Appendix F

Greenhouse Gas Emissions
Technical Report

Prepared for
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COSTCO COMMERCIAL CENTER GREENHOUSE GAS EMISSIONS TECHNICAL REPORT

FRESNO, CALIFORNIA

RAMBOLL

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APPENDICES

ACRONYMS AND ABBREVIATIONS

Acronym	Definition
AB	Assembly Bill
ACC	Advanced Clean Cars
ACE	Affordable Clean Energy
AEP	Association of Environmental Professionals
AP-42	United States Environmental Protection Agency's Compilation of Air Pollutant Emission Factors
APCD	Air Pollution Control District
APR	Application Review
AQMD	Air Quality Management District
AR4	Fourth Assessment Report
AR5	Fifth Assessment Report
AvgHP	Maximum rated average horsepower
BAU	Business-As-Usual
BPS	Best Performance Standards
CAA	Clean Air Act
CAFE	Corporate Average Fuel Economy
CalEEMod®	California Emission Estimator Model®
CalEPA	California Environmental Protection Agency
CalRecycle	California Department of Resources Recycling and Recovery
CAMX	California and Mexico
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CAT	Climate Action Team
CCCC	California Climate Change Center
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFCs	Chlorofluorocarbons
CFR	Code of Federal Regulations
CH_4	Methane
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
COG	Council of Governments
CPUC	California Public Utilities Commission
CY	cubic yard
DOE	Department of Energy
DTSC	Department of Toxic Substances Control
DWR	Department of Water Resources
EF	emission factor
EISA	Energy Independence and Security Act
EMFAC	EMission FACtors model
EO	Executive Order
EPA	Environmental Protection Agency
EVs	Electric vehicles
FR	Federal Register

ACRONYMS AND ABBREVIATIONS *(CONTINUED)*

Acronym	Definition
GAMAQI	Guidance for Assessing and Mitigating Air Quality Impacts
GHG	greenhouse gas
GW	Gigawatt
GWP	global warming potential
HFCs	hydrofluorocarbons
IPCC	Intergovernmental Panel on Climate Change
lbs	Pounds
LCFS	Low Carbon Fuel Standard
LLC	Limited Liability Company
MCY	million cubic yards
MDO	Market delivery operation
MRR	Mandatory Reporting Rule
MSW	Municipal solid waste
MT	metric tons
N_2O	nitrogen dioxide
NHTSA	National Highway Traffic Safety Administration
OFFROAD	Off-road Emissions Inventory Program model
OPR	Office of Planning and Research
PFCs	perfluorocarbons
PG&E	Pacific Gas and Electric
ppm	parts per million
PUP	Power/Utility Protocol
RCP	Representative Concentration Pathways
RCRA	Resource Conservation and Recovery Act
RPS	Renewables Portfolio Standards
RTP	Regional Transportation Plan
SAFE	Safer Affordable Fuel-Efficient
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SCS	Sustainable Communities Strategy
SDG&E	San Diego Gas & Electric
SF_6	Sulfur hexafluoride
SJVAPCD	San Joaquin Valley Air Pollution Control District
SLCPs	short-lived climate pollutants
TRU	transportation refrigeration unit
USDOT	the Department of Transportation
USEPA	United States Environmental Protection Agency
VMT	vehicle miles travelled
VW	Volkswagen
ZEVs	Zero emission vehicles

1. INTRODUCTION

Ramboll US Consulting, Inc. (Ramboll) was retained to prepare a Greenhouse Gas (GHG) Emissions Technical Report for the proposed Costco warehouse and gasoline dispensing facility in Fresno, California (Project).

This GHG Emissions Technical Report analyzes the Project's impacts on GHGs from construction and operations. In particular, this report describes the existing setting of the Project site, describes the relevant regulatory setting, discusses the methodology used to evaluate GHG emissions related to the Project, and evaluates potential impacts related to GHGs that would result with implementation of the Project.

1.1 Existing Conditions

The existing 22.4-acre site is currently undeveloped, located within the Bullard Community Plan Area, and designated by both the General Plan and zoning as Community Commercial. The location of the site is in Fresno, California at West Herndon Avenue and North Riverside Drive (**Figure 1**).

1.2 Project Analysis

The Costco Wholesale Corporation (Costco) proposes to construct the Costco Commercial Center, which comprises a new Costco facility (including loading docks and internal space to provide last-mile home delivery of big and bulky items) with an attached tire center and a detached gas station and drive-through car wash in the City of Fresno.

The project would develop a new Costco retail building; gas station; car wash; and associated parking areas, driveways, and other supporting infrastructure. Costco Wholesale is proposing to construct a wholesale retail facility with approximately 178,000 square feet (sq. ft.); of which approximately 57,000 sq. ft. would be reserved for storage and receiving at the northeast corner of W. Herndon Ave. and N. Riverside Dr (APN 50302012). The project involves the construction of a Costco retail facility that includes an attached tire center, as well as a detached gas station and a drive-through car wash. The project would include a Costco members-only gas station on the northern portion of the project site adjacent to West Spruce Avenue. The facility would include an approximately 11,500 square-foot canopy and a 125 square-foot controller enclosure. There would be four covered fueling islands, each with four two-sided fuel dispensers to provide for the fueling of eight cars at each island, for a total of 32 fueling positions. A Costco members-only automated carwash would be located at the northeastern corner of the project site, adjacent to the gas station. The car wash structure would be approximately 4,800 sq. ft. The project would have its main access points along North Riverside Drive and include approximately 889 parking stalls. The project is requesting conditional use permits for Large-Format Retail and alcohol sales, as well as a General Plan Amendment to reclassify the portion of W. Herndon Ave. fronting the project site from Expressway to Superarterial.

2. SCIENTIFIC AND REGULATORY BACKGROUNDS

2.1 Scientific Background

2.1.1 Science of Global Climate Change

There is a general scientific consensus that global climate change is occurring, caused in whole or in part by increased emissions of GHGs that keep the Earth's surface warm by trapping heat in the Earth's atmosphere, in much the same way as glass traps heat in a greenhouse. The Earth's climate is changing because human activities, primarily the combustion of fossil fuels, are altering the chemical composition of the atmosphere through the buildup of GHGs. GHGs allow the sun's radiation to penetrate the atmosphere and warm the Earth's surface, but do not let the infrared radiation emitted from the Earth escape back into outer space. As a result, global temperatures are predicted to increase over the century. In particular, if climate change remains unabated, surface temperatures in California are expected to increase anywhere from 4.1 to 8.6 degrees Fahrenheit by the end of the century. Not only would higher temperatures directly affect the health of individuals through greater risk of dehydration, heat stroke, and respiratory distress, the higher temperatures may increase ozone formation, thereby worsening air quality. Rising temperatures could also reduce the snowpack, which would increase the risk of water shortages. Higher temperatures along with reduced water supplies could reduce the quantity and quality of agricultural products. In addition, there could be an increase in wildfires and a shift in distribution of natural vegetation throughout the State. Global warming could also increase sea levels and coastal storms resulting in greater risk of flooding.

Emissions of carbon dioxide (CO_2) are the leading cause of global warming, with other pollutants such as methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons, and sulfur hexafluoride also contributing. The magnitude of the impact on global warming differs among the GHGs. For example, HFCs, perfluorocarbons, and sulfur hexafluoride have a greater "global warming potential" than CO_2. In other words, these other GHGs have a greater contribution to global warming than CO_2 on a per mass basis. The effect each GHG has on climate change is measured as a combination of the volume of its emissions and its global warming potential (GWP), and is expressed as a function of how much warming would be caused by the same mass of CO_2. Thus, GHG emissions are typically measured in terms of megagrams or metric tons (MT) of carbon dioxide equivalent (CO_2e). CO_2 has the greatest impact on global warming because of the relatively large quantities of CO_2 emitted into the atmosphere.

Globally, CO_2 concentrations, which ranged from 265 parts per million (ppm) to 280 ppm over the last 10,000 years, only began rising in the last 200 years to current levels of 410 ppm,[1] a 46 percent increase.

In 2019, the United States emitted about 6.6 billion MT of CO_2e or about 20 MT/person/year, calculated by dividing the emissions total by the U.S. Census Bureau 2019 population

[1] Intergovernmental Panel on Climate Change (IPCC). Climate Change 2021, The Physical Science Basis. 2021. Available at: https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Full_Report.pdf. Accessed: January 2022.

estimate. [2, 3] This represents a 12 percent reduction below 2005 total emission levels. Of the five major sectors nationwide -- residential, commercial, industrial, electric power generation, and transportation - transportation accounts for the highest fraction of GHG emissions (approximately 29 percent of emissions from these five sectors). These emissions are entirely generated from direct fossil fuel combustion. Fifty-eight percent of these transportation emissions resulted from passenger car and light-duty truck use. The remaining emissions came from other transportation activities, including the combustion of diesel fuel in medium- and heavy-duty vehicles, and jet fuel in aircraft. According to the Inventory of U.S. Greenhouse Gas Emissions and Sinks,[4] from 1990 to 2019 as a whole, transportation emissions from fossil fuel combustion rose, "due, in large part, to increased demand for travel".

In 2019, California emitted approximately 418 million tonnes of CO_2e, or about 6 percent of the U.S. emissions.[5] California's percentage contribution is due primarily to the sheer size of California, as compared to other states. For example, in 2018 (the most recent year of state rankings for energy-related CO_2 emissions per capita), California had the third lowest per capita energy-related CO_2 emission rates in the country (including Washington DC),[6] due to the success of its energy efficiency and renewable energy programs and commitments that have lowered the State's GHG emissions rate of emissions growth.[7] California's per capita GHG emissions in 2019 were 10.5 metric tons per person[8], while the U.S. per capita GHG emissions in that same year were 20.0 metric tons per person.[9, 10] Another factor that has reduced California's fuel use and GHG emissions is its mild climate compared to that of many other states. The emissions for the City of Fresno were approximately 2.9 million metric tons of CO_2e in 2016. The projected 2020 emissions for the City of Fresno are about 2.1 million

[2] USEPA. 2021. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2019. Available at: https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2019. Accessed: January 2022.

[3] U.S. Census Bureau. Annual Estimates of the Resident Population for the United States, Regions, States, and Puerto Rico: April 1, 2010 to July 1, 2019. (NST-EST2020). Available at: https://www2.census.gov/programs-surveys/popest/tables/2010-2020/state/totals/nst-est2020.xlsx. Accessed: January 2022.

[4] USEPA. 2021. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2019. Available at: https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2019. Accessed: January 2022.

[5] CARB. 2021. California Greenhouse Gas Emissions for 2000 to 2019 Trends of Emissions and Other Indicators. Available at: https://ww3.arb.ca.gov/cc/inventory/pubs/reports/2000_2019/ghg_inventory_trends_00-19.pdf. Accessed: January 2022.

[6] US EIA. 2021.Table 5: Per capita energy-related carbon dioxide emissions by state. Available at: https://www.eia.gov/environment/emissions/state/. Accessed: January 2022.

[7] The Center for Resource Efficient Communities. 2013. Residential Energy Use and GHG Emissions Impact of Compact Land Use Types. Report to ARB, Contract No. 10-323. Available at: http://www.arb.ca.gov/research/apr/past/10-323h.pdf. Accessed: January 2022.

[8] CARB. 2021. California Greenhouse Gas Emissions for 2000 to 2019 Trends of Emissions and Other Indicators. Available at: https://ww3.arb.ca.gov/cc/inventory/pubs/reports/2000_2019/ghg_inventory_trends_00-19.pdf. Accessed: January 2022.

[9] USEPA. 2021. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2019. Available at: https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2019. Accessed: January 2022.

[10] U.S. Census Bureau. Annual Estimates of the Resident Population for the United States, Regions, States, and Puerto Rico: April 1, 2010 to July 1, 2019. (NST-EST2020). Available at: https://www2.census.gov/programs-surveys/popest/tables/2010-2020/state/totals/nst-est2020.xlsx. Accessed: January 2022.

metric tons of CO_2e when accounting for emission reductions achieved by state-wide regulations, programs, and measures.[11]

The California Energy Commission (CEC) found that transportation is the source of approximately 40 percent of the State's GHG emissions, followed by industrial sources at 21 percent, and electricity generation (both in-state and out-of-state) at 14 percent. Residential and commercial activities comprised approximately 11 percent of the inventory. Agriculture and forestry is the source of approximately 8 percent of the State's GHG emissions.[12]

2.1.2 Potential Effects of Human Activity on Global Climate Change

Globally, climate change has the potential to impact numerous environmental resources through anticipated, though uncertain, impacts related to future air temperatures and precipitation patterns. Scientific modeling predicts that continued GHG emissions at or above current rates would induce more extreme climate changes during the 21st century than were observed during the 20th century. At the end of the 21st century, global surface temperature change is likely to exceed 1.5°C (relative to 1850-1900 levels) in all four assessed climate model projections but one.[13]

The understanding of GHG emissions, particulate matter, and aerosols on global climate trends is complex and involves varying uncertainties and a balance of different effects. In addition to uncertainties about the extent to which human activity rather than solar or volcanic activity is responsible for increasing warming, there is also evidence that some human activity has cooling, rather than warming, effects, as discussed in detail in numerous publications by the Intergovernmental Panel on Climate Change (IPCC), such as the Fifth Assessment Report (AR5) Synthesis Report.[14, 15] Nonetheless, when all effects and uncertainties are considered together, there is a strong scientific consensus that human activity has contributed significantly to global warming. As stated in the executive summary for the Working Group I contribution to the Sixth Assessment Report, "The evidence for human influence on recent climate change strengthened from the IPCC Second Assessment Report to the IPCC Fifth Assessment Report, and is now even stronger in this assessment."[16]

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[11] LSA. 2021. Greenhouse Gas Reduction Plan Update for the City of Fresno. Available at: https://www.fresno.gov/darm/wp-content/uploads/sites/10/2021/03/Link4AppendixGGHGRPUpdate.pdf. Accessed: March 2022.

[12] CARB. 2021. California Greenhouse Gas Emissions for 2000 to 2019 Trends of Emissions and Other Indicators. Available at: https://ww3.arb.ca.gov/cc/inventory/pubs/reports/2000_2019/ghg_inventory_trends_00-19.pdf. Accessed: January 2022.

[13] IPCC. Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report. Climate Change 2014: Synthesis Report. 2014. SPM.2.2. Available at: https://www.ipcc.ch/site/assets/uploads/2018/02/SYR_AR5_FINAL_full.pdf. Accessed: January 2022.

[14] The IPCC was established in 1988 by the World Meteorological Organization and the United Nations Environment Programme to assess scientific, technical, and socio-economic information relevant for the understanding of climate change, its potential impacts, and options for adaptation and mitigation. The IPCC has produced a series of Assessment Reports comprised of full scientific and technical assessments of climate change. The first assessment report was developed in 1990. The Fifth Assessment Report was completed in November 2014 with the Synthesis Report.

[15] Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report. Climate Change 2014: Synthesis Report. 2014. Figure SPM.3. Available at: https://www.ipcc.ch/site/assets/uploads/2018/02/SYR_AR5_FINAL_full.pdf. Accessed: January 2022.

[16] IPCC. 2021. Climate Change 2021 The Physical Science Basis, Working Group I contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Available at:

Acknowledging uncertainties regarding the rate at which anthropogenic GHG emissions would continue to increase (based upon various factors under human control, such as future population growth and the locations of that growth; the amount, type, and locations of economic development; the amount, type, and locations of technological advancement; adoption of alternative energy sources; legislative and public initiatives to curb emissions; and public awareness and acceptance of methods for reducing emissions), and the impact of such emissions on climate change, the IPCC devises emission scenarios which utilize various assumptions about the rates of economic development, population growth, and technological advancement over the course of the next century. For the AR5, Representative Concentration Pathways (RCPs) were developed to describe four different 21st century scenarios of greenhouse gas emissions, atmospheric concentrations, air pollutant emissions, and land use. RCPs are based on a combination of integrated assessment models, simple climate models, atmospheric chemistry, and global carbon cycle models.

- The projected effects of global warming are assessed under each of the five scenarios.[17]
- It is, at a minimum, more likely than not a 1.5°C increase in globally averaged surface area temperature (GSAT) will occur between 2021-2045 relative to the average over the period of 1850-1900.
- It is virtually certain that global mean sea level (GMSL) will continue to rise through the 21st century.
- It is likely the Arctic Ocean in September, the month of annual minimum sea ice area, will become practically ice free averaged over 2081-2100 and all available simulations.
- It is very likely that the cumulative uptake of carbon by the ocean and by land will increase through the end of the 21st century.

Potential secondary effects from global warming include impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity.

2.1.3 Potential Effects of Climate Change on the State of California

According to the California Air Resources Board (CARB), some of the potential impacts in California of global warming may include loss in snowpack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years.[18] The California Climate Change Center (CCCC) has released four assessment reports on climate change in California, the most recent in 2018. California's Fourth Climate Change Assessment projects an increase by 5.6-8.8°F from 2070 to 2100 depending on greenhouse gas emission reductions (at a moderate rate or continuing at current rates).[19]

https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Full_Report.pdf. Accessed: January 2022.

[17] Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report. Climate Change 2014: Synthesis Report. 2014. Available at: https://www.ipcc.ch/site/assets/uploads/2018/02/SYR_AR5_FINAL_full.pdf. Accessed: January 2022.

[18] California Air Resources Board (CARB), 2006. Public Workshop to Discuss Establishing the 1990 Emissions Level and the California 2020 Limit and Developing Regulations to Require Reporting of Greenhouse Gas Emissions, Sacramento, CA. December 1.

[19] California Climate Change Center, 2018. California's Changing Climate 2018. A Summary of Key Findings from California's Fourth Climate Change Assessment.

Below is a summary of some of the potential effects reported in an array of studies that could be experienced in California as a result of global warming and climate change.

2.1.3.1 Air Quality

Higher temperatures, conducive to air pollution formation, could worsen air quality in California. Climate change may increase the concentration of ground-level ozone, but the magnitude of the effect, and therefore its indirect effects, are uncertain. For other pollutants, the effects of climate change and/or weather are less well studied, and even less well understood.

If higher temperatures are accompanied by drier conditions, the potential for large wildfires could increase, which, in turn, would further worsen air quality. Studies have been conducted to evaluate the potential impacts of climate change on wildfire frequency based on lower and higher emissions scenarios. Per California's Fourth Climate Change Assessment, under a higher emissions scenario, the average area burned statewide could increase by 77 percent above historic levels by 2100.[20] Per California's Third Climate Change Assessment, the estimated burned area is projected to increase between 57 and 169 percent, depending on location.[21] However, if higher temperatures are accompanied by wetter, rather than drier conditions, the rains would tend to temporarily clear the air of particulate pollution and reduce the incidence of large wildfires, thus ameliorating the pollution associated with wildfires. Additionally, severe heat accompanied by drier conditions and poor air quality could increase the number of heat-related deaths, illnesses, and asthma attacks throughout the State.[22]

It is estimated that over the next decade, higher temperatures could increase the demand for electricity by 1 Gigawatt (GW) during summer months, which would require purchase of costly peak power from external sources or the construction of one new large power plant in California.[23] During periods of extreme heat, efficiency of electricity generation is reduced at natural gas plants; hydropower generation is reduced; and increased losses occur at substations; all while electricity demands are increased. These factors are projected to result in the need for more than 17 GW, or 38 percent of additional capacity, needed by 2100. Additionally, transmission lines lose 7 to 8 percent of transmitting capacity in higher temperatures, which also results in a need for increased power generation.[24]

2.1.3.2 Water Supply

Uncertainty remains with respect to the overall impact of global climate change on future water supplies in California. For example, models that predict drier conditions suggest decreased reservoir inflows and storage, and decreased river flows, relative to current

[20] Ibid.

[21] California Climate Change Center, 2012. Our Changing Climate 2012: Vulnerability and Adaptation to the Increasing Risks from Climate Change in California. CEC-500-2012-007. July, 2012.

[22] California Climate Change Center (CCCC), 2006. Our Changing Climate: Assessing the Risks to California, CEC500-2006-077, Sacramento, CA. July. Available at: https://www.engr.scu.edu/~emaurer/papers/CEC-500-2006-077.pdf. Accessed: January 2022.

[23] California Climate Change Center, 2012. Our Changing Climate 2012: Vulnerability and Adaptation to the Increasing Risks from Climate Change in California. CEC-500-2012-007. July, 2012.

