportation network by expanding transit coverage. Therefore, for the purposes of this analysis, the primary equations used from the Handbook were:

- T-18 Provide Pedestrian Network Improvement
- T-19A Construct or Improve Bike Facility
- T-20 Expand Bikeway Network
- T-25 Extend Transit Network Coverage or Hours

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<sup>1</sup> California Air Pollution Control Officers Association (CAPCOA). Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity. December, 2021. Accessed at: [https://www.airquality.org/ClimateChange/Documents/Final%20Handbook\\_AB434.pdf](https://www.airquality.org/ClimateChange/Documents/Final%20Handbook_AB434.pdf)

<sup>2</sup> While the majority of project specific VMT reductions were quantified using the Handbook's methodologies, some project applications already calculated VMT reductions which were used to quantify GHG emission reductions.

<sup>3</sup> CAPCOA. About CAPCOA. Accessed at: <https://capcoa.org/>

<sup>4</sup> United States Department of Transportation. Match 4, 2024. Active Transportation. Accessed at: <https://www.transportation.gov/mission/office-secretary/office-policy/active-transportation/active-transportation#:~:text=Instead%20of%20connected%20networks%2C%20pedestrians,walking%2C%20biking%2C%20or%20rolling.>

These equations and a description of user inputs can be found below. GHG emission reductions attributable to electric vehicle (EV) charging infrastructure for medium and heavy-duty EVs were quantified using project specific data and state- and county-level modeling tools such as the California Air Resources Board’s (CARB) Emission FACTor (EMFAC) model<sup>5</sup> and EPA’s eGRID database. Additionally, see Appendix A for a summary of calculations used.

CAPCOA Equation T-18 provides an estimate of VMT reduction associated with increased development of sidewalks within a community. User inputs B and C (sidewalk lengths) vary by project and can be found under each individual project description. The calculation is based on the increase in sidewalk length each project would provide compared with the entire length of sidewalk in each city or town. A default value for D (-0.05) was used across all calculations utilizing Equation T-18. Data used for quantification is summarized in Table 1.

*Equation T-18 Provide Pedestrian Network Improvement*

$$A = \left( \frac{C}{B} - 1 \right) \times D$$

**Table 1 T-18 Equation Inputs, Constants, Assumptions, and Available Defaults**

ID	Variable	Value	Unit	Source
<b>Output</b>				
A	Percent reduction in GHG emissions from household vehicle travel in plan/community	0 – 6.4	%	Calculated
<b>User Inputs</b>				
B	Existing sidewalk length in study area	Varies by Project	Miles	User input
C	Sidewalk length in study area with project	Varies by Project	Miles	User input
<b>Constants, Assumptions, and Available Defaults</b>				
D	Elasticity of household VMT with respect to the ratio of sidewalks-to-streets	-0.05	Unitless	Fran et al. 2011

CAPCOA Equation T-19A provides an estimate of VMT reduction associated with increased development of single bicycle lane facilities that connect to a larger existing bikeway network within a community. User inputs B, C, and E vary by project and can be found under individual project descriptions. User input D remained the same across all calculations (0.0015) and was determined by the proximity of key destinations to each bike facility. Each project’s bike facility is planned to be within a ½ mile of seven or more key destinations, offering the third highest key destination credit default<sup>6</sup>. User input F remained the same across all calculations (320 days) and was determined by the “bikeable” weather in the location of each project (i.e., Fresno County). User inputs G and H (2.9 VMT and 10.9 VMT, respectively) remained the same across all calculations and were determined by utilizing a Core-Based Statistical Area (CBSA) from the Handbook’s Table T-10.1 most representative of Fresno County based on geography. This was Sacramento-Roseville-Arden-Arcade CBSA. Data used for quantification is summarized in Table 2.

<sup>5</sup> CARB. On-Road (EMFAC). Accessed at: <https://ww2.arb.ca.gov/our-work/programs/msei/on-road-emfac>

<sup>6</sup> Key destinations include place such as: banks, post offices, grocery stores, medical centers, pharmacies, office parks, places of worship, public libraries, schools, universities, colleges, and light rail stations (park & ride).

## Equation T-19A Construct or Improve Bike Facility

$$A = -B \times \frac{\frac{F}{I} \times (C + D) \times E \times G}{H}$$

**Table 2 T-19A Equation Inputs, Constants, Assumptions, and Available Defaults**

ID	Variable	Value	Unit	Source
<b>Output</b>				
A	Percent reduction in GHG emissions from displaced vehicles on roadway parallel to bicycle facility	0 – 0.8	%	Calculated
<b>User Inputs</b>				
B	Percent of plan/community VMT on parallel roadway	Varies by Project	%	User input
C	Active transportation adjustment factor	Varies by Project	Unitless	CARB 2020
D	Credits for key destinations near project	0.0015	Unitless	CARB 2020
E	Growth factor adjustment for facility type	Varies by Project	Unitless	CARB 2020
<b>Constants, Assumptions, and Available Defaults</b>				
F	Annual days of use of new facility	320	Days per year	NOAA 2017
G	Existing regional average one-way bicycle trip length	2.9	Miles per trip	FHWA 2017
H	Existing regional average one-way vehicle trip length	10.9	Miles per trip	FHWA 2017
I	Days per year	365	Days per year	Standard

CAPCOA Equation T-20 provides an estimate of VMT reductions associated with increased length of a city or community bikeway network. User inputs B and C vary by project and can be found under individual project descriptions. Defaults D and E (0.56% and 95.04%, respectively) remained the same across all calculations and were determined by utilizing a CBSA from the Handbook's Tables T-20.1 and T-3.1 most representative of Fresno County by geography. This was Sacramento-Roseville-Arden-Arcade CBSA. Similarly, Defaults F and G remained the same across all calculations and were determined by using the Sacramento-Roseville-Arden-Arcade CBSA as a proxy for Fresno County. Default H remained the same across all calculations utilizing Equation T-20 as this is a default that does not change. Data used for quantification is summarized in Table 3.