[24] California Climate Change Center, 2012. Our Changing Climate 2012: Vulnerability and Adaptation to the Increasing Risks from Climate Change in California. CEC-500-2012-007. July, 2012.

conditions. By comparison, models that predict wetter conditions project increased reservoir inflows and storage, and increased river flows.[25]

A July 2006 technical report prepared by the California Department of Water Resources (DWR) addresses the State Water Project, the Central Valley Project, and the Sacramento-San Joaquin Delta. Although the report projects that, "[c]limate change will likely have a significant effect on California's future water resources … [and] future water demand," it also reports that, "there is much uncertainty about future water demand, especially those aspects of future demand that will be directly affected by climate change and warming. While climate change is expected to continue through at least the end of this century, the magnitude and, in some cases, the nature of future changes is uncertain. This uncertainty serves to complicate the analysis of future water demand, especially where the relationship between climate change and its potential effect on water demand is not well understood,"[26] DWR adds that "[i]t is unlikely that this level of uncertainty will diminish significantly in the foreseeable future."[27] Still, changes in water supply are expected to occur, and many regional studies have shown that large changes in the reliability of water yields from reservoirs could result from only small changes in inflows.[28]

California's Third Climate Change Assessment outlines the State's urgent water management challenges brought on as a result of climate change. These include increasing demand from a growing population as temperatures rise, earlier snowmelt and runoff, and faster-than-historical sea-level rise threatening aging coastal water infrastructure and levees in the Sacramento-San Joaquin Delta.[29] Additionally, they predict that competition between urban and agriculture water users and environmental needs will increase due to effects on water supply and stream flows. The Fourth Climate Change Assessment concludes that by 2100, water supply from snowpack is projected to decline by two-thirds, and that by 2050, California's agricultural production could face climate-related water shortages of up to 16 percent in certain regions.[30]

2.1.3.3 Hydrology

As discussed above, climate change could potentially affect the following: the amount of snowfall, rainfall, and snowpack; the intensity and frequency of storms; flood hydrographs (flash floods, rain or snow events, coincidental high tide, and high runoff events); sea level rise and coastal flooding; coastal erosion; and the potential for saltwater intrusion. Sea level rise can be a product of global warming through two main processes -- expansion of sea water as the oceans warm and melting of ice over land. A rise in sea levels could result in coastal flooding and erosion and could also jeopardize California's water supply. In particular,

[25] Brekke, L.D., et al, 2004. —Climate Change Impacts Uncertainty for Water Resources in the San Joaquin River Basin, California. Journal of the American Water Resources Association. 40(2): 149–164. Malden, MA, Blackwell Synergy for AWRA.

[26] California Department of Water Resources (DWR), 2006. Progress on Incorporating Climate Change into Management of California Water Resources, Sacramento, CA. July.

[27] California Department of Water Resources (DWR), 2006. Progress on Incorporating Climate Change into Management of California Water Resources, Sacramento, CA. July.

[28] Kiparsky 2003, op. cit; DWR, 2005, op. cit.; Cayan, D., et al, 2006. Scenarios of Climate Change in California: An Overview (White Paper, CEC-500-2005-203-SF), Sacramento, CA. February.

[29] California Climate Change Center, 2012. Our Changing Climate 2012: Vulnerability and Adaptation to the Increasing Risks from Climate Change in California. CEC-500-2012-007. July, 2012.

[30] California Climate Change Center, 2018. California's Changing Climate 2018. A Summary of Key Findings from California's Fourth Climate Change Assessment.

saltwater intrusion would threaten the quality and reliability of the State's major fresh water supply that is pumped from the southern portion of the Sacramento/San Joaquin River Delta. Increased storm intensity and frequency could affect the ability of flood-control facilities, including levees, to handle storm events. Assuming the rate of sea level rise continues to follow global trends, sea level along California's coastline in 2050 could be 10-18 inches higher than in 2000, and 31-55 inches higher by the end of this century.[31] Based on these current projections, the current 100-year storm could occur once every year. California's Fourth Climate Change Assessment projects that without implementation of protective measures, airports in major urban areas will be susceptible to major flooding from a combination of sea-level rise and storm surge by 2040 to 2080 and that the miles of highways susceptible to coastal flooding from a 100-year storm will triple from current levels by 2100.[32]

2.1.3.4 Agriculture

California has a $30 billion agricultural industry that produces half the country's fruits and vegetables. The CCCC notes that higher CO_2 levels can stimulate plant production and increase plant water-use efficiency. However, if temperatures rise and drier conditions prevail, water demand could increase, crop-yield could be threatened by a less reliable water supply, and greater ozone pollution could render plants more susceptible to pest and disease outbreaks. In addition, temperature increases could change the time of year that certain crops, such as wine grapes, bloom or ripen, and thus affect their quality.[33]

2.1.3.5 Ecosystems and Wildfire

Increases in global temperatures and the potential resulting changes in weather patterns could have ecological effects on a global and local scale. In 2004, the Pew Center on Global Climate Change released a report examining the possible impacts of climate change on ecosystems and wildlife.[34] The report outlines four major ways in which it is thought that climate change could affect plants and animals: (1) timing of ecological events, (2) geographic range, (3) species' composition within communities, and (4) ecosystem processes such as carbon cycling and storage.

2.2 Regulatory Background

2.2.1 Federal

2.2.1.1 Clean Air Act

In April 2007, in *Massachusetts v. EPA*, the U.S. Supreme Court directed the Administrator of the U.S. Environmental Protection Agency (USEPA) to determine whether GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In making these decisions, the USEPA Administrator was directed to follow the language of Section 202(a) of the Clean Air Act (CAA). In December 2009, the

[31] California Climate Change Center, 2012. Our Changing Climate 2012: Vulnerability and Adaptation to the Increasing Risks from Climate Change in California. CEC-500-2012-007. July, 2012.

[32] California Climate Change Center, 2018. California's Changing Climate 2018. A Summary of Key Findings from California's Fourth Climate Change Assessment.

[33] California Climate Change Center (CCCC), 2006, op. cit.

[34] Parmesan, C. and H. Galbraith, Observed Impacts of Global Climate Change in the U.S., Arlington, VA: Pew Center on Global Climate Change, November 2004.

Administrator signed a final rule with two distinct findings regarding GHGs under Section 202(a) of the CAA:

- Elevated concentrations of GHGs—CO_2, CH_4, N_2O, HFCs, perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6)—in the atmosphere threaten the public health and welfare of current and future generations. This is referred to as the "endangerment finding."
- The combined emissions of GHGs—CO_2, CH_4, N_2O, and HFCs—from new motor vehicles and new motor vehicle engines contribute to the GHG air pollution that endangers public health and welfare. This is referred to as the "cause or contribute finding."

These two findings were necessary to establish the foundation for regulation of GHGs from new motor vehicles as air pollutants under the CAA.

2.2.1.2 Federal Plan to Reduce GHG Emissions by 2025

In 2015, President Obama signed Executive Order 13693 (EO 13693), which was intended to reduce the federal government's GHG emissions by 40 percent by 2025 by requiring the following:

- Ensuring that 25 percent of total energy consumption is from clean energy sources.
- Reducing energy use in federal buildings by 2.5 percent per year between 2015 and 2025.
- Reducing per-mile GHG emissions from federal fleets by 30 percent (from 2014 levels) by 2025 and increasing the percentage of zero-emissions and plug-in hybrid vehicles in federal fleets.
- Reducing water intensity in federal buildings by 2 percent per year through 2025.

This executive order was revoked by President Trump's Executive Order 13834 in May 2018. President Biden's Executive Order 13990 revoked Executive Order 13834 except for sections 6 (*Duties of the Federal Chief Sustainability Officer*), 7 (*Duties of Heads of Agencies*), and 11 (*General Provisions*).[35]

2.2.1.3 Executive Order 14008

On January 27, 2021, President Biden issued an Executive Order on Tackling the Climate Crisis at Home and Abroad (Executive Order 14008).[36] Part I of the Order highlights putting the climate crisis at the center of United States foreign policy and national security. Addressing the climate crisis will require significant short-term global reductions in GHG emissions and net-zero global emissions by mid-century or sooner. The United States will pursue green recovery efforts and initiatives to advance the clean energy transition.

Part II of the Order relays the government-wide approach to the climate crisis, which involves reducing climate pollution in every sector of the economy, especially through innovation, commercialization, and deployment of clean energy technologies and

[35] White House Briefing Room. 2021. *Executive Order on Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis*. January 20. Available at: https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/20/executive-order-protecting-public-health-and-environment-and-restoring-science-to-tackle-climate-crisis/. Accessed: March 2022.

[36] White House Briefing Room. 2021. *Executive Order on Tackling the Climate Crisis at Home and Abroad*. January 27. Available at: https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/executive-order-on-tackling-the-climate-crisis-at-home-and-abroad/. Accessed: January 2022.

infrastructure. A National Climate Task Force is established to focus on addressing the climate crisis through key federal actions to reduce climate change impacts. A 100% carbon pollution-free electricity sector is targeted by no later than 2035 and a net-zero emissions economy is to be achieved by no later than 2050. Offshore wind is aimed to be doubled by 2030. Opportunities for federal funding of clean energy technology and infrastructure shall be identified. Federal permitting decisions need to consider the effects of GHG emissions and climate change.

2.2.1.4 Paris Climate Agreement

On June 1, 2017, President Trump withdrew the United States from the Paris Agreement.[37] The Paris Agreement was negotiated within the United Nations Framework Convention on Climate Change in 2015 to reduce GHG emissions internationally. The goal of the Paris Agreement was to keep the global temperature rise this century to below 2 degrees Celsius above pre-industrial standards, with efforts to limit temperature increase even further to 1.5 degrees Celsius. The Paris Agreement became effective on November 4, 2016. As of October 5, 2016, 155 of 197 parties had ratified the Paris Agreement.[38] On January 20, 2021, President Biden signed an Executive Order formally rejoining the United States to the Paris Agreement.[39]

2.2.1.5 Federal Vehicle Standards

In response to the *Massachusetts v. EPA* decision discussed above, in 2007, President Bush directed the USEPA, the Department of Transportation (USDOT), and the Department of Energy (DOE) to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008. In 2009, the National Highway Traffic Safety Administration (NHTSA) issued a final rule regulating fuel efficiency for and GHG emissions from cars and light-duty trucks for model year 2011; and in 2010, the USEPA and NHTSA issued a final rule regulating cars and light-duty trucks for model years 2012–2016.

In 2010, President Obama issued a memorandum directing the same federal agencies to establish additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, the USEPA and NHTSA proposed stringent, coordinated federal GHG and fuel economy standards for model year 2017–2025 light-duty vehicles. The proposed standards are projected to achieve 163 grams/mile of CO_2 in model year 2025, on an average industry fleet-wide basis, which is equivalent to 54.5 miles per gallon if this level were achieved solely through fuel efficiency. The final rule was adopted in 2012 for model years 2017–2021.

In August 2017, the USEPA asked for additional information and data relevant to assessing whether the GHG emissions standards for model years 2022-2025 remain appropriate. In early 2018, the USEPA Administrator announced that the midterm evaluation for the GHG emissions standards for cars and light-duty trucks for model years 2022-2025 was completed and stated his determination that the current standards should be revised in light

[37] USEPA. 2017. Administrator Scott Pruitt Speech on Paris Accord, As Prepared. June 1. Available at: https://archive.epa.gov/epa/speeches/administrator-scott-pruitt-speech-paris-accord-prepared.html. Accessed: January 2022.

[38] United Nations Framework Convention on Climate Change. 2017. The Paris Agreement. July 27. Available at: http://unfccc.int/paris_agreement/items/9485.php. Accessed: January 2022.

[39] White House Briefing Room. 2021. *Paris Climate Agreement.* January 20. Available at: https://www.whitehouse.gov/briefing-room/statements-releases/2021/01/20/paris-climate-agreement/. Accessed: January 2022.

of recent data. Subsequently, in 2018, the USEPA and NHTSA proposed to amend certain existing Corporate Average Fuel Economy (CAFE) standards and tailpipe carbon dioxide emissions standards for passenger cars and light trucks and establish new standards, covering model years 2021-2026. Compared to maintaining the post-2020 standards now in place, the pending proposal would increase U.S. fuel consumption.[40] California and other states have announced their intent to challenge federal actions that would delay or eliminate GHG reductions. In April 2020, NHTSA and EPA amended the CAFE and GHG emissions standards for passenger cars and light trucks and established new less stringent standards, covering model years 2021 through 2026.

In addition to the regulations applicable to cars and light-duty trucks described above, in 2011, the USEPA and NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks for model years 2014–2018. The standards for CO_2 emissions and fuel consumption are tailored to three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles.

In August 2016, the USEPA and NHTSA announced the adoption of the phase two program related to the fuel economy and GHG standards for medium- and heavy-duty trucks. The phase two program will apply to vehicles with model year 2018 through 2027 for certain trailers, and model years 2021 through 2027 for semi-trucks, large pickup trucks, vans and all types of sizes of buses and work trucks. The final standards are expected to lower carbon dioxide emissions by approximately 1.1 billion MT and reduce oil consumption by up to two billion barrels over the lifetime of the vehicles sold under the program.[41]

On September 27, 2019, the USEPA and NHTSA published the SAFE Rule (Part One).[42] The SAFE Rule (Part One) went into effect in November 2019, and revoked California's authority to set its own GHGs standards and set zero emission vehicle mandates in California. The SAFE Rule (Part One) freezes new zero emission vehicles (ZEV) sales at model year 2020 levels for year 2021 and beyond, and will likely result in a lower number of future ZEVs and a corresponding greater number of future gasoline internal combustion engine vehicles. In response to the USEPA's adoption of the SAFE Rule (Part One), CARB has issued guidance regarding the adjustment of vehicle emissions factors to account for the rule's implications on criteria air pollutant and greenhouse gas emissions.[43,44] The SAFE Rule is subject to ongoing litigation and on February 8, 2021, the D.C. Circuit Court of Appeals granted the Biden Administration's motion to stay litigation over Part 1 of the SAFE Rule. On April 22 and

[40] Federal Register. 2018. *The Safer Affordable Fuel-Efficient (SAFE) Vehicles Final Rule for Model Years 2021-2026 Passenger Cars and Light Trucks*. Available at: https://www.epa.gov/regulations-emissions-vehicles-and-engines/safer-affordable-fuel-efficient-safe-vehicles-final-rule. Accessed: January 2022.

[41] USEPA and NHTSA, 2016. Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium and Heavy-Duty Engines and Vehicles – Phase 2. Available at: https://www.gpo.gov/fdsys/pkg/FR-2016-10-25/pdf/2016-21203.pdf. Accessed: January 2022.

[42] USEPA and NHTSA. 2019. Federal Register, Vol. 84, No. 188, *The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program*. September 27. Available at: https://www.govinfo.gov/content/pkg/FR-2019-09-27/pdf/2019-20672.pdf. Accessed: January 2022.

[43] CARB. 2019. EMFAC Off-Model Adjustment Factors to Account for the SAFE Vehicle Rule Part One. November 20. Available at: https://ww3.arb.ca.gov/msei/emfac_off_model_adjustment_factors_final_draft.pdf. Accessed: January 2022.

[44] CARB. 2020. EMFAC Off-Model Adjustment Factors for Carbon Dioxide Emissions to Account for the SAFE Vehicles Rule Part One and the Final SAFE Rule. June 26. Available at: https://ww3.arb.ca.gov/msei/emfac_off_model_co2_adjustment_factors_06262020-final.pdf. Accessed: January 2022

April 28, 2021, respectively, NHTSA and USEPA formally announced their intent to reconsider the Safe Rule (Part One).[45,46] A virtual public hearing for EPA's Notice of Reconsideration of SAFE I was held on June 2, 2021. The NHTSA finalized the Corporate Average Fuel Economy Pre-emption rulemaking to withdraw its portions of the SAFE I Rule on December 21, 2021.[47] On March 9, 2022, USEPA reinstated California's authority under the Clean Air Act to implement its own GHG emission standards and ZEV sales mandate and entirely rescinded the SAFE Rule (Part One).

In December 2021, the USEPA finalized federal GHG emissions standards for passenger cars and light trucks for Model Years 2023 through 2026. These standards are the strongest vehicle emissions standards ever established for the light-duty vehicle sector and are based on sound science and grounded in a rigorous assessment of current and future technologies. The updated standards will result in avoiding more than 3 billion tons of GHG emissions through 2050.[48]

2.2.1.6 Energy Independence and Security Act

The Energy Independence and Security Act of 2007 (EISA) facilitates the reduction of national GHG emissions by requiring the following:

- Increasing the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard that requires fuel producers to use at least 36 billion gallons of biofuel in 2022.
- Prescribing or revising standards affecting regional efficiency for heating and cooling products, procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances.
- Requiring approximately 25 percent greater efficiency for light bulbs by phasing out incandescent light bulbs between 2012 and 2014; requiring approximately 200 percent greater efficiency for light bulbs, or similar energy savings, by 2020.
- While superseded by the USEPA and NHTSA actions described above, (i) establishing miles per gallon targets for cars and light trucks and (ii) directing the NHTSA to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for trucks.

Additional provisions of EISA address energy savings in government and public institutions, promote research for alternative energy, additional research in carbon capture, international energy programs, and the creation of "green jobs."

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[45] NHTSA. 2021. NHTSA Advances Biden-Harris Administration's Climate & Jobs Goals. April 22. Available at: https://www.nhtsa.gov/press-releases/nhtsa-advances-biden-harris-administrations-climate-jobs-goals. Accessed: January 2022.

[46] USEPA. 2021. Federal Register, Vol. 86, No. 80, *California State Motor Vehicle Pollution Control Standards; Advanced Clean Car Program; Reconsideration of a previous Withdrawal of a Waiver of Preemption; Opportunity for Public Hearing and Public Comment*. April 28. Available at: https://www.epa.gov/regulations-emissions-vehicles-and-engines/notice-reconsideration-previous-withdrawal-waiver. Accessed: January 2022.

[47] NHTSA. Available at: https://www.nhtsa.gov/laws-regulations/corporate-average-fuel-economy. Accessed: May 2022.

[48] USEPA. 2021. Final Rule to Revise Existing National GHG Emissions Standards for Passenger Cars and Light Trucks Through Model Year 2026. Available at: https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-revise-existing-national-ghg-emissions. Accessed: January 2022.

2.2.2 State

The State of California considers GHG emissions and the impacts of climate change to be a serious threat to the public health, environment, economic well-being, and natural resources of California, and has taken an aggressive stance to mitigate the State's impact on climate change through the adoption of policies and legislation. CARB is responsible for the coordination and oversight of State and local air pollution control programs in California. California has numerous regulations aimed at reducing the State's GHG emissions. Some of the major initiatives are summarized below.

2.2.2.1 Executive Order S-3-05

In 2005, Governor Schwarzenegger issued EO S-3-05, which identifies Statewide GHG emission reduction targets to achieve long-term climate stabilization as follows.

- Reduce GHG emissions to 1990 levels by 2020; and
- Reduce GHG emissions to 80 percent below 1990 levels by 2050.

In response to EO S-3-05, California Environmental Protection Agency (CalEPA) created the Climate Action Team (CAT), which in March 2006 published the Climate Action Team Report (the "2006 CAT Report").[49] The 2006 CAT Report identified a recommended list of strategies that the State could pursue to reduce GHG emissions. These are strategies that could be implemented by various State agencies to ensure that the emission reduction targets in EO S-3-05 are met and can be met with existing authority of the State agencies. The strategies include, but are not limited to, the reduction of passenger and light-duty truck emissions, the reduction of idling times for diesel trucks, an overhaul of shipping technology/infrastructure, increased use of alternative fuels, increased recycling, and landfill methane capture.

2.2.2.2 Assembly Bill 32

Assembly Bill (AB) 32 (Nunez, 2006), the California Global Warming Solutions Act of 2006, was enacted after considerable study and expert testimony before the Legislature. The heart of AB 32 is the requirement that statewide GHG emissions be reduced to 1990 levels by 2020. In order to achieve this reduction mandate, AB 32 requires California Air Resources Board to adopt rules and regulations in an open public process that achieve the maximum technologically feasible and cost-effective GHG reductions.

In 2007, CARB approved a statewide limit on the GHG emissions level for year 2020 consistent with the determined 1990 baseline. CARB's adoption of this limit is in accordance with Health & Safety Code Section 38550, as codified through enactment of AB 32.

Per Health & Safety Code Section 38561(b), CARB also is required to prepare, approve and amend a scoping plan that identifies and makes recommendations on "direct emission reduction measures, alternative compliance mechanisms, market-based compliance mechanisms, and potential monetary and nonmonetary incentives for sources and categories of sources that [CARB] finds are necessary or desirable to facilitate the achievement of the maximum feasible and cost-effective reductions of greenhouse gas emissions by 2020."

[49] California Environmental Protection Agency (CalEPA), March 2006. Climate Action Team Report to Governor Schwarzenegger and the Legislature. Available at: http://s3-us-west-2.amazonaws.com/ucldc-nuxeo-ref-media/0bdec21c-ca2b-4f4d-9e11-35935ac4cf5f. Accessed: January 2022.

In 2008, CARB adopted the *Climate Change Scoping Plan: A Framework for Change* (2008 Scoping Plan) in accordance with Health & Safety Code Section 38561. During the development of the 2008 Scoping Plan, CARB created a planning framework that is comprised of eight emissions sectors: (1) transportation; (2) electricity; (3) commercial and residential; (4) industry; (5) recycling and waste; (6) high GWP gases; (7) agriculture; and (8) forest net emissions. The 2008 Scoping Plan establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions from the eight emissions sectors to 1990 levels by 2020.

In the 2011 *Final Supplement to the AB 32 Scoping Plan Functional Equivalent Document* (2011 Final Supplement), CARB revised its estimates of the projected 2020 emissions level in light of the economic recession and the availability of updated information about GHG reduction regulations.

a) 2014 First Update to the Scoping Plan

In 2014, CARB adopted the *First Update to the Climate Change Scoping Plan: Building on the Framework* (2014 First Update).[50] The stated purpose of the 2014 First Update is to "highlight […] California's success to date in reducing its GHG emissions and lay […] the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80 percent below 1990 levels by 2050."[51] The 2014 First Update found that California is on track to meet the 2020 emissions reduction mandate established by AB 32, and noted that California could reduce emissions further by 2030 to levels squarely in line with those needed to stay on track to reduce emissions to 80 percent below 1990 levels by 2050 if the State realizes the expected benefits of existing policy goals.[52]

In conjunction with the 2014 First Update, CARB identified "six key focus areas comprising major components of the State's economy to evaluate and describe the larger transformative actions that will be needed to meet the State's more expansive emission reduction needs by 2050."[53] Those six areas are: (1) energy; (2) transportation (vehicles/equipment, sustainable communities, housing, fuels, and infrastructure); (3) agriculture; (4) water; (5) waste management; and (6) natural and working lands. The 2014 First Update identifies key recommended actions for each sector that will facilitate achievement of the 2050 reduction target.

Based on CARB's research efforts, it has a "strong sense of the mix of technologies needed to reduce emissions through 2050."[54] Those technologies include energy demand reduction through efficiency and activity changes; large-scale electrification of on-road vehicles, buildings, and industrial machinery; decarbonizing electricity and fuel supplies; and the rapid market penetration of efficient and clean energy technologies.

As part of the 2014 First Update, CARB recalculated the State's 1990 emissions level using more recent global warming potentials identified by the IPCC. Using the recalculated 1990 emissions level and the revised 2020 emissions level projection identified in the 2011 Final Supplement, CARB determined that achieving the 1990 emissions level by 2020 would

[50] Health & Safety Code Section 38561(h) requires CARB to update the Scoping Plan every five years.

[51] CARB, First Update to the Climate Change Scoping Plan: Building on the Framework (May 2014), p. 4.

[52] Id. at p. 34.

[53] Id. at p. 6.

[54] Id. at p. 32.

require a reduction in GHG emissions of approximately 15.3 percent (instead of 28.5 percent or 16 percent) from the business-as-usual (BAU) conditions.

The 2014 First Update included a strong recommendation from CARB for setting a mid-term statewide GHG emissions reduction target. CARB specifically recommended that the mid-term target be consistent with: (i) the United States' pledge to reduce emissions 42 percent below 2005 levels (which translates to a 35 percent reduction from 1990 levels in California); and (ii) the long-term policy goal of reducing emissions to 80 percent below 1990 levels by 2050.

The 2014 First Update discussed new residential and commercial building energy efficiency improvements, specifically identifying progress towards zero net energy buildings as an element of meeting mid-term and long-term GHG reduction goals. The 2014 First Update expressed CARB's commitment to working with the California Public Utilities Commission (CPUC) and CEC to facilitate further achievements in building energy efficiency.

b) 2017 Scoping Plan

In November 2017, CARB published California's 2017 Climate Change Scoping Plan (2017 Scoping Plan), which was subsequently adopted by CARB's Board in December 2017.[55] The 2017 Scoping Plan identifies CARB's strategy for achieving the State's 2030 GHG target as established in Senate Bill (SB) 32 (discussed below).The strategy includes continuation of the Cap-and-Trade Program through 2030, and incorporates a Mobile Source Strategy that includes strategies targeted to increase zero emission vehicle fleet penetration and a more stringent target for the Low Carbon Fuel Standard by 2030. The 2017 Scoping Plan also incorporates approaches to cutting short-lived climate pollutants (SLCPs) under the Short-Lived Climate Pollutant Reduction Strategy (a planning document that was adopted by CARB in March 2017), and acknowledges the need for reducing emissions in agriculture and highlights the work underway to ensure that California's natural and working lands increasingly sequester carbon.

When discussing project-level GHG emissions reduction actions and thresholds, the 2017 Scoping Plan states:

"***Project-Level Greenhouse Gas Emissions Reduction Actions and Thresholds***

Beyond plan-level goals and actions, local governments can also support climate action when considering discretionary approvals and entitlements of individual projects through CEQA [California Environmental Quality Act]. Absent conformity with an adequate geographically-specific GHG reduction plan …, CARB recommends that projects incorporate design features and GHG reduction measures, to the degree feasible, to minimize GHG emissions. Achieving no net additional increase in GHG emissions, resulting in no contribution to GHG impacts, is an appropriate overall objective for new development.

Achieving net zero increases in GHG emissions, resulting in no contribution to GHG impacts, may not be feasible or appropriate for every project, however, and the inability of a project to mitigate its GHG emissions to net zero does not imply the project results in a substantial contribution to the cumulatively significant environmental impact of climate change under CEQA.

[55] CARB. 2017. California's 2017 Climate Change Scoping Plan. November. Available at: https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf. Accessed: January 2022.

California's future climate strategy will require increased focus on integrated land use planning to support liveable, transit-connected communities, and conservation and other lands. Accommodating population and economic growth through travel- and energy-efficient land use provides GHG-efficient growth, reducing GHGs from both transportation and building energy use. GHGs can be further reduced at the project level through implementing energy-efficient construction and travel demand management approaches."

c) 2022 Scoping Plan Update

The 2022 Scoping Plan Update assesses progress towards achieving the Senate Bill 32 2030 target and lays out a path to achieve carbon neutrality no later than 2045. This plan update was approved by the Board in December 2022.[56] The 2022 Scoping Plan Update outlines a sector-by-sector roadmap for California to achieve carbon neutrality by 2045 or earlier. It aims to reduce anthropogenic emissions to 85% below 1990 levels by 2045 using technically feasible and cost-effective solutions. The 2022 Scoping Plan Update focuses on electrification of transportation, homes and buildings, and phasing out fossil fuels. In hard-to-electrify sectors, new solutions such as renewable hydrogen and biomethane are leveraged to achieve emissions reductions.

CARB's 2022 Scoping Plan Update outlines a number of actions for the Scoping Plan Scenario in Table 2-1. The list below represents the actions which are most relevant to the Project:

- GHG Emissions Reductions Relative to the SB 32 Target - 40% below 1990 levels by 2030.
- Smart Growth / Vehicle Miles Traveled (VMT) - VMT per capita reduced 25% below 2019 levels by 2030, and 30% below 2019 levels by 2045.
- Light-duty Vehicle (LDV) Zero Emission Vehicles (ZEVs) - 100% of LDV sales are ZEV by 2035.
- Truck ZEVs - 100% of medium-duty (MDV)/HDV sales are ZEV by 2040 (AB 74 University of California Institute of Transportation Studies [ITS] report).
- Freight and Passenger Rail - 100% of passenger and other locomotive sales are ZEV by 2030; 100% of line haul locomotive sales are ZEV by 2035; Line haul and passenger rail rely primarily on hydrogen fuel cell technology, and others primarily utilize electricity.
- New Residential and Commercial Buildings - All electric appliances beginning 2026 (residential) and 2029 (commercial), contributing to 6 million heat pumps installed statewide by 2030.
- Construction Equipment - 25% of energy demand electrified by 2030 and 75% electrified by 2045.
- Low Carbon Fuels for Transportation - Biomass supply is used to produce conventional and advanced biofuels, as well as hydrogen.
- Low Carbon Fuels for Buildings and Industry - In 2030s biomethane blended in pipeline; Renewable hydrogen blended in fossil gas pipeline at 7% energy (~20% by volume), ramping up between 2030 and 2040.

[56] CARB. 2022. Final 2022 Scoping Plan Update and Appendices. December. Available at: https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan/2022-scoping-plan-documents. Accessed: February 2023.

- Non-combustion Methane Emissions - Moderate adoption of enteric strategies by 2030; Divert 75% of organic waste from landfills by 2025.

In addition to the previous focus areas, the 2022 Scoping Plan Update developed a table of priority GHG reduction strategies that can be utilized by local governments. This is Table 1 in Appendix D of the 2022 Scoping Plan Update.[57] When discussing this table, the 2022 Scoping Plan Update notes:

"To assist local jurisdictions with developing local climate plans, measures, policies, and actions aligned with the State's climate goals, Table 1 presents a non-exhaustive list of impactful GHG reduction strategies that can be implemented by local governments. The strategies in Table 1 are not applicable to all local jurisdictions, nor are they the only strategies that local governments can adopt, but they represent the core strategies that most jurisdictions in California can implement to reduce GHG emissions regardless of whether they have developed a CEQA-qualified CAP. Reaching the outcomes of these priority GHG reduction strategies requires a locally appropriate, comprehensive adoption of policies in support of these objectives. When developing local climate plans, measures, policies, and actions, local jurisdictions should incorporate the recommendations described in Table 1 to the extent appropriate to ensure alignment with State climate goals."

2.2.2.3 SB 605 - Short-lived Climate Pollutants (SLCP)

Short-lived climate pollutants (i.e., black carbon, fluorinated gases, and methane) are powerful climate forcers that remain in the atmosphere for a much shorter period of time than longer-lived climate pollutants. Their relative potency, when measured in terms of how they heat the atmosphere, can be tens, hundreds, or even thousands of times greater than that of CO_2. The impacts of short-lived climate pollutants are especially strong over the short term. Reducing these emissions can make an immediate beneficial impact on climate change.[58] Governor Brown signed SB 605 on September 21, 2014, directing CARB to develop a Short-Lived Climate Pollutant Strategy by January 1, 2016. On May 7, 2015, CARB released a concept paper for reducing emissions of these substances. In September 2015, CARB released a draft of their Short-Lived Climate Pollutant Strategy. Several updates to the draft have been made since September 2015, with the most current version dated March 2017. The Strategy aims for a 40 percent reduction in methane and HFC emissions below 2013 levels by 2030 and a 50 percent reduction in anthropogenic emissions of black carbon below 2013 levels by 2030.[59]

2.2.2.4 Executive Order B-30-15

In April 2015, Governor Brown signed EO B-30-15, which established the following GHG emission reduction goal for California: by 2030, reduce GHG emissions to 40 percent below 1990 levels. This EO also directed all state agencies with jurisdiction over GHG-emitting sources to implement measures designed to achieve the new interim 2030 goal, as well as the pre-existing, long-term 2050 goal identified in EO S-3-05 (see discussion above).

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[57] CARB. 2022. Final 2022 Scoping Plan Update and Appendices. December. Available at: https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan/2022-scoping-plan-documents. Accessed: February 2023.

[58] CARB. 2016. Reducing Short-Lived Climate Pollutants in California. Available at: https://www.arb.ca.gov/cc/shortlived/shortlived.htm. Accessed: January 2022.

[59] CARB. 2017. Short-Lived Climate Pollutant Reduction Strategy. Available at: https://ww2.arb.ca.gov/sites/default/files/2020-07/final_SLCP_strategy.pdf. Accessed: January 2022.

Additionally, the EO directed CARB to update its Scoping Plan (see discussion above) to address the 2030 goal.

2.2.2.5 Senate Bill 32 and Assembly Bill 197

Enacted in 2016, SB 32 (Pavley, 2016) codifies the 2030 emissions reduction goal of EO B-30-15 by requiring CARB to ensure that statewide GHG emissions are reduced to 40 percent below 1990 levels by 2030.

SB 32 was coupled with a companion bill: AB 197 (Garcia, 2016). Designed to improve the transparency of CARB's regulatory and policy-oriented processes, AB 197 created the Joint Legislative Committee on Climate Change Policies, a committee with the responsibility to ascertain facts and make recommendations to the Legislature concerning statewide programs, policies, and investments related to climate change. AB 197 also requires CARB to make certain GHG emissions inventory data publicly available on its web site; consider the social costs of GHG emissions when adopting rules and regulations designed to achieve GHG emission reductions; and include specified information in all Scoping Plan updates for the emission reduction measures contained therein.

2.2.2.6 Executive Order B-55-18

In September 2018, Governor Brown signed EO B-55-18, which established a new statewide goal "to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter." This EO directs CARB to "work with relevant state agencies to ensure future Scoping Plans identify and recommend measures to achieve the carbon neutrality goal."

In January 2019, CARB kicked off workshops regarding carbon neutrality in California,[60] during which CARB staff explained that the definitional parameters and meaning of the term – carbon neutrality – are still being explored. CARB held additional workshops throughout 2019 and 2020 to explore specific topics related to the pursuit of carbon neutrality, engage with other experts in the field and stakeholders, and conduct research to ensure that any path to carbon neutrality balances scientific, economic and social justice principles.

2.2.2.7 Energy Sources

a) Renewables Portfolio Standard

As most recently amended by SB 100 (2018), California's Renewables Portfolio Standard requires retail sellers of electric services and local publicly-owned electric utilities to increase procurement from eligible renewable energy resources to 50 percent of total retail sales by 2026, and 60 percent of total retail sales by 2030. SB 100 also established a State policy goal to achieve 100 percent renewables by 2045.

In March 2021, CEC, CPUC, and CARB released a joint-agency report evaluating the current feasibility of achieving the energy resource and GHG reductions goals of SB 100. The report finds that SB 100 is technically feasible when analyzed under scenarios of varying timelines, advancements in energy generation technology, and energy source portfolios. Under the

[60] CARB. Carbon Neutrality in California Context Webinar. January 2019. Available at: https://www.arb.ca.gov/cc/scopingplan/meetings/012319/cneutrality_ca_script.pdf. Accessed: January 2022.

SB 100 Core Scenario, it is anticipated that California will need to triple its current electricity power capacity.[61]

b) Building Energy Efficiency Standards

Title 24, Part 6 of the California Code of Regulations regulates the design of building shells and building components. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods.

The CEC's 2019 Building Energy Efficiency Standards (2019 Building Standards), which became effective January 1, 2020, are the currently applicable version of these standards. In general, single-family homes built to the 2019 standards are anticipated to use about 7% less energy due to energy efficiency measures than those built to the 2016 standards, and nonresidential buildings built to the 2019 standards will use an estimated 30% less energy than those built to the 2016 standards.[62]

In addition to the CEC's efforts, in 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11 of Title 24) is commonly referred to as CalGreen Building Standard (CalGreen), and establishes voluntary and mandatory standards pertaining to the planning and design of sustainable site development, energy efficiency, water conservation, material conservation, and interior air quality. Like Part 6 of Title 24, the CalGreen standards are periodically updated, with increasing energy savings and efficiencies associated with each code update.

At the time of this writing, the CEC has adopted the 2022 Energy Code, which improves upon the 2019 standards for construction of residential and non-residential buildings. The standards will be effective on January 1, 2023.[63]

c) Appliance Standards

The CEC periodically amends and enforces Appliance Efficiency Regulations contained in Title 20 of the California Code of Regulations. The regulations establish water and energy efficiency standards for both federally-regulated appliances and non-federally regulated appliances. The regulations cover numerous categories of appliances (e.g., refrigerators; plumbing fixtures; dishwashers; clothes washer and dryers; televisions) and apply to appliances offered for sale in California.[64]

2.2.2.8 Mobile Sources

a) Sustainable Communities Strategy Plans

SB 375 (Steinberg, 2008), the Sustainable Communities and Climate Protection Act, coordinates land use planning, regional transportation plans, and funding priorities to reduce

[61] CEC. 2021. 2021 SB 100 Joint Agency Report, Achieving 100 Percent Clean Electricity in California: An Initial Assessment. Available at: https://www.energy.ca.gov/publications/2021/2021-sb-100-joint-agency-report-achieving-100-percent-clean-electricity. Accessed: January 2022.

[62] CEC. 2018. 2019 Building Energy Efficiency Standards – Frequently Asked Questions. Available at: https://www.energy.ca.gov/sites/default/files/2020-03/Title_24_2019_Building_Standards_FAQ_ada.pdf. Accessed: January 2022.

[63] CEC. 2022 Building Energy Efficiency Standards. Available at: https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2022-building-energy-efficiency. Accessed: January 2022.

[64] CEC. Title 20 Appliance Efficiency Program. Available at: https://www.energy.ca.gov/rules-and-regulations/appliance-efficiency-regulations-title-20. Accessed: January 2022.

GHG emissions from passenger vehicles through better-integrated regional transportation, land use, and housing planning that provides easier access to jobs, services, public transit, and active transportation options. SB 375 specifically requires the Metropolitan Planning Organization relevant to the Project area (here, the Fresno Council of Governments [Fresno COG]) to include a Sustainable Communities Strategy in its Regional Transportation Plan (RTP) that, if implemented, will achieve GHG emission reduction targets set by CARB by reducing vehicle miles traveled from light-duty vehicles through the development of more compact, complete, and efficient communities.

For the area under Fresno COG's jurisdiction, including the Project site, CARB originally adopted regional targets for reduction of mobile source-related GHG emissions of 5 percent for 2020 and 10 percent for 2035. The targets are expressed as a percentage change in per capita passenger vehicle GHG emissions relative to 2005 emissions levels. These original targets were in place through September 30, 2018. In March 2018, CARB approved updated regional targets of 6% for 2020 and 13% for 2035 for Fresno COG, which apply to future RTP/SCS planning cycles beginning October 1, 2018.[65]

b) Senate Bill 743

Public Resources Code Section 21099(c)(1), as codified through enactment of SB 743 (Steinberg, 2013), authorized the Governor's Office of Planning and Research (OPR) to establish "alternative metrics to the metrics used for traffic levels of service for transportation impacts outside transit priority areas." SB 743 reflects a legislative policy to balance the needs of congestion management with statewide goals related to infill development, promotion of public health through active transportation, and reduction of GHG emissions. As finalized in December 2018, amendments to the State CEQA Guidelines adopted in furtherance of SB 743 establish vehicle miles traveled (VMT), in lieu of level of service, as the new metric for transportation analysis.

c) Pavley Regulations

AB 1493 (Pavley, 2002) required CARB to adopt regulations to reduce GHG emissions from non-commercial passenger vehicles and light-duty trucks for model years 2009–2016. CARB obtained a waiver from the USEPA that allows for implementation of these regulations notwithstanding possible federal pre-emption concerns.

d) Low Carbon Fuel Standard

EO S-1-07, as issued by Governor Schwarzenegger, called for a 10 percent or greater reduction in the average fuel carbon intensity for transportation fuels in California regulated by CARB by 2020.[66] In response, CARB approved the Low Carbon Fuel Standard (LCFS) regulations in 2009, which became fully effective in April 2010. Thereafter, a lawsuit was filed challenging CARB's adoption of the regulations; and in 2013, a court order was issued compelling CARB to remedy substantive and procedural defects of the LCFS adoption process under CEQA.[67] However, the court allowed implementation of the LCFS to continue pending correction of the identified defects. In September 2015, CARB re-adopted the LCFS regulations. The LCFS would reduce GHG emissions by reducing the carbon intensity of

[65] CARB. Regional Plan Targets. Available at: https://ww2.arb.ca.gov/our-work/programs/sustainable-communities-program/regional-plan-targets. Accessed: January 2022.

[66] Carbon intensity is a measure of the GHG emissions associated with the various production, distribution, and use steps in the "lifecycle" of a transportation fuel.

[67] *POET, LLC v. CARB* (2013) 217 Cal.App.4th 1214.

transportation fuels used in California by at least 10% by 2020 and, as most recently amended in 2018, by at least 20% by 2030.

e) Advanced Clean Cars Program

In 2012, CARB approved the Advanced Clean Cars (ACC) program, a new emissions-control program for non-commercial passenger vehicles and light-duty truck for model years 2017-2025. The program combines the control of smog, soot, and GHGs with requirements for greater numbers of zero emission vehicles. By 2025, when the rules will be fully implemented, new automobiles will emit 34 percent fewer global warming gases and 75 percent fewer smog-forming emissions. In August 2022, CARB adopted Advanced Clean Cars II (ACC II) regulations which "will seek to reduce criteria and greenhouse gas emissions from new light- and medium-duty vehicles beyond the 2025 model year, and increase the number of zero emission vehicles (ZEVs) for sale".[68]

f) Zero Emission Vehicles

ZEVs include hydrogen fuel cell electric vehicles and plug-in electric vehicles, such as battery electric vehicles and plug-in hybrid electric vehicles.

In 2012, Governor Brown issued EO B-16-2012, which calls for the increased penetration of ZEVs into California's vehicle fleet in order to help California achieve a reduction of GHG emissions from the transportation sector equaling 80 percent less than 1990 levels by 2050. In furtherance of that statewide target for the transportation sector, the EO also calls upon CARB, the CEC, and the California Public Utilities Commission to establish benchmarks that will: (1) allow over 1.5 million ZEVs to be on California roadways by 2025, and (2) provide the State's residents with easy access to ZEV infrastructure. EO B-16-2012 specifically directed California to "encourage the development and success of zero-emission vehicles to protect the environment, stimulate economic growth, and improve the quality of life in the State."[69]

In 2018, Governor Brown also issued EO B-48-18, which launched an eight-year initiative to accelerate the sales of ZEVs through a mix of rebate programs and infrastructure improvements. The EO also sets a new target of five million ZEVs in California by 2030, and includes funding for multiple state agencies to increase electric vehicle (EV) charging infrastructure and provide purchase rebates/incentives.