## Equation T-20 Expand Bikeway Network

$$A = -1 \times \frac{\left(\frac{C - B}{B}\right) \times D \times F \times H}{E \times G}$$

**Table 3 T-20 Equation Outputs; Inputs; and Constants, Assumptions, and Available Defaults**

ID	Variable	Value	Unit	Source
<b>Output</b>				
A	Percent reduction in GHG emissions from employee commute vehicle travel in plan/community	0 – 0.5	%	Calculated
<b>User Inputs</b>				
B	Existing bikeway miles in plan/community	Varies by Project	Miles	User input
C	Bikeway miles in plan/community with project	Varies by Project	Miles	User input
<b>Constants, Assumptions, and Available Defaults</b>				
D	Bicycle mode share in plan/community	0.56	%	FHWA 2017
E	Vehicle mode share in plan/community	95.04	%	FHWA 2017
F	Average one-way bicycle trip length in plan/community	2.9	Miles per trip	FHWA 2017
G	Average one-way vehicle trip length in plan/community	10.9	Miles per trip	FHWA 2017
H	Elasticity of bike commuters with respect to bikeway miles per 10,000 population	0.25	Unitless	Pucher & Buehler 2011

CAPCOA Equation T-25 provides an estimate of VMT reductions associated with increased transit network coverage resulting from, for example, increasing the frequency of service or extending service to cover new areas and times. User inputs B and C vary by project and can be found under individual project description. Default D (2.9%) was determined by utilizing a CBSA from the Handbook's Table T-3.1 most representative of Fresno County by geography. This was Sacramento-Roseville-Arden-Arcade CBSA. Default E and F remained the same across all calculations utilizing Equation T-25 as these are defaults that do not change. Data used for quantification is summarized in Table 4.

*Equation T-25 Extend Transit Network Coverage or Hours*

$$A = \left( \frac{C - B}{B} \right) \times D \times E \times F \times G$$

**Table 4 T-25 Equation Outputs; Inputs; and Constants, Assumptions, and Available Defaults**

ID	Variable	Value	Unit	Source
<b>Output</b>				
A	Percent reduction in GHG emissions from plan/community VMT	0 – 4.6	%	Calculated
<b>User Inputs</b>				
B	Total transit service miles or service hours in plan/community before expansion	Varies by Project	Miles	User input
C	Total transit service miles or service hours in plan/community after expansion	Varies by Project	Miles	User input
D	Transit mode share in plan/community	2.9	%	FHWA 2017

ID	Variable	Value	Unit	Source
<b>Constants, Assumptions, and Available Defaults</b>				
E	Elasticity of transit demand with respect to service miles or service hours	0.7	Unitless	Handy et al. 2013
F	Statewide mode shift factor	57.8	%	FHWA 2017
G	Ratio of vehicle trip reduction to VMT	1	Unitless	Assumption

### *FAX Fleet Conversion Methodology*

GHG emissions reductions achievable through this project were calculated by modeling the comparative full scope emissions of the fleet in its current composition against the comparative electrical energy consumption of a battery electric replacement. Full well-to-wheel carbon intensity (CI) values were used to estimate the total emissions of both the baseline (business as usual) internal combustion fleet and the potential EV replacements.

To model these values, each vehicle's estimated daily energy demand was calculated from the daily miles travelled, fuel consumption, and operating days over a 12-month period. This value was interpreted as a total MJ of energy under its current fuel type and was then further converted to the equivalent kWh of electrical energy consumption required by a battery electric vehicle to perform the same daily operations. A standard energy efficiency ratio (EER) was applied to each vehicle's daily energy conversion to account for the variable efficiencies of different fuel types as compared to battery electric operations.

LNG vehicles were not included in GHG calculations as they apply strictly to refuse collection vehicles that are covered under ACF and will not be transitioned until later years of the compliance plan, outside of the scope of this grant application.

### **MODELS/TOOLS USED**

For the fleet-based GHG reduction analysis, the following tools were utilized:

- Internally developed spreadsheet-based energy demand analysis tool.
- California Air Resources Board (CARB) GREET 3.0 carbon intensity calculator.
- US Energy Information Administration (EIA) fuel efficiency projections.

### **MEASURE IMPLEMENTATION ASSUMPTIONS**

Certain assumptions were made regarding the operations and replacement strategy for the Fresno fleet that impact the phasing and overall GHG reduction estimates that can be achieved:

- Assumed vehicles of similar make/model/type have comparable duty cycles in terms of fuel consumption and daily miles travelled.
  - Applied where existing fuel consumption and mileage data was unavailable or inaccurate.
- Assumed all vehicles will be replaced at the end of their currently expected useful life (10 years).
  - For all units already past their expected use-life, their scheduled replacement was assigned to 2025.
- For purposes of annual emissions reduction, assumed vehicles will be on a battery electric platform on January 1<sup>st</sup> of their transition year.

**REFERENCE CASE SCENARIO**

Emissions reductions are calculated as the comparison between full scope well-to-wheels MTCO<sub>2</sub>e emitted by vehicles in the project scope operating on a current business-as-usual basis, minus the comparative well-to-wheels emissions of the same group of vehicles operating in the same manner under a battery electric vehicle platform. To calculate the annual emissions improvements, light-duty vehicles are assumed to be transitioned to the EV platform at the end of the currently expected useful life cycle. Since the medium-/heavy-duty vehicles in the scope are accelerated purchases, their expected emissions reduction are applied 5 years ahead of their currently expected useful life end.