In furtherance of the State's ZEV penetration goals, in February 2013, the Governor's Interagency Working Group on Zero-emission Vehicles issued the *2013 ZEV Action Plan: A roadmap toward 1.5 million zero-emission vehicles on California* roadways *by 2025*.[70] The 2013 ZEV Action Plan identifies four broad goals for State government to advance ZEVs: 1) Complete needed infrastructure and planning; 2) Expand consumer awareness and demand; 3) Transform fleets; and 4) Grow jobs and investment in the private sector. As part of these goals, some highlighted strategies and actions include: i) supporting ZEV infrastructure planning and investment by private entities; ii) enabling universal access to ZEV infrastructure for California drivers; iii) reducing upfront purchase costs for ZEVs;

[68] Advanced Clean Cars II Program. Available at: https://ww2.arb.ca.gov/advanced-clean-cars-ii-meetings-workshops. Accessed: January 2022.

[69] Executive Order B-16-2012. Available at: https://www.ca.gov/archive/gov39/2012/03/23/news17472/. Accessed: January 2022.

[70] Governor's Interagency Working Group on Zero-emission Vehicles. 2013. Available at: http://opr.ca.gov/docs/Governors_Office_ZEV_Action_Plan_(02-13).pdf. Accessed: January 2022.

iv) promoting consumer awareness of ZEVs; and v) helping to expand ZEVs in bus fleets. The Action Plan discusses the challenges of ZEV expansion, which include the need to enable electric vehicle chargers in homes, increase consumer awareness, address up-front costs and operational limitations, and address that ZEVs are not commercially available for all categories of vehicles.

In October 2016, the Governor's Interagency Working Group on Zero-emission Vehicles issued the *2016 ZEV Action Plan: A roadmap toward 1.5 million zero-emission vehicles on California* roadways *by 2025*.[71] This report provides an update on progress toward achieving the 2013 goals and highlights the following four top priorities for the upcoming years: 1) Raise consumer awareness and education about ZEVs; 2) Ensure ZEVs are accessible to a broad range of Californians; 3) Make ZEV technologies commercially viable in targeted applications in the medium-duty, heavy-duty, and freight sectors; and 4) Aid ZEV market growth beyond California. The broad goals to advance ZEV adoption are: i) achieve mainstream consumer awareness of ZEV options and benefits; ii) make ZEVs an affordable and attractive option for drivers; iii) ensure convenient charging and fueling infrastructure for greatly expanded use of ZEVs; iv) maximize economic and job opportunities from ZEV technologies; v) bolster ZEV market growth outside of California; and vi) lead by example by integrating ZEVs into State government. The goals and strategies proposed in the 2013 Action Plan will continue to be implemented; however, additional strategies are proposed to help achieve the new goals, including setting targets to increase home charging stations in multiunit dwellings and disadvantaged communities and for public transit and school bus electrification. The 2016 Action Plan describes challenges toward achieving the 2025 goal of 1.5 million ZEVs in California, such as that most consumers are still not aware of the benefits of passenger ZEVs and that over 1,000,000 charge points will be needed at homes, workplaces, and public locations but only 11,000 non-home charge points are installed as stated in the 2016 ZEV Action Plan.

In September 2018, the Governor's Interagency Working Group on Zero-Emission Vehicles published the 2018 ZEV Action Plan Priorities Update.[72] This update is the result of Governor Brown's directive to update the 2016 Zero-Emission Vehicle Action Plan to help expand private investment in zero-emission vehicle infrastructure, particularly in low income and disadvantaged communities. The 2018 Priorities Update serves three fundamental purposes: 1) Provide direction to state agencies on the most important actions to be executed in 2018 to enable progress toward the 2025 targets and 2030 Vision; 2) Give stakeholders transparency into the actions state agencies plan to take (or are taking) this year to further the ZEV market; and 3) Create a platform for stakeholder engagement, feedback, and collaboration. As of July 2018, over 410,000 ZEVs have been sold in California, which is approximately 150,000 ZEVs since the publication of the 2016 Action Plan in October 2016.

In June 2020, CARB approved the Advanced Clean Trucks regulation, which has requirements for manufacturer ZEV sales and a one-time reporting requirement for large

[71] Governor's Interagency Working Group on Zero-emission Vehicles. 2016. Available at: https://www.ca.gov/archive/gov39/wp-content/uploads/2018/01/2016_ZEV_Action_Plan-1.pdf. Accessed: January 2022.

[72] Governor's Interagency Working Group on Zero-emission Vehicles. 2018. Available at: https://static.business.ca.gov/wp-content/uploads/2019/12/2018-ZEV-Action-Plan-Priorities-Update.pdf. Accessed: January 2022.

entities and fleets.[73] The Advanced Clean Truck Regulation is part of a holistic approach to accelerate a large-scale transition of zero-emission medium-and heavy-duty vehicles from Class 2b to Class 8. Manufacturers who certify Class 2b-8 chassis or complete vehicles with combustion engines are required to sell zero-emission trucks as an increasing percentage of their annual California sales from 2024 to 2035. By 2035, zero-emission truck/chassis sales need to be 55% of Class 2b – 3 truck sales, 75% of Class 4 – 8 straight truck sales, and 40% of truck tractor sales. Large employers including retailers, manufacturers, brokers, and others are required to report information about shipments and shuttle services. Fleet owners, with 50 or more trucks, are required to report about their existing fleet operations. This information helps to identify future strategies to ensure that fleets purchase available zero-emission trucks and place them in service where suitable to meet their needs.

California is incentivizing the purchase of ZEVs through implementation of the Clean Vehicle Rebate Project, which is administered by a non-profit organization (The Center for Sustainable Energy) for CARB and currently subsidizes the purchase of passenger near-zero and zero emission vehicles as follows:

- Hydrogen Fuel Cell Electric Vehicles: $5,000;
- Battery Electric Vehicles: $2,500;
- Plug-In Hybrid Electric Vehicles: $1,500; and
- Neighborhood Electric Vehicles and Zero Emission Motorcycles: $900.

In March 2017, CARB received Volkswagen's (VW) first 30-month ZEV Investment Plan (Plan).[74] This Plan is required by California's partial settlement with VW resulting from VW's use of illegal devices in its 2.0-liter (2.0L) diesel cars sold in the State from model years 2009 to 2015. The Plan describes how VW is proposing to spend the first $200 million in California on ZEV charging infrastructure (including the development and maintenance of ZEV charging stations), public awareness, increasing ZEV access, and a green city demonstration. In June 2017, Electrify America (a subsidiary of VW) provided CARB with additional information on the Plan.[75] CARB approved the first of the four plans in July 2017.[76]

In its 2014 First Update, CARB recognized that the light-duty vehicle fleet "will need to become largely electrified by 2050 in order to meet California's emission reduction goals."[77] Accordingly, CARB's ACC program – summarized above – requires about 15 percent of new cars sold in California in 2025 to be a plug-in hybrid, battery electric or fuel cell vehicle.[78]

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[73] CARB. 2020. Advanced Clean Trucks. Available at: https://ww2.arb.ca.gov/our-work/programs/advanced-clean-trucks. Accessed: January 2022.

[74] VOLKSWAGEN, Group of America. 2017. California ZEV Investment Plan: Cycle 1, March 8, 2017. Available at: https://www.electrifyamerica.com/assets/pdf/California%20ZEV%20Investment%20Plan%20Cycle%201.3bc672a3.pdf. Accessed: January 2022.

[75] Electrify America. 2017. Supplement to the California ZEV Investment Plan, Cycle 1, June 29, 2017. Available at: https://www.electrifyamerica.com/assets/pdf/Cycle%201%20CA%20ZEV%20Invest%20Plan%20Supplement.a92e7705.pdf. Accessed: January 2022.

[76] CARB, 2017. CARB Approves $200 Million VW Zero-Emission Vehicle Investment in California, July, 27. Available at: https://ww2.arb.ca.gov/news/carb-approves-200-million-vw-zero-emission-vehicle-investment-california. Accessed: January 2022.

[77] CARB, First Update to the Climate Change Scoping Plan: Building on the Framework (May 2014), p. 48.

[78] Id. at p. 47.

Other statewide and regional initiatives that spur ZEV uptake include the following:

- CARB currently subsidizes the purchase of passenger near-zero and zero emission vehicles, and provides access to high-occupancy vehicle lanes to ZEV drivers.
- The VW settlement will result in $800 million in ZEV projects in California over the next ten years, with a focus on increasing public awareness and infrastructure in the first funding cycle.[79]
- The CalGreen standards require new residential and non-residential construction to be pre-wired to facilitate the future installation and use of electric vehicle chargers (see Section 4.106.4 and Section 5.106.5.3 of 2016 CalGreen standards for the residential and nonresidential pre-wiring requirements, respectively).

In January 2017, three of California's largest utilities submitted proposals to the CPUC to electrify the State's transportation sector through more than $1 billion in investments:

- Southern California Edison (SCE) filed an application to expand electric transportation in its service area. Some of SCE's proposals include monetary rewards to rideshare drivers who use an electric vehicle, additional fast charge infrastructure at targeted locations within the region, and rates that are designed to incentivize electric vehicle adoption.[80]
- Pacific Gas and Electric (PG&E) submitted an application that aims to expand the electrification of medium- and heavy-duty vehicle fleets, expand fast-charging stations that can refuel EVs in 20-30 minutes, and explore new uses for vehicle electrification.[81]
- San Diego Gas & Electric (SDG&E) submitted an application to install tens of thousands of charging stations in its service area to boost the transition to zero-emission vehicles, trucks, shuttles and delivery fleets.[82]

On September 23, 2020, California Governor Gavin Newsom issued Executive Order N-79-20, which entails the following actions:

- All new passenger vehicles sold in California be zero-emission by 2035
- All medium- and heavy-duty vehicles be zero-emission where feasible by 2045
- All off-road vehicles and equipment be zero-emission where feasible by 2035

Governor Newsom ordered extensive inter-agency efforts to support the Executive Order, including evaluations of technological feasibility and cost effectiveness, expansion of EV charging options and affordable fueling, as well as identification of near-term strategies to increase zero-emission public transportation options.

The Executive Order was generally aimed at transitioning away from fossil fuel dependence in the State, with emphasis on transportation initiatives. However, Governor Newsom

[79] CARB, Volkswagen Settlement – California ZEV Investments webpage, available at: https://www.arb.ca.gov/msprog/vw_info/vsi/vw-zevinvest/vw-zevinvest.htm. Accessed: January 2022.

[80] SCE, Application of Southern California Edison Company (U 338-E) for Approval of Its 2017 Transportation Electrification Proposals (January 20, 2017).

[81] PG&E, In the Matter of the Application of Pacific Gas and Electric Company for Approval of its Senate Bill 350 Transportation Electrification Program (January 20, 2017).

[82] SDG&E, Application of San Diego Gas & Electric Company (U902E) for Approval of SB 350 Transportation Electrification Proposals (January 20, 2017).

addressed efforts to repurpose oil production facilities and extraction sites while continuing the State's existing goals to reduce the carbon intensity of fuels.[83]

2.2.2.9 Water

In January 2014, Governor Brown signed EO B-29-15, which directed the State Water Resources Control Board to impose restrictions to reduce residential potable urban water usage; to implement water efficiency measures at commercial, industrial, and institutional properties; and to prohibit irrigation with potable water for certain uses. In addition, this directed the California Department of Water Resources to lead a statewide initiative to replace laws and ornamental turfs with drought tolerant landscapes.

Pursuant to the EO B-29-15, water-related standards were adopted as amendments to the 2013 CalGreen Code and carried over into the 2016 code.

Following EO-B-29-2015, Governor Brown signed EO-B-37-16 in May 2016 to promote more conscious consumer water use and to improve agricultural water use efficiency and drought planning.

2.2.2.10 Solid Waste Diversion

The California Integrated Waste Management Act of 1989, as modified by AB 341 (Chesbro, 2011), requires each jurisdiction's source reduction and recycling element to include an implementation schedule that shows: (1) diversion of 25 percent of all solid waste by January 1, 1995, through source reduction, recycling, and composting activities; (2) diversion of 50 percent of all solid waste on and after January 1, 2000; and (3) source reduction, recycling and composting of 75 percent of all solid waste on or after 2020, and annually thereafter. CalRecycle is required to develop strategies, including source reduction, recycling, and composting activities, to achieve the 2020 goal.

CalRecycle published a discussion document, entitled *California's New Goal: 75 Percent Recycling,* which identified concepts that would assist the State in reaching the 75 percent goal by 2020. Subsequently, in August 2015, CalRecycle released the *AB 341 Report to the Legislature*, which identifies five priority strategies for achievement of the 75 percent goal: (1) moving organics out of landfills; (2) expanding recycling/ manufacturing infrastructure; (3) exploring new approaches for State and local funding of sustainable waste management programs; (4) promoting State procurement of post-consumer recycled content products; and (5) promoting extended producer responsibility.

2.2.2.11 Draft Climate Adaptation Strategy

The Draft California Climate Adaptation Strategy, dated October 18, 2021, outlines the state's key climate resilience priorities, includes specific and measurable steps, and serves as a framework for action across sectors and regions in California.[84]

The priorities outlined in the Strategy are as follows: 1) Strengthen Protections for Climate Vulnerable Communities, 2) Bolster Public Health and Safety in Light of Increasing Climate Risks, 3) Build a Climate Resilient Economy, 4) Accelerate Nature-Based Climate Solutions

[83] State of California. 2020. Executive Order N-79-20. Available at: https://www.gov.ca.gov/wp-content/uploads/2020/09/9.23.20-EO-N-79-20-Climate.pdf. Accessed: January 2022.

[84] California Natural Resources Agency. 2021. Draft California Climate Adaptation Strategy. Available at: https://resources.ca.gov/-/media/CNRA-Website/Files/Initiatives/Climate-Resilience/SAS-Workshops/Draft-CA-Climate-Adaptation-Strategy-ada.pdf. Accessed: January 2022.

and Strengthen Climate Resilience of Natural Systems, 5) Make Decisions based on the Best Available Climate Science, and 6) Partner and Collaborate to Leverage Resources.

2.2.3 Regional

2.2.3.1 Fresno COG Regional Transportation Plan and Sustainable Communities Strategy

As previously discussed, SB 375 requires Fresno COG to incorporate a Sustainable Communities Strategy into its RTP that achieves the GHG emission reduction targets set by CARB. Fresno COG's Sustainable Communities Strategy was first included in the 2014 Regional Transportation Plan & Sustainable Communities Strategy (RTP/SCS), which was adopted by Fresno COG in June 2014. The original plan has since been superseded by the RTP/SCS adopted by Fresno COG in July 2018, and more recently in July 2022.

In general, the goals and policies of the Sustainable Communities Strategy are to improve mobility, accessibility, reliability, efficiency, liveability, sustainability, and equity. The Sustainable Communities Strategy adopted by Fresno COG is expected to reduce per capita transportation emissions by 6% by 2020 and by 13% by 2035, as compared to 2005 baseline levels.

In July 2018, CARB accepted Fresno COG's determination that the 2018 Sustainable Communities Strategy would meet the region's GHG reduction targets per Government Code Section 65080(b)(2)(J)(ii), as memorialized in CARB's Resolution 2018-26.[85] As of February 2023, CARB has not yet performed this review of the 2022 Fresno COG RTP/SCS.

Pursuant to Government Code Section 65080(b)(2)(K), a Sustainable Communities Strategy does not: (i) regulate the use of land; (ii) supersede the land use authority of cities and counties; or (iii) require that a city's or county's land use policies and regulations, including those in a general plan, be consistent with it.

2.2.3.2 San Joaquin Valley Air Pollution Control District

While CARB is responsible for the regulation of mobile emission sources within the State, local air quality management districts (AQMDs) and air pollution control districts (APCDs) are responsible for enforcing standards and regulating stationary sources. The Project area is located within the San Joaquin Valley Air Basin and is subject to the San Joaquin Valley Air Pollution Control District (SJVAPCD) guidelines and regulations.

[85] CARB. Executive Order G-19-092. Fresno Council of Governments (FCOG) 2018 Sustainable Communities Strategy CARB Acceptance of GHG Quantification Determination. Available at: https://ww2.arb.ca.gov/sites/default/files/2020-06/FCOG_2018_SCS_ARB_Acceptance_of_GHG_Quantification_Determination_Executive_Order.pdf. Accessed: January 2022.

In December 2009, SJVACPD issued its *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA* (Guidance). In its Guidance, the District recommends determining the significance of project-specific GHG emissions by using Best Performance Standards (BPS). Under the Guidance, a project's impacts on global climate change would be less than significant if the project implements BPS, or if the project reduces or mitigates its GHG emissions by 29 percent, consistent with the statewide GHG emission reduction targets established in the 2008 Scoping Plan. The District also adopted the *District Policy: Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency*. This policy aligns with the Guidance process for evaluating GHG significance, specific to stationary source projects.

Also, in June 2014, the District released *APR – 2025, CEQA Determinations of Significance for Projects Subject to [CARB]'s GHG Cap-and-Trade Regulation* (APR – 2025). In APR - 2025, the District concluded that GHG emissions increases that are otherwise covered under CARB's Cap-and-Trade Program cannot constitute significant increases in emissions under CEQA for two separate reasons: (1) the Cap-and-Trade Program is an adopted statewide regulation for reducing GHG emissions from targeted industries/sources; and (2) GHG emissions addressed by the Cap-and-Trade Program are subject to an industry-wide, decreasing emissions cap. More specifically, the District concluded that "all GHG emission increases resulting from the combustion of any fuel produced, imported, and/or delivered in California are mitigated under Cap-and-Trade. Therefore, GHG emission increases caused by fuel use (other than jet fuels) are determined to have a less than significant impact on global climate change under CEQA."

In March 2015, the District issued its *Guidance for Assessing and Mitigating Air Quality Impacts* (GAMAQI), which provides technical guidance for the review of air quality impacts from proposed projects within the boundaries of the District.[86] This guidance recommends an approach for evaluating the significance of a proposed project's GHG emissions; specifically, whether a proposed project would have reduced or mitigated GHG emissions by 29%, consistent with GHG emission reduction targets established in the CARB's Scoping Plan. The guidance recommends the following hierarchy for evaluating a proposed project's impact with respect to its GHG emissions:

- Projects complying with an approved GHG emission reduction plan or GHG mitigation program which avoids or substantially reduces GHG emissions within the geographic area in which the project is located would be determined to have a less-than-significant individual and cumulative impact for GHG emissions. Such plans or programs must be specified in law or approved by the lead agency with jurisdiction over the affected resource and supported by a CEQA-compliant environmental review document adopted by the lead agency. Projects complying with an approved GHG emission reduction plan or GHG mitigation program would not be required to implement Best Performance Standards.
- Projects implementing Best Performance Standards would not require quantification of project-specific GHG emissions. Consistent with the CEQA Guidelines, such projects

[86] San Joaquin Valley Unified Air Pollution Control District. 2015. Guidance for Assessing and Mitigating Air Quality Impacts (GAMAQI). Available at: http://www.valleyair.org/transportation/GAMAQI.pdf. Accessed: January 2022.

would be determined to have a less-than-significant individual and cumulative impact for GHG emissions.

While the GAMAQI discussions include a comparison to a BAU approach, the *Center for Biological Diversity v. California Department of Fish and Wildlife* Court Decision established additional standards for such an approach. Due to that court decision, the comparison to BAU approach will not be relied upon in this analysis.

2.2.4 Local

2.2.4.1 City of Fresno General Plan

The current City of Fresno General Plan, adopted originally in 2014, has a Resource Conservation and Resilience section which addresses both air quality and GHG emissions.[87] The City's General Plan notes that SJVAPCD authority to regulate air emissions is restricted to stationary sources, while mobile sources emissions reductions are only incentivized by SJVAPCD. The City acknowledges its role in improving air quality can come from efforts to reduce mobile vehicle emissions, which is summarized in Policy RC-4-a. The same policy to control mobile vehicle emissions additionally addresses GHG reduction efforts. An additional policy that is compatible with mobile vehicle emissions reductions is Policy RC-2-a, which aims to promote higher density land use developments, thereby decreasing vehicle travel and emissions. Other policies aimed at reducing GHG emissions include Policy RC-5-a and Policy RC-5-b, which set GHG reduction targets in line with AB 32 and adopt a GHG Reduction Plan for the City, respectively. The latter is outlined below.

2.2.4.2 City of Fresno GHG Reduction Plan

In December 2014, the City of Fresno adopted a GHG Reduction Plan, also referred to as the Climate Action Plan, as its primary strategy for reducing GHG emissions under the control or influence of the City.[88] The GHG Reduction Plan was later updated in March 2020 to re-evaluate the City's GHG reduction targets and existing reduction strategies from the 2014 GHG Reduction Plan.[89] The latest version of the GHG Reduction Plan Update was finalized in March 2021.[90] The GHG Reduction Plan Update provides more details on GHG reduction measures mentioned in the City's General Plan. These details largely highlight land use strategies for increased population density and mobile vehicle travel reductions like the City's General Plan but provide indicators for the effectiveness of such measures. The GHG Reduction Plan provides a review process for projects that require discretionary approval from the City to ensure adherence to the streamlined CEQA review process and non-significant GHG impacts. Significance thresholds for GHG emissions are discussed in more detail below.

City of Fresno. 2014. Resource Conservation and Resilience. Available at: https://www.fresno.gov/darm/wp-content/uploads/sites/10/2019/07/General-Plan-7-Resources-Conservation-and-Resilience-7-19.pdf. Accessed: January 2022.

[88] FirstCarbon Solutions. 2014. DRAFT Fresno General plan Update, Greenhouse Gas Reduction Plan, City of Fresno California. Available at: https://www.fresno.gov/darm/wp-content/uploads/sites/10/2016/11/F-2-Greenhouse-Gas-Reduction-Plan.pdf. Accessed: January 2022.

[89] LSA. 2020. DRAFT Greenhouse Gas Reduction Plan Update. Available at: https://www.fresno.gov/darm/wp-content/uploads/sites/10/2020/03/Appendix_G-GHG_Reduction_Plan_Update.pdf. Accessed: January 2022.

[90] LSA. 2021. Greenhouse Gas Reduction Plan Update. Available at: https://www.fresno.gov/darm/wp-content/uploads/sites/10/2021/03/Link4AppendixGGHGRPUpdate.pdf. Accessed: January 2022.

2.2.5 Other CEQA Guidance

2.2.5.1 CAPCOA

a) CAPCOA 2008 CEQA & Climate Change White Paper

In January 2008, the California Air Pollution Control Officers Association (CAPCOA) published its *CEQA & Climate Change* white paper.[91] In the white paper, CAPCOA surveyed three options available to CEQA lead agencies for purposes of evaluating the significance of a project's GHG emissions, including identifying no significance thresholds for GHG emissions, setting a zero emissions threshold, or setting a non-zero emissions threshold. As to the non-zero thresholds, CAPCOA's white paper considered two approaches, one grounded in statute and executive order with four possible options, and one grounded in a tiered framework. As for the approach grounded in statute and executive order, CAPCOA identified four threshold concepts:

- Threshold 1.1: AB 32/S-3-05 Derived Uniform Percentage-Based Reduction;
- Threshold 1.2: Uniform Percentage-Based (e.g., 50 percent) Reduction for New Development;
- Threshold 1.3: Uniform Percentage-Based Reduction by Economic Sector; and
- Threshold 1.4: Uniform Percentage-Based Reduction by Region.

For purposes of the tiered framework approach, a project's GHG emissions would result in a less-than-significant impact provided one of the following criteria were achieved: (1) compliance with a general or regional plan in alignment with AB 32; (2) application of a CEQA exemption; (3) inclusion on the "green list;" (4) consistency with a qualified GHG reduction strategy; or (5) demonstration that quantified GHG emissions are less than significant. Tables 4 and 5 of the white paper identified advantages and disadvantages associated with all of the options presented for consideration.

b) CAPCOA 2010 Quantifying Greenhouse Gas Mitigation Measures

In August 2010, CAPCOA published its *Quantifying Greenhouse Gas Mitigation Measures* report, which presents information and analysis regarding the quantification of project-level mitigation of GHG emissions associated with land use, transportation, energy use, and other related project areas. CAPCOA and its contractors conducted an extensive literature review in order to provide reliable and substantiated evidentiary bases for the quantification protocols presented in the report; as such, individual GHG reduction measures are accompanied by "fact sheets" that set forth the relevant parameters for the quantification calculations.

c) CAPCOA 2021 Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity

In December 2021, CAPCOA published the final draft of the *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity* report, which builds upon CAPCOA's previous efforts to provide accurate

[91] CAPCOA is a non-profit association of the air pollution control officers from all 35 local air quality agencies throughout California.

and reliable quantification measures.[92] This Handbook identifies and evaluates new and emerging GHG reduction measures and removed outdated measures from the 2010 Handbook. The purpose of the Handbook is to provide local governments with accurate, reliable, and standardized emission reduction quantification methods for land use, climate action, and long-term planning. It also aims to support and enhance the consideration of climate vulnerabilities, health, and equity during the planning process.

2.2.5.2 Association of Environmental Professionals

a) AEP Beyond 2020 White Paper

In March 2015, the Association of Environmental Professionals (AEP) released its draft *Beyond 2020: The Challenge of Greenhouse Gas Reduction Planning by Local Governments in California* (Beyond 2020) white paper.[93] In the white paper, AEP presented evidence showing that it is infeasible for a local jurisdiction to achieve EO S-3-05's 2050 reduction target (i.e., 80 percent below 1990 levels) absent a real post-2020 State plan of action. As such, AEP recommended assessing project significance in relation to the 2050 reduction target by asking whether a project would "impede substantial progress in local, regional, and State GHG emissions reductions over time toward long-term GHG reduction targets."

b) AEP Beyond 2020 and Newhall White Paper

In April 2016, AEP released its draft *Beyond 2020 and Newhall: A Field Guide to New CEQA Greenhouse Gas Thresholds and Climate Action Plan Targets for California* (Beyond 2020 and Newhall) white paper. In the white paper, AEP surveyed the following significance threshold concepts for utilization in CEQA-oriented GHG emissions analysis: consistency with qualified GHG reduction plans; bright line values; efficiency metrics; hybrid metrics that separate transportation and non-transportation emissions; best management practices; regulatory compliance; and percent reductions from business as usual. In doing so, AEP identified the present circumstances as a "transitional period" due to the absence of comprehensive State planning for post-2020, non-legislatively adopted, statewide targets.

[92] CAPCOA. 2021. Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity. Available at: http://www.airquality.org/ClimateChange/Documents/Final%20Handbook_AB434.pdf. Accessed: January 2022.

[93] AEP is a non-profit association of public and private sector professionals with a common interest in serving the principles underlying CEQA.

3. SIGNIFICANCE THRESHOLDS

3.1 CEQA Guidelines on GHG Emissions

In 2007, SB 97 was enacted and directed OPR and the California Natural Resources Agency to prepare amendments to the CEQA Guidelines addressing the analysis of GHG emissions under CEQA. Following formal rulemaking, a series of amendments to the CEQA Guidelines were adopted to provide the general framework for the analysis of GHG emissions, and became effective in 2010. The amendments do not provide a mandatory, quantitative rubric for GHG emissions analysis, but instead provide general guidance and recognize long-standing CEQA principles regarding the discretion afforded to lead agencies where supported by substantial evidence. More specifically, CEQA Guidelines Section 15064.4(a) recognizes that the "determination of the significance" of GHG emissions "calls for careful judgment by the lead agency" in accordance with the more general provisions of CEQA Guidelines Section 15064; each agency "shall have discretion to determine" whether to conduct quantitative or qualitative analysis, provided its determination is supported by substantial evidence. Section 15064.4 was most recently amended by OPR and the California Natural Resources Agency in December 2018.

The analysis provided in this report evaluates the significance of the Project's GHG emissions by reference to the following questions from Section VIII, Greenhouse Gases, of Appendix G of the CEQA Guidelines:

Threshold 1. Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

Threshold 2. Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs?

3.2 Other Guidance

The City of Fresno has not developed a quantitative threshold of significance for GHG emissions. As of the most recent version of the City of Fresno's Greenhouse Gas Reduction Plan, the City developed a GHG checklist to assist CEQA projects in evaluating significance.[94]

SJVAPCD has adopted guidance documents for assessing and mitigating GHG impacts on global climate change. Rather than establishing specific numeric thresholds of significance (as in the case of criteria pollutant emissions), the SJVAPCD guidance utilizes a tiered approach to assess cumulative impacts on global climate change. Notably, the SJVAPCD establishes that a project can demonstrate compliance with an approved GHG emissions reduction program (such as CARB's statewide GHG Cap-and-Trade Program). Furthermore, SJVAPCD's December 2009 CEQA GHG policies and its 2015 GAMAQI states that a project whose emissions have been reduced or mitigated consistent with the California Global Warming Solutions Act of 2006 (AB 32) should be considered to have a less than significant impact on global climate change.[95] SJVAPCD and the City of Fresno have not adopted a numerical GHG threshold.

[94] LSA. 2021. Greenhouse Gas Reduction Plan Update. Available at: https://www.fresno.gov/darm/wp-content/uploads/sites/10/2021/03/Link4AppendixGGHGRPUpdate.pdf. Accessed: January 2022.

[95] SJVAPCD. 2015. Final Draft Guidance for Assessing and Mitigating Air Quality Impacts. Available at: http://www.valleyair.org/transportation/GAMAQI.pdf. Accessed: January 2022.

The City of Fresno's Greenhouse Gas Reduction Plan Update (GHGRP) is considered a "Qualified Plan" which allows project-level CEQA tiering and streamlining. As a qualified plan, the plan must include a community-wide inventory of GHG emissions, forecasted future emissions, targets for GHG reductions in line with State goals, quantifiable GHG reduction measures, established monitoring procedures, an environmental review, and adoption through a public process (CEQA Guidelines § 15183.5(b)).

The GHGRP establishes the City's GHG inventory based on the most recent data available for the year 2016. Forecasted emissions with future growth are developed for the business-as-usual (BAU) and adjusted BAU (ABAU) scenarios (the ABAU scenario includes State policies) for the years 2020, 2030, and 2035. The 2020 and 2030 forecast years are consistent with the goals identified in Assembly Bill (AB) 32 and Senate Bill (SB) 32, which identify Statewide GHG reduction targets by 2020 and 2030. The 2035 forecast year corresponds to the City's General Plan horizon year and will allow the City to develop long-term strategies to continue GHG reductions. The GHGRP analysis establishes a basis and criteria for project level land use development in the City of Fresno.

The City of Fresno GHGRP's analysis is based on specific land uses for the City of Fresno. Fresno's GHGRP includes general plan buildout that accounts for an incremental increase of 40.5 million square feet of industrial use, 20.8 million square feet of mixed use, and 63.3 million square feet of commercial/office/public facility use. For 2030 and 2035, the City of Fresno establishes a reduction from the adjusted BAU emissions that will meet the state targets. For 2030 this is a 1.5% reduction from the ABAU emissions and for 2035 this reduction is an 11.6% reduction from the ABAU. The GHGRP has thus established a City and land use specific criteria for individual Projects to demonstrate consistency with.

3.3 Project Approach to Significance

This report, relative to Threshold 1, quantifies the Project's GHG emissions during operation and construction for disclosure and in the absence of a numerical GHG significance threshold will evaluate consistency with the City of Fresno GHG Reduction Plan Update to determine significance of the Project's GHG emissions. This report, relative to Threshold 2, evaluates the Project for consistency with applicable plans related to GHG emissions at the state, regional, and local levels.

4. PROJECT GHG EMISSIONS INVENTORY

This section describes the methodology that Ramboll used to develop the GHG emission inventories associated with the Project, which include one-time emissions (construction emissions and emissions due to vegetation changes), and operational emissions. Sub-categories of GHG operational emissions include: **area sources, energy use**, **water supply and wastewater**, **solid waste,** and **mobile sources**. The emissions inventory reflects the reasonably foreseeable change based on the discontinued operation of the Costco Warehouse located at 4500 W Shaw Avenue. For purposes of this analysis, 4500 W Shaw Avenue is assumed to be backfilled by a shopping center use.

4.1 Measurement, Resources and Baseline Condition

4.1.1 Units of Measurement: Tonnes of CO_2 and CO_2e

In this report, the term "GHGs" includes gases that contribute to the natural greenhouse effect, such as CO_2, CH_4, N_2O, and water, as well as gases that are only man-made and that are emitted through the use of modern industrial products, such as HFCs and chlorofluorocarbons (CFCs). GHG emissions are typically measured in terms of mass of CO_2e. CO_2e are calculated as the product of the mass of a given GHG and its specific GWP, as described in **Section 2.1**. GWPs of 25 and 298 were used for CH_4 and N_2O, respectively, for this analysis. In many sections of this report, including the final summary sections, emissions are presented in units of CO_2e either because the GWPs of CH_4 and N_2O were accounted for explicitly, or the CH_4 and N_2O are assumed to contribute a negligible amount of GWP when compared to the CO_2 emissions from that particular emissions category.

In this report, a tonne refers to MT (1,000 kilograms). Additionally, exact totals presented in all tables and report sections may not equal the sum of components due to independent rounding of numbers.

4.1.2 Resources

4.1.2.1 CalEEMod® Methodology

Ramboll primarily utilized the California Emissions Estimator Model (CalEEMod®) version 2020.4.0[96] methodology to assist in quantifying the GHG emissions in the inventories presented in this report for the Project. CalEEMod® provides methodology to calculate both construction emissions and operational emissions from a land use development project. It calculates total or annual GHG emissions. Specifically, the model methodology aids the user in the following calculations:

- One-time short-term construction emissions associated with demolition, site preparation, grading, building, and paving from off-road construction equipment, and on-road mobile equipment associated with workers, vendors, and hauling.
- One-time vegetation sequestration changes, such as permanent vegetation land use changes and new tree plantings.
- Operational emissions associated with the fully built out land use development, such as on-road mobile vehicle traffic generated by the land uses, off-road emissions from

[96] SCAQMD. 2021. California Emissions Estimator Model®. Available at: https://www.aqmd.gov/caleemod/. Accessed: January 2022.

landscaping equipment, natural gas usage in the buildings, electricity usage in the buildings, water usage by the land uses, and solid waste disposal by the land uses.

CalEEMod® is a statewide program designed to calculate both criteria pollutant and GHG emissions from development projects in California developed under the auspices of the South Coast Air Quality Management District (SCAQMD), with input from other California air districts, and is currently supported by numerous lead agencies for use in quantifying the emissions associated with development projects undergoing environmental review. CalEEMod® utilizes widely accepted models for emission estimates combined with appropriate default data that can be used if site-specific information is not available. These models and default estimates use sources such as the USEPA AP-42 emission factors,[97] CARB's on-road and off-road equipment emission models such as the EMission FACtor model (EMFAC) and the Emissions Inventory Program model (OFFROAD), and studies commissioned by California agencies such as the CEC and CalRecycle.

As mentioned above, CalEEMod® is based upon the CARB-approved OFFROAD and EMFAC models. OFFROAD[98] is an emission factor model used to calculate emission rates from off-road mobile sources (e.g., construction equipment, agricultural equipment). The off-road diesel emission factors used by CalEEMod® are based on the CARB OFFROAD2011 program. EMFAC is an emission factor model used to calculate emissions rates from on-road vehicles (e.g., passenger vehicles). CalEEMod® 2020.4.0 contains EMFAC2017 emission factors. The latest version of EMFAC is the CARB EMFAC2021 program.[99]

In addition, CalEEMod® contains default values and existing regulation methodologies to use in each specific local air district region. Appropriate statewide default values can be utilized if regional default values are not defined. Ramboll used default factors for the Fresno County area (within the SJVAPCD's jurisdiction) for the emissions inventory, unless otherwise noted in the methodology descriptions below.

Details regarding the specific methodologies used by CalEEMod® can be found in the CalEEMod® User's Guide and associated appendices.[100]

4.1.2.2 OFFROAD2017

OFFROAD2017 is CARB's most current off-road emissions inventory model. The exhaust emission factors for each equipment at each horsepower range were back-calculated from total daily emissions reported in the model output files and annual usage in terms of horsepower-hours for each equipment type in the specified region and calendar year. These emission factors are then used in the calculation of Baseline and Project emissions for each type of equipment utilized at the Facility.

[97] The USEPA maintains a compilation of Air Pollutant Emission Factors and process information for several air pollution source categories. The data is based on source test data, material balance studies, and engineering estimates. Available at: https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emissions-factors. Accessed: January 2022.

[98] CARB. 2011. Off Road Mobile Source Emission factors. Available at: https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory. Accessed: January 2022.

[99] CARB. 2021. EMFAC2021. Available at: https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/msei-modeling-tools-emfac-software-and. Accessed: January 2022.

[100] SCAQMD. 2021. California Emissions Estimator Model User's Guide. Version 2020.4.0. Available at: https://www.aqmd.gov/caleemod/. Accessed: January 2022.

4.1.2.3 Other Resources

Ramboll directly or indirectly relied on emissions estimation guidance from government-sponsored organizations, government-commissioned studies of energy use patterns, Project-specific studies (e.g., Kittelson's Fresno Costco Relocation Transportation Impact Analysis[101]), and emission estimation software as described above. In cases noted below, third-party studies were also relied upon to support analyses and assumptions made outside of the approach described above.

4.1.3 Indirect GHG Emissions from Electricity Use

Project-related electricity use results in indirect emissions, due to electricity generation activities occurring at off-site power plant locations. For the Project, electrical power will be supplied by PG&E. The indirect GHG emissions created as a result of Project-related electricity use are calculated through application of the following methodology.

For purposes of electricity use, intensity factors are GHG emission rates from a given source relative to the energy generation activities, and are expressed in terms of the amount of GHG released per megawatt of energy produced. The default electricity intensity factors for PG&E in CalEEMod® for CO_2, CH_4, and N_2O are 203.983, 0.033, and 0.004 pounds (lbs) of GHG per megawatt-hour, respectively. The CalEEMod® CO_2 default factor is based on the emission factor provided to Sacramento Metro Air Quality Management District by PG&E. The CH_4 and N_2O default factors are based on E-Grid values for the Western Electricity Coordinating Council California and Mexico (CAMX) region. PG&E's Power/Utility Protocol (PUP) reports show that renewable energy sources do not result in any new CO_2 emissions.

While CalEEMod®'s emission factors for CH_4 and N_2O conservatively were used for this project, CalEEMod®'s CO_2 intensity factor was modified based on PG&E's 2019 Corporate Sustainability Report, to account for the Renewables Portfolio Standard's (RPS) requirement for 2030 (i.e., 60 percent RPS). The 2017 and 2018 mix of renewable and non-renewable energy sources in PG&E's energy supply were both used to calculate the intensity factors for PG&E's non-renewable energy. (For disclosure purposes, PG&E's current RPS is 30.6 percent.)[102] The PG&E data provides the basis for the estimate of the intensity factors for the non-renewable energy; and this data is used to project what the intensity factors will be when the Project reaches build-out. The intensity factor for CO_2 is calculated by multiplying the percentage of energy delivered by PG&E from non-renewable energy resources with the intensity factor for non-renewable energy as calculated (see **Section 4.3.4** below).

4.2 One-Time Emissions

One-time emissions are those emissions that are not reoccurring over the life of the Project. This includes emissions associated with construction and emissions associated with land use changes.

[101] Kittelson & Associates, Inc. 2023. Fresno Costco Relocation Transportation Impact Analysis. May.

[102] PG&E. 2021 Corporate Responsibility and Sustainability Report. Available at: https://www.pgecorp.com/corp_responsibility/reports/2021/pf04_renewable_energy.html. Accessed: June 2022.

4.2.1 Construction Emissions

This section describes the estimation of GHG emissions from construction activities at the Project site. While the exact construction schedule and equipment mix may vary from the current analysis, the GHG emissions are not expected to be higher than that calculated given the conservative assumptions included in this analysis.

The major construction phases included in this analysis are:

- Demolition: involves removing buildings or structures.
- Site Preparation: involves clearing vegetation (grubbing and tree/stump removal) and removing stones and other unwanted material or debris prior to grading.
- Grading: involves the cut and fill of land to ensure the proper base and slope for the construction foundation.
- Building Construction: involves the construction of structures and buildings.
- Paving: involves the laying of concrete or asphalt such as in parking lots or roads.
- Architectural Coating: involves the application of coatings to both the interior and exterior of buildings or structures, the painting of parking lot or parking garage striping, associated signage and curbs, and the painting of the walls or other components such as stair railings inside parking structures.

GHG emissions from these construction phases are attributable to fuel use from construction equipment usage onsite and from on-road worker, vendor, and hauling trips.

Ramboll primarily used CalEEMod® to quantify the construction emissions. The modeled construction schedule is shown in **Table 4-1**. The construction off-road equipment list is a Project-specific estimate; the off-road equipment specifications are based on CalEEMod® model defaults.

The construction-related equipment mix assumptions are shown in **Table 4-2. Table 4-3** presents the material handling volumes which are anticipated to be imported and exported. **Table 4-4** includes the Project-specific demolition assumptions.

4.2.1.1 Emissions from On-Road Construction Trips

Construction generates on-road vehicle GHG emissions from personal vehicles for worker and vendor commuting, and trucks for soil and material hauling. These emissions are based on the number of trips and VMT, along with emission factors from EMFAC. Default model trip rates were used for construction. The emissions from mobile sources were calculated in CalEEMod® with the trip rates, trip lengths, and emission factors for running exhaust from EMFAC as follows:[103]

$$Emissions_{pollutant} = VMT * EF_{running,\ pollutant}$$

Where:

$Emissions_{pollutant}$ = emissions from vehicle running for each pollutant

VMT = vehicle miles traveled

[103] SCAQMD. 2021. California Emissions Estimator Model® User's Guide, Appendix A. Available at: https://www.aqmd.gov/caleemod/. Accessed: January 2022.

$EF_{running, pollutant}$ = emission factor for running emissions

On-road construction trip emissions are presented in the CalEEMod® output in **Appendix A**.

4.2.1.2 Emissions from Construction Equipment

The emissions associated with construction equipment are from off-road equipment engine use based on the equipment list and phase length, and on-road vehicle trips and phase length.

Since the majority of the off-road construction equipment used for construction projects are diesel fueled, CalEEMod® assumes all of the equipment operates on diesel fuel. The calculations include the running exhaust emissions from off-road equipment. Since the equipment is assumed to be diesel, there are no starting emissions associated with the equipment, as these are *de minimis* for diesel-fueled equipment. The exhaust emissions are calculated based on CARB's OFFROAD2011 methodology using the equation presented below.[104]

$$Emissions_{Diesel} = \sum_{i} (EF_i \times Pop_i \times AvgHP_i \times Load_i \times Activity_i)$$

Where:

EF = Emission factor in grams per horsepower-hour (g/bhp-hr) as processed from OFFROAD2011

Pop = Population, or the number of pieces of equipment

AvgHp = Maximum rated average horsepower

Load = Load factor

Activity = Hours of operation

i = equipment type

Emissions for off-road construction equipment for each phase of construction are detailed in **Appendix A**.

4.2.1.3 Total Construction Emissions

The Project construction emissions were run within CalEEMod® to generate the annual emissions. The total emissions from construction from all phases for off-road and on-road emissions in 2023 are summarized in **Appendix A**.

4.2.2 Vegetation Changes

Vegetation changes that occur as a result of land use development constitute a one-time change in the carbon sequestration capacity of a project site. In this case, the land the Project will occupy is vacant.

4.3 Annual Operational Emissions

This section describes the estimation of GHG emissions from operational activities at the Project site. The operational emissions were calculated with CalEEMod® and separately for mobile source emissions. Operational GHG emissions are calculated for landscaping, natural

[104] SCAQMD. 2018. California Emissions Estimator Model® User's Guide, Appendix A. Available at: https://www.aqmd.gov/caleemod/. Accessed: January 2022.

gas and electricity usage, on-road mobile trips, water usage, and solid waste generated. Operational emissions are evaluated for the first year of Project Operation in 2023.

4.3.1 Area Sources

Area sources are direct sources of GHG emissions, such as emissions from landscaping activities. The area source GHG emissions included in this analysis are landscaping-related fuel combustion sources, such as lawn mowers.

4.3.2 Mobile Sources

The GHG emissions associated with on-road mobile sources are generated from workers, vendors, and haul trucks travelling to and from the Project site. The GHG emissions associated with on-road mobile sources include running and starting exhaust emissions. Running emissions are dependent on VMT. Starting emissions are associated with the number of starts or time between vehicle uses and the assumptions used in determining these values are described below. Ramboll calculated mobile source emissions using trip rates and trip length information based on analyses conducted by Kittelson.

The analysis includes the benefit of reductions from some adopted regulatory programs, which are accounted within EMFAC2021 as follows:

- AB 1493 ("the Pavley Standard") required CARB to adopt regulations by January 1, 2005, to reduce GHG emissions from non-commercial passenger vehicles and light-duty trucks of model year 2009 and thereafter. EMFAC2021 includes emission reductions for non-commercial passenger vehicles and light-duty trucks of model year 2017 – 2025.
- The ACC program adopted by CARB, introduced in 2012, combines the control of smog, soot causing pollutants and GHG emissions into a single coordinated package of requirements for model years 2015 through 2025. EMFAC2021 includes reductions associated with this regulation that are represented in this analysis.
- The USEPA/NHTSA advanced fuel economy and GHG standards (Phase 1) were adopted in 2011 for medium and heavy-duty trucks for model years 2014-2018.[105] This Heavy-Duty National Program is intended to reduce fuel use and GHG emissions from medium- and heavy-duty vehicles, semi-trucks, pickup trucks and vans, and all types and sizes of work trucks and buses in between. EMFAC2021 includes reductions associated with this regulation that are represented in this analysis.
- The USEPA/NHTSA advanced fuel economy and GHG standards (Phase 2) were adopted in 2016 for medium- and heavy-duty trucks for model years 2018 and beyond.[106] The Phase 2 program includes technology-advancing standards that substantially reduce GHG emissions and fuel consumption resulting in an ambitious, yet achievable, program that will allow manufacturers to meet the applicable standards over time, at reasonable cost,

[105] USEPA, Office of Transportation and Air Quality. 2011. Available at: https://www.gpo.gov/fdsys/pkg/FR-2011-09-15/pdf/2011-20740.pdf. Accessed: January 2022.

[106] USEPA, Office of Transportation and Air Quality. 2016. Available at: https://www.gpo.gov/fdsys/pkg/FR-2016-10-25/pdf/2016-21203.pdf. Accessed: January 2022.

through a mix of different technologies. The Phase 2 program's standards will be phased in, beginning with model year 2021 and culminating with model year 2027.[107]

In June 2020, CARB released EMFAC off-model adjustment factors to account for the Final Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule.[108] The SAFE Rule has been incorporated into this analysis as it is incorporated in EMFAC2021.

4.3.2.1 Estimating Mobile Source Emissions

Mobile source emissions calculation requires trip rates and trip lengths for each different trip type in the Project (e.g., employee, vendor, and haul truck).

The following sections describe the methodology to derive the necessary inputs.

a) Trip Generation Rates

The trip generation rates for the Project were based on Kittelson data. The trips for the northeast corner of W. Herndon Ave. and N. Riverside Dr (Herndon/Riverside) and 4500 W Shaw Ave are shown in **Appendix B** in **Table B-1a** and **Table B-1b**.

b) Trip Lengths

The Project trip lengths were based on Kittelson analysis, other than the MDO delivery truck trip length, which was based on the average routed round trip length for Fresno MDO deliveries. These trip lengths for Herndon/Riverside and 4500 W Shaw Ave are represented in **Appendix B, Table B-1a** and **Table B-1b**, respectively.

c) Fleet Mix

The fleet mixes derived based on CalEEMod® and EMFAC2021 were used to determine the mix of light-duty vehicles used for member vehicles and employee vehicles. The MDO delivery trucks, fuel delivery trucks, and warehouse delivery trucks were assumed to be heavy-heavy-duty trucks. The fleet mixes for the operational mobile trips are shown in **Table B-2** of **Appendix B**.

d) Transport Refrigeration Units

The Project includes Transport Refrigeration Units (TRUs), which are refrigeration systems powered by diesel internal combustion engines designed to refrigerate or heat perishable products that are transported in various containers, including truck vans, semi-truck trailers, shipping containers, and railcars. These TRUs account for approximately 15% of the warehouse delivery trucks. This analysis assumes that TRUs are plugged in at the loading dock. OFFROAD2021 has emission factors for TRUs, which were obtained for Fresno County in 2023. Emissions of CO_2 from TRUs were estimated, as shown in **Table 4-6**.

4.3.2.2 Mobile Source Emissions

The weighted emission factors from running exhaust for each vehicle type are presented in **Appendix B, Table B-3**. Starting exhaust emission factors for each vehicle type are

[107] The emission reductions attributable to Phase 2 of the regulations for medium- and heavy-duty trucks were not included in the Project's emissions inventory due to the difficulty in quantifying the reductions. Excluding these reductions results in a more conservative (i.e., higher) estimate of emissions for the Project.

[108] CARB. 2020. EMFAC Off-Model Adjustment Factors for Carbon Dioxide (CO_2) Emissions to Account for the SAFE Vehicles Rule Part One and the Final SAFE Rule. Available at: https://ww3.arb.ca.gov/msei/emfac_off_model_co2_adjustment_factors_06262020-final.pdf. Accessed: January 2022.

displayed in **Appendix B, Table B-4**. Idling emission factors for passenger vehicles and delivery trucks are presented in **Appendix B, Table B-5**. The overall mobile source emissions from running, starting, and idling are shown in **Appendix B, Table B-6a** and **B-6b**, along with the VMT, trips, and idling durations.

4.3.3 Water Supply, Treatment and Distribution

Indirect GHG emissions result from the production of electricity used to convey, treat, and distribute the Project's water and wastewater. The amount of electricity required to convey, treat, and distribute water depends on the volume of water as well as the sources of the water. Additionally, direct CH_4 and N_2O emissions result from the treatment of wastewater. Water demand and wastewater generation values were based on CalEEMod® defaults.

The water usage and associated GHG emissions are shown in **Appendix A**.

4.3.4 Energy Use

Energy usage within buildings (e.g., electricity and natural gas fuelled equipment) contribute to the facility's GHG inventory. Combustion of any type of fuel emits CO_2 and other GHGs directly into the atmosphere; these emissions are considered direct emissions associated with a building. GHGs are also emitted during the generation of electricity from fossil fuels; these emissions are considered to be indirect emissions.

To estimate GHG emissions from the natural gas and electricity usage for the Project, Ramboll utilized CalEEMod® default assumptions, which incorporate Title 24 2019 Standards. **Table 4-5** identifies the emission factors for electricity (i.e., pounds of CO_2 per megawatt-hour delivered) used in this analysis. As illustrated in **Table 4-5**, an PG&E-specific emission factor that accounts for interpolation between the 33 percent RPS required by 2020 and 60 percent RPS required by 2030, as discussed in **Section 4.1.3**, was calculated based on 41.1 percent RPS in 2023.

The annual natural gas and electricity use and corresponding GHG emissions for the Project are shown in **Appendix A**.

4.3.5 Solid Waste

Municipal solid waste (MSW) is the amount of material that is disposed of by landfilling, recycling, or composting. CalEEMod® calculates the indirect GHG emissions associated with waste that is disposed of at a landfill. The program uses annual waste disposal rates from the CalRecycle data for individual land uses. CalEEMod® uses the overall California Waste Stream composition to generate the necessary types of different waste disposed into landfills. The program quantifies the GHG emissions associated with the decomposition of the waste, which generates methane based on the total amount of degradable organic carbon. The program quantifies the CO_2 emissions associated with the combustion of methane, if applicable. Default landfill gas concentrations were used as reported in Section 2.4 of AP-42. The IPCC has a similar method to calculate GHG emissions from MSW in its 2006 Guidelines for National Greenhouse Gas Inventories.

Solid waste generation associated with the Project is based on default values for waste generation in CalEEMod®. The Project's solid waste generation and GHG emissions associated with solid waste are provided in **Appendix A.**

4.4 Total Annual Operational Emissions

As shown in **Table 4-7**, the Project emissions are 22,428 MT CO_2e per year. The total GHG emissions from Project construction are 1,047 MT CO_2e and are summarized in **Appendix A** for construction off-road equipment and mobile trips. When amortized over a period of 30 years, the emission estimates for the Project construction become 35 MT CO_2e/yr.[109] The total GHG emissions include the amortized construction emissions.

[109] This approach to one-time construction and vegetation change GHG emissions is based on the GHG Threshold Working Group Meeting #13 Minutes from August 26, 2009. Available at: http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-13/ghg-meeting-13-minutes.pdf. Accessed: January 2022.

5. PROJECT INVENTORY IN CONTEXT

This section assesses the significance of the Project's emissions for purposes of CEQA.

5.1 Project Emissions Inventory

This section evaluates the significance of the Project's GHG emissions by reference to Threshold 1 from Section VIII, Greenhouse Gases, of Appendix G of the CEQA Guidelines:

Threshold 1. Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

5.1.1 GHG Inventory

The Project GHG emissions were calculated to be 22,428 MT CO_2e/yr for the buildout year (2023). The City of Fresno's Greenhouse Gas Reduction Plan Update provides a 2016 inventory consisting of 2,923,633 MT CO_2e. The projected 2020 emissions for the City are 2,132,326 MT CO_2e when accounting for emission reductions achieved by state-wide regulations, programs, and measures. In the absence of a numerical GHG threshold, the significance of these emissions will be based on consistency with the City of Fresno GHG Reduction Plan Update as discussed below.

5.2 Consistency Analysis

This section evaluates the significance of the Project's GHG emissions by reference to Threshold 2 from Section VIII, Greenhouse Gases, of Appendix G of the CEQA Guidelines:

Threshold 2. Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs?

5.2.1 Statewide Emissions Reduction Targets

As discussed in **Section 2.2.2**, the 2022 Scoping Plan Update has priority GHG reduction strategies that are the focus for the state to achieve its statewide emission reduction targets. The three main priorities areas are "Transportation Electrification", "VMT Reduction", and "Building Decarbonization". These measures represent the core strategies that local jurisdictions in California can implement to reduce GHGs in alignment with State goals.

The Project will be consistent with the state's GHG reduction goals as discussed in the 2022 CARB Scoping Plan. The Project will serve the needs of consumers in California and provide an effective and efficient means to shop at the warehouse, fill up a gasoline vehicle, and get a car wash all in the same location. The Project's emissions sources are regulated (and are foreseeably expected to continue to be regulated in the future) in furtherance of the State's environmental policy objectives and the Project will continue to meet those regulations to continually improve and reduce GHG emissions. Costco has a focus on sustainability, with specific measures being implemented to manage energy use across its warehouses. Costco's warehouse designs are consistent with the requirements of Leadership in Energy and Environmental Design (LEED), an internationally accepted benchmark for green building design and construction. Costco continues to improve the design and construction of its buildings, as technological advancements in these areas and building materials improve. Improved engineering and design has resulted in the use of less materials, such as columns and I-beams, while providing more strength. Costco prefers full metal buildings in order to use the maximum amount of recycled material.

As demonstrated in **Table C-1** in **Appendix C**, the Project would be consistent with applicable 2022 California Scoping Plan strategies for the reduction of GHG emissions.

5.2.2 Fresno Council of Governments (Fresno COG)

The Project will be consistent with the state's GHG reduction goals and strategies as discussed in the Fresno COG's 2022 Regional Transportation Plan/Sustainable Communities Strategy[110] (the current RTP/SCS for the region), which contains four key elements:

1. Policy Element– Sets forth Fresno COG's transportation goals, objectives, and policies for each transportation mode.
2. Sustainable Communities Strategy – Integrates land use and transportation planning efforts to meet Fresno County's greenhouse gas emission reduction targets, improve accessibility to major employment and other regional activity centers.
3. Action Element – Describes the existing transportation system, discusses recent accomplishments, provides a transportation needs assessment, and proposes short-term and long-term actions for both transportation planning and actual transportation project improvements.
4. Financial Element – Identifies both existing and anticipated revenue sources as well as the financing techniques available for the region's planned transportation investments, ongoing operations, and maintenance.

The RTP/SCS is based on an analysis that considers the entire County, and includes all projects involving changes in regional growth and land use in Fresno County, as well as the countywide vehicle traffic projections. Cumulative GHG emissions analyzed in the RTP were compared to regional GHG thresholds and analyzed under statewide plans and regulations. This analysis concluded that there would be a decrease in GHG emissions from existing conditions to 2046, which are primarily be due to focusing growth in developed areas, moderately increasing residential densities, encouraging infill development, protecting open space and agricultural land, and providing alternatives to single-occupancy vehicle trips.

As shown in **Table C-2** in **Appendix C**, the Project would be consistent with applicable Fresno COG strategies for the reduction of GHG emissions.

5.2.3 City of Fresno GHG Reduction Plan

The City of Fresno's 2021 GHG Reduction Plan Update contains a Greenhouse Gas Reduction Strategy in Section 5. The strategies are organized into the following categories: land use and transportation; transportation facilities strategies; transportation demand strategies; energy conservation strategies for new and existing buildings; water conservation strategies; waste diversion and recycling and energy recovery; strategies for existing development; and municipal strategies.

Section 6 of the Reduction Plan Update describes actions for individual development projects. Individual projects are tasked with reviewing the GHG Reduction Plan Project Update CEQA Consistency Checklist that lists the local GHG reduction strategies identified in the GHG Plan Update to determine applicability to the project.

[110] Fresno COG. 2018 Regional Transportation Plan and Sustainable Communities Strategy. Available at: https://www.fresnocog.org/project/regional-transportation-plan-rtp/. Accessed: January 2022.

Proposed development projects that are consistent with the GHG Plan Update as determined through the GHG Plan Update CEQA Consistency Checklist may rely on the GHG Plan Update for the cumulative impacts analysis of GHG emissions. Projects that are not consistent with the GHG Plan Update must prepare a comprehensive project-specific analysis of GHG emissions, including quantification of existing and projected GHG emissions and apply appropriate GHG reduction mitigation measures. The GHG Reduction Plan Update includes the GHG reduction strategies that individual projects review to determine applicability.

In the GHG Plan Update CEQA Consistency Checklist, the first step in determining the consistency with the GHG Reduction Plan is to determine land use consistency. The Project is asked whether it is consistent with the approved General Plan, Specific Plan, and Community Plan planned land use and zoning designations. The project is requesting a zoning change to change the site's General Plan Land Use Designation from Community Commercial[111] to General Commercial[112]. The Project includes a wholesale club, which is classified under the General Commercial designation. Based on the allowable floor to area ratio under these two designations and the relatively similar allowable uses under these two designations, the potential emissions at maximum buildout for the proposed designation would be greater than that for maximum buildout of the existing designation. Per the checklist, the Project's unmitigated GHG impact is significant.

The checklist provides two options based on this determination. The Project must either show consistency with applicable General Plan objectives and policies or provide analysis and measures to incorporate into the project to bring the GHG emissions to a level that is less than or equal to the estimated project emission at maximum buildout of the existing designation(s). The Project will demonstrate consistency with applicable General Plan objectives and policies through an evaluation of the Project's alignment with General Plan objectives and policies relative to the GHGRP. The Project is quantitatively evaluated using the same methodology as the GHGRP to demonstrate this consistency. Given that there is a proposed development project associated with this rezone, the GHG Plan Update Consistency Checklist has been completed and applicable measures incorporated.

As shown in the **GHG Consistency Checklist** in **Appendix C**, the Project meets 11 of the total 12 applicable items listed. However, the project would not meet 'item h.' due to a significant VMT impact. As required by the City of Fresno GHG reduction plan, the Project has prepared a full GHG emissions inventory and applied appropriate GHG reduction strategies as demonstrated by the 11 categories of the checklist which the project is consistent with. The Project will meet the applicable GHG reduction strategies for non-residential projects identified in the GHG Plan Update and listed in the checklist, other than 'item h'.

Due to the inconsistency with 'item h', a Project emissions inventory for 2030 and 2035 was calculated to demonstrate how the Project still aligns with the GHG reduction goals of the GHGRP. The Project operational emissions were calculated for 2030 and 2035 for the

[111] Community Commercial is intended for commercial development that primarily serves local needs such as convenience shopping and small offices. Specific uses allowed include medium-scale retail, office, civic and entertainment uses, supermarkets, drug stores and supporting uses. The maximum Floor Area Ratio is 1.0.

[112] The General Commercial designation is intended for a range of retail and service uses that are not appropriate in other areas because of higher volumes of vehicle traffic and potential adverse impacts on other uses. Development such as strip malls fall into this designation. Examples of allowable uses include: building materials, storage facilities with active storefronts, equipment rental, wholesale businesses, and specialized retail not normally found in shopping centers. The maximum Floor Area Ratio is 2.0.

adjusted BAU scenario to align with the City of Fresno's GHGRP adjusted BAU analysis (**Table 5-1**). Based on those calculated emission inventories, the Project would be required to achieve an additional reduction of 381 MT CO_2e in 2030 and 2,711 MT CO_2e in 2035 as identified in the City of Fresno's GHGRP (see Table 4-C of the GHGRP which identifies the reduction needed from an adjusted BAU scenario to meet the City's goals. The calculated reductions for the Project are the same percentage reduction required, i.e., 1.5% reduction in 2030 and 11.6% in 2035.). As identified in the GHGRP, the Project would realize GHG reductions due to project commitments in line with the local measures established by the GHGRP, which includes Land Use Strategies and Transportation Demand Management, Electric Vehicle Charging Stations, Net Zero Energy Commercial Building, Water Conservation, and Waste Diversion and Recycling. Specifically, the Project includes:

- Transportation Demand Management for employees via a voluntary commute trip reduction program for employees Costco provides that includes marketing, end-of-trip bicycle facilities, vanpool, and discounted transit. This can result in a 4% reduction in employee vehicle trips (This is VMT mitigation per the Fresno Costco Relocation Transportation Impact Analysis).
- EV chargers that meet the 2022 California Green Building Standards Code, Title 24, Part 11 that are beyond the adjusted BAU assumptions for the City.
- Commitments to renewable energy through PG&E's Solar Choice program (This is a project design feature to align with the local measure from the GHG Reduction Plan).
- Achieving waste diversion goals as identified in the GHGRP.

In addition, since the City's GHGRP was developed, there have been additional efforts by the state that will increase the expected presence of electric trucks and electric vehicles through the Advanced Clean Truck Rule[113] and Advanced Clean Cars II[114]. Advanced Clean Cars II was proposed to support Governor Newsom's 2020 Executive Order N-79-20 that requires all new passenger vehicles sold in California to be zero emissions by 2035. Advanced Clean Cars II was approved in August 2022. The 2022 Scoping Plan Update was approved in December 2022 and the proposed scenario for achieving this executive order provides data on year-to-year expected populations of zero-emission light-duty vehicles that exceed the assumptions made in EMFAC2021. Reductions in 2030 and 2035 have been calculated to account for this increased penetration of electric vehicles expected in the future (**Table 5-2**). The combined GHG reductions from these project specific commitments and state regulations demonstrate that the Project will achieve the same level of reductions as the City of Fresno GHGRP expects. The GHGRP has established a City and land use specific criteria for individual Projects to demonstrate consistency with. As such, the Project would align with the City's GHGRP GHG reduction goals, and thus is consistent with the City's GHGRP.

5.3 Impact Determination

While the Project would represent an increase in GHG emissions when compared to the existing conditions on the vacant site, the Project would not conflict with the Fresno COG's RTP/SCS or statewide emission reduction targets in the 2022 CARB Scoping Plan Update. The Project's significant VMT impact means that the Project would not meet "item h." on the

[113] Available at: https://ww2.arb.ca.gov/our-work/programs/advanced-clean-trucks. Accessed: August 2022.

[114] Available at: https://ww2.arb.ca.gov/our-work/programs/advanced-clean-cars-program/advanced-clean-cars-ii. Accessed: August 2022.

City of Fresno's GHG Consistency Checklist. Because the Project does not meet all of the GHG reduction strategies identified in the GHG Reduction Plan Update Consistency Checklist, the Project has disclosed the Project emissions inventory and has demonstrated consistency with the GHG Reduction Plan by demonstrating the Project GHG reductions align with those expected for the City in the GHG Reduction Plan. Therefore, the Project's GHG emissions will be less than significant in the context of Threshold 1 and Threshold 2, as discussed in **Section 3.3**.

Further, the SJVAPCD's GAMAQI observes that: "It is widely recognized that no single project could generate sufficient GHG emissions to noticeably change global climate temperature. However, the combination of GHG emissions from past, present, and future projects could contribute substantially to global climate change. Thus, project specific GHG emissions should be evaluated in terms of whether or not they would result in a cumulatively significant impact on global climate change."[115] In this context, and based on the analysis above, the Project's GHG emissions are not cumulatively considerable.

[115] SJVAPCD. 2015. Final Draft Guidance for Assessing and Mitigating Air Quality Impacts. Available at: http://www.valleyair.org/transportation/GAMAQI.pdf. Accessed: January 2022.

TABLES

Table 4-1. Construction Schedule
Costco Commercial Center
Fresno, California

CalEEMod® Phase Type[1]	Start Date[1]	End Date[1]	Phase Duration[2] (days)
Demolition	5/1/2023	5/8/2023	7
Site Preparation	5/1/2023	5/8/2023	7
Grading	5/9/2023	6/12/2023	30
Grading/BC Overlap	6/13/2023	7/5/2023	20
Building Construction	7/6/2023	11/10/2023	110
Paving	7/29/2023	9/13/2023	40
Architectural Coating	9/14/2023	11/10/2023	50

Notes:

[1] Construction phases and duration are based on Project-specific estimates.

[2] The construction work week was assumed to be 6 days per week.

Abbreviations:

CalEEMod® - California Emissions Estimator Model

Table 4-2. Construction Equipment
Costco Commercial Center
Fresno, California

Phase Name	Offroad Equipment Type[1]	Number of Equipment[1]	Usage Hours[2] (hours/day)	Equipment Horsepower[2] (hp)	Equipment Load Factor[2]
Demolition	Concrete/Industrial Saws	1	8	81	0.73
	Excavators	3	8	158	0.38
	Rubber Tired Dozers	2	8	247	0.4
Site Preparation	Tractors/Loaders/Backhoes	4	8	97	0.37
Grading	Graders	3	8	187	0.41
	Other Construction Equipment	2	8	401	0.42
	Paving Equipment	1	8	132	0.36
	Rubber Tired Dozers	4	8	247	0.4
	Scrapers	2	8	367	0.48
	Surfacing Equipment	1	8	263	0.3
	Tractors/Loaders/Backhoes	2	8	97	0.37
Grading/BC Overlap	Excavators	3	8	158	0.38
	Rough Terrain Forklifts	2	8	100	0.4
	Rubber Tired Dozers	3	8	247	0.4
	Tractors/Loaders/Backhoes	3	8	97	0.37
Building Construction	Excavators	3	8	158	0.38
	Rough Terrain Forklifts	2	8	100	0.4
	Rubber Tired Dozers	3	8	247	0.4
	Tractors/Loaders/Backhoes	3	7	97	0.37
Paving	Rough Terrain Forklifts	1	8	100	0.4
	Rubber Tired Dozers	2	8	247	0.4
	Tractors/Loaders/Backhoes	2	8	97	0.37
Architectural Coating	Air Compressors	1	6	78	0.48

Notes:

[1] Number and type of offroad equipment for the Grading, Grading/BC Overlap, Building Construction, and Paving phases based on Project-specific data. Equipment used in the Demolition and Architectural Coating phases are based on CalEEMod® default values.

[2] Equipment usage hours, horsepower, and load factor are based on CalEEMod® defaults, with the exception of the horsepower value for "Other Construction Equipment" during the Grading phase. The "Other Construction Equipment" represents soil compactors and is based is based on project-specific data.

Abbreviations:

CalEEMod® - California Emissions Estimator Model

hp - horsepower

Table 4-3. Construction Material Movement
Costco Commercial Center
Fresno, California

Phase Name	Material Imported[1] (yd^3)	Material Exported[1] (yd^3)
Grading	60,000	0
Grading/BC Overlap	0	3,000

Notes:

[1] Soil import and export quantities based on project-specific data.

Abbreviations:

yd^3 - cubic yard

Table 4-4. Construction Demolition Assumptions
Costco Commercial Center
Fresno, California

Phase Name	Size Metric	Unit Amount[1]
Demolition/Site Prep	Tons of Debris	10

Notes:

[1] Square-footage quantity based on project-specific data.

Table 4-5. Utility GHG Emission Factor Associated with Renewable Portfolio Standard
Costco Commercial Center
Fresno, California

Energy Delivered [MWh]				
	2017	2018	Average	Units
CO_2 Intensity Factor per Total Energy Delivered[1]	210	206	208	lbs CO_2/MWh delivered
% of Total Energy From Renewables[2]	33.0%	38.9%	36.0%	
CO_2 Intensity Factor per Total Non-Renewable Energy[3]	314	338	325	lbs CO_2/MWh delivered

Calculated Intensity Factors for Total Energy Delivered[4]				
2020 RPS (33%)	210.4	226.2	218.0	lbs CO_2/MWh delivered
2030 RPS (60%)	125.6	135.1	130.1	lbs CO_2/MWh delivered
2023 RPS[5]	185.0	198.9	191.6	lbs CO_2/MWh delivered

Year	Emission Factors (lb/MWh)			
	CO_2	CH_4	N_2O	CO_2e
2018	208.4	0.033	0.004	210.4
2023	191.61	0.033	0.004	193.6

Notes:

[1]2017 and 2018 intensity factors per total energy delivered available at: https://www.theclimateregistry.org/our-members/cris-public-reports/. Accessed: September 2021.

[2]Percent of total energy from RPS-eligible renewables are from the PG&E 2018 and 2019 Corporate Responsibility Reports. Available at: http://www.pgecorp.com/corp_responsibility/reports/2018/assets/PGE_CRSR_2018.pdf and http://www.pgecorp.com/corp_responsibility/reports/2019/assets/PGE_CRSR_2019.pdf. Accessed: September 2021.

[3] The emissions metric presented here is calculated based on the total CO_2 emissions divided by the energy delivered from non-renewable sources.

[4] The intensity factors for default RPS assumption are calculated by multiplying the percentage of energy delivered from non-renewable energy by the CO_2 emissions per total non-renewable energy metric calculated above. The emission factors presented here are 33% RPS for 2020 and 60% RPS for 2030. The estimate provided here and the PUP reports issued by PG&E assume that renewable energy sources do not result in any CO_2 emissions.

[5]The RPS percentage for the 2023 future year is interpolated from the goals of 33% RPS in 2020 and 60% RPS in 2030.

[6]The most recent emission factor available is for 2017 and 2018, which is why these values are being used to interpolate 2023 emission factors even though more recent sustainability reports by PG&E are available.

Abbreviations:

CO_2 - carbon dioxide
GHG - greenhouse gases
lbs - pounds
MT - metric tonnes
MWh - megawatt-hour
PG&E - Pacific Gas and Electric
PUP - Power/Utility Protocol
RPS - Renewable Portfolio Standards

GWP	
CH_4	N_2O
25	298

Table 4-6. TRU Greenhouse Gas Emission Calculations
Costco Commercial Center
Fresno, California

CO_2 Emission Factor[1] (g/bhp-hr)	Number of Round Trips with TRUs[2]	Annual Average CO_2 Emissions (MT/year)
	Herndon/Riverside	Herndon/Riverside
410	712	57.5

Notes:

[1] Emission factors obtained from OFFROAD2021 emissions output for Calendar Year 2023, Transportation Refrigeration Unit - Instate Trailer and Transportation Refrigeration Unit - Out-Of-State Trailer in Fresno County.

[2] Approximately 15% of warehouse delivery trucks are equipped with TRUs.

[3] Horsepower is based on SJVAPCD Guidance for Air Dispersion Modeling, section 2.3.1 Transportation Refrigeration unit (TRU), Modeling Parameters.

[4] Load factor obtained from CARB Draft 2019 Update to Emissions Inventory for Transport Refrigeration Units, for TRUs Over 25 hp, 2013 and newer. Available at: https://ww2.arb.ca.gov/sites/default/files/classic/cc/cold-storage/documents/hra_emissioninventory2019.pdf. Accessed: January 2022.

[5] TRU Cycle Duration is based on 2 hours of off-site loading time plus the duration of the on-site and off-site transit. It is assumed that loading/unloading will occur while the TRU is plugged in, so no emissions are estimated for this time period. Assumptions based on Table II.G.1 of CARB Proposed Amendments to the Airborne Toxic Control Measure for In-Use Diesel-Fueled Transport Refrigeration Units (TRU) and TRU Generator Sets, and Facilities Where TRUs Operate. Available at: https://ww2.arb.ca.gov/sites/default/files/barcu/board/rulemaking/tru2021/appi.pdf. Accessed: May 2022.

Abbreviations:

bhp-hr - brake horsepower hour
CARB - California Air Resources Board
CO_2 - Carbon Dioxide equivalents
g - gram
MT - metric tonnes
SJVAPCD - San Joaquin Valley Air Pollution Control District
TRU - Transportation Refrigeration unit

Constants:

Horsepower [3]	50	bhp
Load Factor [4]	0.38	
TRU Cycle Duration [5]	622	minutes
Density of Diesel	3,221	g/gal

Conversion Factors:

453.592	g/lb
1000000	g/MT
60	min/hr
365	day/year
2000	lb/ton

Table 4-7. Summary of GHG Emissions
Costco Commercial Center
Fresno, California

Emissions Category[1]	GHG Emissions[2,3] (MT CO_2e/yr)
Area Sources	0.02
Energy Usage	334
Mobile[4]	21,482
Water	38
Waste Disposed	540
Operational Sub-Total	*22,393*
Construction Amortized[5]	35
Total[6]	22,428

Notes:

[1] One-time emissions (i.e., construction) and operational emissions were calculated using CalEEMod®. See Appendix A for details

[2] Emissions are presented as CO_2e, which include CO_2, CH_4, and N_2O emissions, weighted by their respective global warming potentials.

[3] Emissions shown as zero may be non-zero values, however, they are below a meaningful reporting level for this analysis.

[4] Total mobile emissions include emissions from on-road vehicles and TRUs. On-road mobile emissions were estimated using CalEEMod® default trip lengths, EMFAC2021 emission factors, and Project-specific vehicle trip rates provided by Kittelson & Associates, See Appendix B for details. TRU emissions were estimated using OFFROAD2021 emission factors.

[5] One-time emissions from construction were amortized over a 30-year period.

[6] Sum of annualized one-time emissions and operational emissions.

Abbreviations:

CalEEMod® - CALifornia Emissions Estimator MODel
CH_4 - methane
CO_2 - carbon dioxide
CO_2e - carbon dioxide equivalents
EMFAC - EMission FACtors model
MT - metric tonnes
TRU - Transportation Refrigeration unit

Table 5-1. Summary of ABAU and Project GHG Emissions in 2030 and 2035
Costco Commercial Center
Fresno, California

Emissions Category[1]	GHG Emissions[2] (MT CO_2e/yr)			
	ABAU[3]		Project[4]	
	2030	2035	2030	2035
Area Sources	0.02	0.02	0.02	0.02
Energy Usage[5]	275	233	148	148
Mobile[6,7,8]	24,342	22,504	21,782	16,943
Water	34	31	34	31
Waste Disposed[9]	540	540	365	365
Operational Total	**25,191**	**23,308**	**22,328**	**17,487**
Percent Reduction Needed From ABAU[10]	**1.5%**	**11.6%**	**--**	
Emission Reduction Needed[11]	**381**	**2,711**	**--**	

Notes:

[1] Operational emissions were calculated using CalEEMod®. See Appendix A for details.

[2] Emissions are presented as CO_2e, which include CO_2, CH_4, and N_2O emissions, weighted by their respective global warming potentials.

[3] The ABAU emissions account for the local regulations that were in place at the time the Fresno GHGRP was published.

[4] The Project emissions take into account the project commitments in line with the local measures established by the GHGRP, which includes Land Use Strategies and Transportation Demand Management, Electric Vehicle Charging Stations, Net Zero Energy Commercial Building, Water Conservation, and Waste Diversion and Recycling. It also takes into account additional local measures that would result in project emissions reductions beyond the ABAU scenario, such as the Advanced Clean Trucks regulation and the Executive Order N-79-20. The exact assumptions made for the project emissions inventory reductions are detailed in Table 5-2.

[5] The project's ABAU emissions accounts for RPS-required improvements to the electric grid carbon intensity, while the Project emissions account for 100% solar energy, based on the Project's commitment to the PG&E's "Solar Choice" program, which provides 100% solar electricity to customers.

[6] For both the ABAU and Project emissions, total mobile emissions include emissions from on-road vehicles and TRUs, using Project-specific vehicle trip rates provided by Kittelson & Associates. TRU emissions were estimated using OFFROAD2021 emission factors.

[7] For the ABAU emissions, on-road mobile emissions were estimated using CalEEMod® default trip lengths, EMFAC2021 emission factors, and fleet mix assumptions for employee and member vehicles to represent the same assumptions as the GHGRP. Based on the available EMFAC version at the time of the GHGRP preparation (i.e., EMFAC2017), the analysis assumes extracted data from EMFAC2017. For the delivery truck fleet mix, the analysis made a simplifying assumption that the fraction of natural gas and gasoline-powered HHDT would be diesel-powered.

[8] For the Project emissions, on-road mobile emissions were estimated using CalEEMod® default trip lengths, EMFAC2021 emission factors, and EMFAC2021 fleet mix for delivery trucks. The fleet mixes for employee and member light duty vehicles are based on the Draft 2022 Scoping Plan E3 Modeling workbook. Please see footnote 7 in Table 5-2 for more details.

[9] The solid waste generation for ABAU was estimated using CalEEMod® defaults. The Project emissions were estimated based on the State goal of a 75% waste diversion target and Fresno's GHGRP methodology. Please see footnote 10 in Table 5-2 for more details.

[10] The percent reduction for the Project are the same percentage reduction required, i.e., 1.5% reduction in 2030 and 11.6% in 2035 from Table 4-C in the Fresno GHGRP.

[11] Emission reduction needed from ABAU is calculated as the percent reduction from the operational total. The Project emissions do not include an emission reduction since this is solely based on the ABAU conditions.

Abbreviations:

ABAU - Adjusted Business-As-Usual
CalEEMod® - CALifornia Emissions Estimator MODel
CH_4 - methane
CO_2 - carbon dioxide
CO_2e - carbon dioxide equivalents
EMFAC - EMission FACtors model
GHG - greenhouse gases
GHGRP - Greenhouse Gas Reduction Plan
HHDT - heavy-heavy duty trucks
MT - metric tonnes
N_2O - nitrous oxide
PG&E - Pacific Gas & Electric
RPS - Renewable Portfolio Standard
TRU - Transportation Refrigeration unit
yr - year

Table 5-2. Local Measures Reductions Table for 2030 and 2035
Costco Commercial Center
Fresno, California

Sector	Local Measures	Emissions Reductions (MT CO_2e/year)	
		2030	**2035**
Transportation[1]	Land Use Strategies and Transportation Demand Management[2]	48	36
	Electric Vehicle Charging Stations[3,4,5]	230	862
	Advanced Clean Trucks[6]	142	297
	ZEV Regulations[7]	2,418	5,265
Commercial Energy	Net Zero Energy Commercial Building[8]	127	85
Industrial Energy (water)	Water Conservation[9]	0	0
Solid Waste	Waste Diversion and Recycling[10]	175	175
Total		**3,140**	**6,719**
Reduction Needed[11]		**381**	**2,711**
Reduction Met?		**YES**	**YES**

Notes:

[1] The ABAU emissions for the transportation emissions inventory utilizes EMFAC2017 fleet mix defaults which takes into account the State policies that were in place at the time of the Fresno GHG Reduction Plan Update release.

[2] Costco will provide a voluntary commute trip reduction program for employees that can result in a 4% reduction in employee vehicle trips, based on Kittelson & Associates TIA.

[3] The number of electric vehicle chargers assumed for 2030/2035 aligns with CalGreen2022 requirements, see Table 5.106.5.3.1. Available here: https://codes.iccsafe.org/content/CAGBC2022P1/chapter-5-nonresidential-mandatory-measures. Accessed: August 2022.

[4] For 2030, Annual energy delivery is estimated based on an average monthly energy delivery of 588 kWh per charging station for conventional Level 2 chargers, as reported by the California Energy Commission. Available at: https://www.energy.ca.gov/2018publications/CEC-500-2018-020/CEC-500-2018-020.pdf.

[5] For 2035, it is assumed that the EV chargers will be used 8 hours/day at 25 miles per hour of charge in line with the increase in EVs predicted by the Draft 2022 Scoping Plan E3 PATHWAYS Modeling Workbook.

[6] EMFAC2021 fleet mix defaults are utilized for the delivery truck fleet mixes, which represents the improvement from ABAU due to the Advanced Clean Trucks regulation which became effective March 2021 and was incorporated into the EMFAC2021 model. This regulation requires an increasing number of zero emission truck sales over time starting in 2024. Available here: https://arb.ca.gov/emfac/. Accessed: August 2022.

[7] The member and employee light-duty vehicle fleet assumptions were based on Executive Order N-79-20, which requires that by 2035 100% of in-state sales of new passenger cars and trucks will be zero-emission by 2035. The fleet mix projections were calculated to align with the Draft 2022 Scoping Plan Update E3 PATHWAYS modeling workbook, which provides year-by-year fleet projections that align with this Executive Order. The E3 Modeling workbook can be found here: https://ww2.arb.ca.gov/sites/default/files/2022-05/2022-draft-sp-PATHWAYS-data-E3.xlsx. Accessed: August 2022.

[8] The project has committed to PG&E's "Solar Choice" program, which provides 100% solar electricity to customers. The ABAU emissions for commercial building energy accounts for RPS-required improvements to the electric grid carbon intensity, and the improvements from this in 2030 and 2035 reflect the Project's commitment to PG&E's "Solar Choice" program.

[9] The project will align with CalGreen2019, which is accounted for in Fresno's GHGRP ABAU emissions.

[10] The ABAU solid waste generation was estimated using CalEEMod® defaults assumes a 63% employee-based diversion rate statewide, based on 2010 CalRecycle data, available here: https://calrecycle.ca.gov/lgcentral/goalmeasure/disposalrate/graphs/estdiversion/. Accessed: August 2022. The improvement from ABAU was estimated based on the State goal of a 75% waste diversion target and Fresno's GHGRP methodology.

[11] The reduction needed is calculated based on the percent reduction from ABAU needed in Table 4-C in the Fresno GHGRP.

Abbreviations:

ABAU - Adjusted Business-As-Usual
CalEEMod® - CALifornia Emissions Estimator MODel
CalGreen - California Green Building Standards Code
CO_2e - carbon dioxide equivalents
EMFAC - EMissions FACtor Model
EV - electric vehicle
GHGRP - Greenhouse Gas Reduction Plan
MT - metric tonnes
PG&E - Pacific Gas & Electric
RPS - Renewable Portfolio Standard
TIA - transportation impact assessment
VMT - vehicle mile traveled
ZEV - zero emission vehicle

APPENDIX A
CALEEMOD® OUTPUT

Costco Fresno Mitigated Construction Run - Fresno County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Costco Fresno Mitigated Construction Run

Fresno County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	889.00	Space	15.55	355,600.00	0
Automobile Care Center	4.80	1000sqft	0.11	4,800.00	0
Discount Club	241.34	1000sqft	5.54	241,340.00	0
Gasoline/Service Station	32.00	Pump	1.33	4,517.60	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	45
Climate Zone	3			**Operational Year**	2023
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	191.61	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Project-specific information (RPS Emission Factor)

Land Use - Project-specific information

Construction Phase - Project-specific information

Off-road Equipment -

Off-road Equipment - Project-specific information

Off-road Equipment -

Off-road Equipment - Project-specific information

Off-road Equipment - Project-specific information

Off-road Equipment - Project-specific information

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Off-road Equipment -

Trips and VMT - Project-specific information

Demolition - Project-specific information

Grading - Project-specific information

Vehicle Trips - Unmitigated Construction Run

Consumer Products - Unmitigated Construction Run

Area Coating - Unmitigated Construction Run

Landscape Equipment - Unmitigated Construction Run

Energy Use - Unmitigated Construction Run

Water And Wastewater - Unmitigated Construction Run

Solid Waste - Unmitigated Construction Run

Construction Off-road Equipment Mitigation - Water 2x/day to comply with SJVAPCD Rule 8021. All construction equipment >50 hp mitigated to Tier 3 + Level 3 DPF.

Vehicle Emission Factors -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	125329	0
tblAreaCoating	Area_Nonresidential_Interior	375986	0
tblAreaCoating	Area_Parking	21336	0
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3

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tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	14.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	14.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	20.00	50.00
tblConstructionPhase	NumDays	370.00	110.00
tblConstructionPhase	NumDays	20.00	7.00
tblConstructionPhase	NumDays	35.00	30.00

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tblConstructionPhase	NumDays	35.00	20.00
tblConstructionPhase	NumDays	20.00	40.00
tblConstructionPhase	NumDays	10.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	PhaseEndDate	4/11/2025	11/10/2023
tblConstructionPhase	PhaseEndDate	2/14/2025	11/10/2023
tblConstructionPhase	PhaseEndDate	5/26/2023	5/8/2023
tblConstructionPhase	PhaseEndDate	7/28/2023	6/12/2023
tblConstructionPhase	PhaseEndDate	9/15/2023	7/5/2023
tblConstructionPhase	PhaseEndDate	3/14/2025	9/13/2023
tblConstructionPhase	PhaseEndDate	6/9/2023	5/8/2023
tblConstructionPhase	PhaseStartDate	3/15/2025	9/14/2023
tblConstructionPhase	PhaseStartDate	9/16/2023	7/6/2023
tblConstructionPhase	PhaseStartDate	6/10/2023	5/9/2023
tblConstructionPhase	PhaseStartDate	7/29/2023	6/13/2023
tblConstructionPhase	PhaseStartDate	2/15/2025	7/29/2023
tblConstructionPhase	PhaseStartDate	5/27/2023	5/1/2023
tblConsumerProducts	ROG_EF	2.14E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0
tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	0
tblEnergyUse	LightingElect	2.70	0.00
tblEnergyUse	LightingElect	3.71	0.00
tblEnergyUse	LightingElect	2.70	0.00

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tblEnergyUse	LightingElect	0.35	0.00
tblEnergyUse	NT24E	4.16	0.00
tblEnergyUse	NT24E	2.30	0.00
tblEnergyUse	NT24E	4.16	0.00
tblEnergyUse	NT24NG	3.84	0.00
tblEnergyUse	NT24NG	2.08	0.00
tblEnergyUse	NT24NG	3.84	0.00
tblEnergyUse	T24E	1.75	0.00
tblEnergyUse	T24E	1.91	0.00
tblEnergyUse	T24E	1.75	0.00
tblEnergyUse	T24NG	16.86	0.00
tblEnergyUse	T24NG	8.53	0.00
tblEnergyUse	T24NG	16.86	0.00
tblGrading	MaterialExported	0.00	3,000.00
tblGrading	MaterialImported	0.00	60,000.00
tblLandscapeEquipment	NumberSummerDays	180	0
tblLandUse	LotAcreage	8.00	15.55
tblLandUse	LotAcreage	0.10	1.33
tblOffRoadEquipment	HorsePower	172.00	401.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblProjectCharacteristics	CO2IntensityFactor	203.98	191.61
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblSolidWaste	SolidWasteGenerationRate	18.34	0.00
tblSolidWaste	SolidWasteGenerationRate	1,037.93	0.00
tblSolidWaste	SolidWasteGenerationRate	17.25	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblTripsAndVMT	HaulingTripNumber	1.00	2.00
tblVehicleTrips	ST_TR	23.72	0.00
tblVehicleTrips	ST_TR	53.75	0.00
tblVehicleTrips	ST_TR	182.17	0.00
tblVehicleTrips	SU_TR	11.88	0.00
tblVehicleTrips	SU_TR	33.67	0.00
tblVehicleTrips	SU_TR	166.88	0.00
tblVehicleTrips	WD_TR	23.72	0.00
tblVehicleTrips	WD_TR	41.80	0.00
tblVehicleTrips	WD_TR	172.01	0.00
tblWater	IndoorWaterUseRate	451,589.32	0.00
tblWater	IndoorWaterUseRate	17,876,662.33	0.00
tblWater	IndoorWaterUseRate	425,020.45	0.00
tblWater	OutdoorWaterUseRate	276,780.55	0.00
tblWater	OutdoorWaterUseRate	10,956,664.01	0.00
tblWater	OutdoorWaterUseRate	260,496.40	0.00

2.0 Emissions Summary

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	2.2806	4.5511	3.7117	0.0113	0.9356	0.1729	1.1085	0.3872	0.1595	0.5467	0.0000	1,026.9395	1,026.9395	0.1854	0.0533	1,047.4410
Maximum	**2.2806**	**4.5511**	**3.7117**	**0.0113**	**0.9356**	**0.1729**	**1.1085**	**0.3872**	**0.1595**	**0.5467**	**0.0000**	**1,026.9395**	**1,026.9395**	**0.1854**	**0.0533**	**1,047.4410**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	2.0686	3.9074	4.6415	0.0113	0.5786	0.0294	0.6080	0.2169	0.0291	0.2459	0.0000	1,026.9388	1,026.9388	0.1854	0.0533	1,047.4403
Maximum	**2.0686**	**3.9074**	**4.6415**	**0.0113**	**0.5786**	**0.0294**	**0.6080**	**0.2169**	**0.0291**	**0.2459**	**0.0000**	**1,026.9388**	**1,026.9388**	**0.1854**	**0.0533**	**1,047.4403**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**9.30**	**14.14**	**-25.05**	**0.00**	**38.16**	**82.99**	**45.15**	**43.99**	**81.76**	**55.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	5-1-2023	7-31-2023	3.2883	2.7515
2	8-1-2023	9-30-2023	2.0410	1.7429
		Highest	3.2883	2.7515

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/1/2023	5/8/2023	6	7	
2	Site Preparation	Site Preparation	5/1/2023	5/8/2023	6	7	
3	Grading	Grading	5/9/2023	6/12/2023	6	30	

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4	Grading/BC Overlap	Grading	6/13/2023	7/5/2023	6	20	
5	Building Construction	Building Construction	7/6/2023	11/10/2023	6	110	
6	Paving	Paving	7/29/2023	9/13/2023	6	40	
7	Architectural Coating	Architectural Coating	9/14/2023	11/10/2023	6	50	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 165

Acres of Paving: 15.55

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 375,986; Non-Residential Outdoor: 125,329; Striped Parking Area: 21,336 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Graders	3	8.00	187	0.41
Grading	Other Construction Equipment	2	8.00	401	0.42
Grading	Paving Equipment	1	8.00	132	0.36
Grading	Rubber Tired Dozers	4	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Surfacing Equipment	1	8.00	263	0.30
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading/BC Overlap	Excavators	3	8.00	158	0.38
Grading/BC Overlap	Rough Terrain Forklifts	2	8.00	100	0.40
Grading/BC Overlap	Rubber Tired Dozers	3	8.00	247	0.40
Grading/BC Overlap	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Excavators	3	8.00	158	0.38

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Building Construction	Rough Terrain Forklifts	2	8.00	100	0.40
Building Construction	Rubber Tired Dozers	3	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Paving	Rough Terrain Forklifts	1	8.00	100	0.40
Paving	Rubber Tired Dozers	2	8.00	247	0.40
Paving	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	2.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	4	10.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	15	38.00	0.00	7,500.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading/BC Overlap	11	28.00	0.00	375.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	11	230.00	99.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	46.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

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3.2 Demolition - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.1000e-004	0.0000	1.1000e-004	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.9400e-003	0.0752	0.0688	1.4000e-004		3.4900e-003	3.4900e-003		3.2500e-003	3.2500e-003	0.0000	11.8972	11.8972	3.3300e-003	0.0000	11.9805
Total	**7.9400e-003**	**0.0752**	**0.0688**	**1.4000e-004**	**1.1000e-004**	**3.4900e-003**	**3.6000e-003**	**2.0000e-005**	**3.2500e-003**	**3.2700e-003**	**0.0000**	**11.8972**	**11.8972**	**3.3300e-003**	**0.0000**	**11.9805**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	1.3000e-004	3.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.0567	0.0567	0.0000	1.0000e-005	0.0593
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1000e-004	1.5000e-004	1.7700e-003	1.0000e-005	6.5000e-004	0.0000	6.6000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.5083	0.5083	1.0000e-005	1.0000e-005	0.5126
Total	**2.1000e-004**	**2.8000e-004**	**1.8000e-003**	**1.0000e-005**	**6.7000e-004**	**0.0000**	**6.8000e-004**	**1.7000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.5650**	**0.5650**	**1.0000e-005**	**2.0000e-005**	**0.5719**

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3.2 Demolition - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.0000e-005	0.0000	5.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.2400e-003	0.0641	0.0864	1.4000e-004		4.5000e-004	4.5000e-004		4.5000e-004	4.5000e-004	0.0000	11.8972	11.8972	3.3300e-003	0.0000	11.9805
Total	**3.2400e-003**	**0.0641**	**0.0864**	**1.4000e-004**	**5.0000e-005**	**4.5000e-004**	**5.0000e-004**	**1.0000e-005**	**4.5000e-004**	**4.6000e-004**	**0.0000**	**11.8972**	**11.8972**	**3.3300e-003**	**0.0000**	**11.9805**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	1.3000e-004	3.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.0567	0.0567	0.0000	1.0000e-005	0.0593
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1000e-004	1.5000e-004	1.7700e-003	1.0000e-005	6.5000e-004	0.0000	6.6000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.5083	0.5083	1.0000e-005	1.0000e-005	0.5126
Total	**2.1000e-004**	**2.8000e-004**	**1.8000e-003**	**1.0000e-005**	**6.7000e-004**	**0.0000**	**6.8000e-004**	**1.7000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.5650**	**0.5650**	**1.0000e-005**	**2.0000e-005**	**0.5719**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.1200e-003	0.0215	0.0312	4.0000e-005		1.0600e-003	1.0600e-003		9.8000e-004	9.8000e-004	0.0000	3.8302	3.8302	1.2400e-003	0.0000	3.8612
Total	**2.1200e-003**	**0.0215**	**0.0312**	**4.0000e-005**	**0.0000**	**1.0600e-003**	**1.0600e-003**	**0.0000**	**9.8000e-004**	**9.8000e-004**	**0.0000**	**3.8302**	**3.8302**	**1.2400e-003**	**0.0000**	**3.8612**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-004	1.0000e-004	1.1800e-003	0.0000	4.4000e-004	0.0000	4.4000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.3389	0.3389	1.0000e-005	1.0000e-005	0.3417
Total	**1.4000e-004**	**1.0000e-004**	**1.1800e-003**	**0.0000**	**4.4000e-004**	**0.0000**	**4.4000e-004**	**1.2000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**0.3389**	**0.3389**	**1.0000e-005**	**1.0000e-005**	**0.3417**

Costco Fresno Mitigated Construction Run - Fresno County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0600e-003	0.0243	0.0328	4.0000e-005		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004	0.0000	3.8302	3.8302	1.2400e-003	0.0000	3.8612
Total	**1.0600e-003**	**0.0243**	**0.0328**	**4.0000e-005**	**0.0000**	**2.6000e-004**	**2.6000e-004**	**0.0000**	**2.6000e-004**	**2.6000e-004**	**0.0000**	**3.8302**	**3.8302**	**1.2400e-003**	**0.0000**	**3.8612**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-004	1.0000e-004	1.1800e-003	0.0000	4.4000e-004	0.0000	4.4000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.3389	0.3389	1.0000e-005	1.0000e-005	0.3417
Total	**1.4000e-004**	**1.0000e-004**	**1.1800e-003**	**0.0000**	**4.4000e-004**	**0.0000**	**4.4000e-004**	**1.2000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**0.3389**	**0.3389**	**1.0000e-005**	**1.0000e-005**	**0.3417**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4522	0.0000	0.4522	0.2086	0.0000	0.2086	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1079	1.1479	0.7006	1.9600e-003		0.0465	0.0465		0.0428	0.0428	0.0000	172.1647	172.1647	0.0557	0.0000	173.5567
Total	**0.1079**	**1.1479**	**0.7006**	**1.9600e-003**	**0.4522**	**0.0465**	**0.4987**	**0.2086**	**0.0428**	**0.2514**	**0.0000**	**172.1647**	**172.1647**	**0.0557**	**0.0000**	**173.5567**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.0000e-003	0.4693	0.0990	2.2100e-003	0.0642	4.4300e-003	0.0686	0.0177	4.2400e-003	0.0219	0.0000	212.4374	212.4374	1.3900e-003	0.0334	222.4289
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3000e-003	1.6100e-003	0.0192	6.0000e-005	7.0900e-003	3.0000e-005	7.1200e-003	1.8800e-003	3.0000e-005	1.9100e-003	0.0000	5.5190	5.5190	1.3000e-004	1.4000e-004	5.5650
Total	**0.0103**	**0.4709**	**0.1182**	**2.2700e-003**	**0.0713**	**4.4600e-003**	**0.0757**	**0.0195**	**4.2700e-003**	**0.0238**	**0.0000**	**217.9564**	**217.9564**	**1.5200e-003**	**0.0336**	**227.9939**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2035	0.0000	0.2035	0.0939	0.0000	0.0939	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0480	0.9363	1.0751	1.9600e-003		5.6200e-003	5.6200e-003		5.6200e-003	5.6200e-003	0.0000	172.1645	172.1645	0.0557	0.0000	173.5565
Total	**0.0480**	**0.9363**	**1.0751**	**1.9600e-003**	**0.2035**	**5.6200e-003**	**0.2091**	**0.0939**	**5.6200e-003**	**0.0995**	**0.0000**	**172.1645**	**172.1645**	**0.0557**	**0.0000**	**173.5565**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.0000e-003	0.4693	0.0990	2.2100e-003	0.0642	4.4300e-003	0.0686	0.0177	4.2400e-003	0.0219	0.0000	212.4374	212.4374	1.3900e-003	0.0334	222.4289
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3000e-003	1.6100e-003	0.0192	6.0000e-005	7.0900e-003	3.0000e-005	7.1200e-003	1.8800e-003	3.0000e-005	1.9100e-003	0.0000	5.5190	5.5190	1.3000e-004	1.4000e-004	5.5650
Total	**0.0103**	**0.4709**	**0.1182**	**2.2700e-003**	**0.0713**	**4.4600e-003**	**0.0757**	**0.0195**	**4.2700e-003**	**0.0238**	**0.0000**	**217.9564**	**217.9564**	**1.5200e-003**	**0.0336**	**227.9939**

Costco Fresno Mitigated Construction Run - Fresno County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Grading/BC Overlap - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1967	0.0000	0.1967	0.1011	0.0000	0.1011	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0329	0.3343	0.3036	5.7000e-004		0.0151	0.0151		0.0139	0.0139	0.0000	50.3819	50.3819	0.0163	0.0000	50.7893
Total	**0.0329**	**0.3343**	**0.3036**	**5.7000e-004**	**0.1967**	**0.0151**	**0.2118**	**0.1011**	**0.0139**	**0.1149**	**0.0000**	**50.3819**	**50.3819**	**0.0163**	**0.0000**	**50.7893**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-004	0.0235	4.9500e-003	1.1000e-004	3.2100e-003	2.2000e-004	3.4300e-003	8.8000e-004	2.1000e-004	1.0900e-003	0.0000	10.6219	10.6219	7.0000e-005	1.6700e-003	11.1215
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1300e-003	7.9000e-004	9.4400e-003	3.0000e-005	3.4800e-003	2.0000e-005	3.5000e-003	9.2000e-004	1.0000e-005	9.4000e-004	0.0000	2.7111	2.7111	6.0000e-005	7.0000e-005	2.7337
Total	**1.5300e-003**	**0.0243**	**0.0144**	**1.4000e-004**	**6.6900e-003**	**2.4000e-004**	**6.9300e-003**	**1.8000e-003**	**2.2000e-004**	**2.0300e-003**	**0.0000**	**13.3329**	**13.3329**	**1.3000e-004**	**1.7400e-003**	**13.8551**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Grading/BC Overlap - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0885	0.0000	0.0885	0.0455	0.0000	0.0455	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0141	0.2857	0.3759	5.7000e-004		2.1800e-003	2.1800e-003		2.1800e-003	2.1800e-003	0.0000	50.3819	50.3819	0.0163	0.0000	50.7892
Total	**0.0141**	**0.2857**	**0.3759**	**5.7000e-004**	**0.0885**	**2.1800e-003**	**0.0907**	**0.0455**	**2.1800e-003**	**0.0477**	**0.0000**	**50.3819**	**50.3819**	**0.0163**	**0.0000**	**50.7892**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-004	0.0235	4.9500e-003	1.1000e-004	3.2100e-003	2.2000e-004	3.4300e-003	8.8000e-004	2.1000e-004	1.0900e-003	0.0000	10.6219	10.6219	7.0000e-005	1.6700e-003	11.1215
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1300e-003	7.9000e-004	9.4400e-003	3.0000e-005	3.4800e-003	2.0000e-005	3.5000e-003	9.2000e-004	1.0000e-005	9.4000e-004	0.0000	2.7111	2.7111	6.0000e-005	7.0000e-005	2.7337
Total	**1.5300e-003**	**0.0243**	**0.0144**	**1.4000e-004**	**6.6900e-003**	**2.4000e-004**	**6.9300e-003**	**1.8000e-003**	**2.2000e-004**	**2.0300e-003**	**0.0000**	**13.3329**	**13.3329**	**1.3000e-004**	**1.7400e-003**	**13.8551**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1776	1.8072	1.6238	3.0900e-003		0.0814	0.0814		0.0748	0.0748	0.0000	271.4578	271.4578	0.0878	0.0000	273.6527
Total	**0.1776**	**1.8072**	**1.6238**	**3.0900e-003**		**0.0814**	**0.0814**		**0.0748**	**0.0748**	**0.0000**	**271.4578**	**271.4578**	**0.0878**	**0.0000**	**273.6527**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.6200e-003	0.2227	0.0698	1.0000e-003	0.0327	1.3900e-003	0.0340	9.4400e-003	1.3300e-003	0.0108	0.0000	95.4877	95.4877	5.3000e-004	0.0144	99.7859
Worker	0.0511	0.0357	0.4263	1.3400e-003	0.1573	7.3000e-004	0.1580	0.0418	6.7000e-004	0.0425	0.0000	122.4820	122.4820	2.9000e-003	3.1900e-003	123.5038
Total	**0.0567**	**0.2584**	**0.4961**	**2.3400e-003**	**0.1899**	**2.1200e-003**	**0.1920**	**0.0512**	**2.0000e-003**	**0.0532**	**0.0000**	**217.9697**	**217.9697**	**3.4300e-003**	**0.0176**	**223.2896**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0758	1.5354	2.0193	3.0900e-003		0.0116	0.0116		0.0116	0.0116	0.0000	271.4575	271.4575	0.0878	0.0000	273.6524
Total	**0.0758**	**1.5354**	**2.0193**	**3.0900e-003**		**0.0116**	**0.0116**		**0.0116**	**0.0116**	**0.0000**	**271.4575**	**271.4575**	**0.0878**	**0.0000**	**273.6524**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.6200e-003	0.2227	0.0698	1.0000e-003	0.0327	1.3900e-003	0.0340	9.4400e-003	1.3300e-003	0.0108	0.0000	95.4877	95.4877	5.3000e-004	0.0144	99.7859
Worker	0.0511	0.0357	0.4263	1.3400e-003	0.1573	7.3000e-004	0.1580	0.0418	6.7000e-004	0.0425	0.0000	122.4820	122.4820	2.9000e-003	3.1900e-003	123.5038
Total	**0.0567**	**0.2584**	**0.4961**	**2.3400e-003**	**0.1899**	**2.1200e-003**	**0.1920**	**0.0512**	**2.0000e-003**	**0.0532**	**0.0000**	**217.9697**	**217.9697**	**3.4300e-003**	**0.0176**	**223.2896**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0356	0.3745	0.2593	5.4000e-004		0.0168	0.0168		0.0154	0.0154	0.0000	47.0096	47.0096	0.0152	0.0000	47.3896
Paving	0.0204					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0559**	**0.3745**	**0.2593**	**5.4000e-004**		**0.0168**	**0.0168**		**0.0154**	**0.0154**	**0.0000**	**47.0096**	**47.0096**	**0.0152**	**0.0000**	**47.3896**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0500e-003	7.3000e-004	8.7600e-003	3.0000e-005	3.2300e-003	1.0000e-005	3.2500e-003	8.6000e-004	1.0000e-005	8.7000e-004	0.0000	2.5174	2.5174	6.0000e-005	7.0000e-005	2.5384
Total	**1.0500e-003**	**7.3000e-004**	**8.7600e-003**	**3.0000e-005**	**3.2300e-003**	**1.0000e-005**	**3.2500e-003**	**8.6000e-004**	**1.0000e-005**	**8.7000e-004**	**0.0000**	**2.5174**	**2.5174**	**6.0000e-005**	**7.0000e-005**	**2.5384**

Costco Fresno Mitigated Construction Run - Fresno County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Paving - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0131	0.2697	0.3271	5.4000e-004		2.0600e-003	2.0600e-003		2.0600e-003	2.0600e-003	0.0000	47.0095	47.0095	0.0152	0.0000	47.3896
Paving	0.0204					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0335**	**0.2697**	**0.3271**	**5.4000e-004**		**2.0600e-003**	**2.0600e-003**		**2.0600e-003**	**2.0600e-003**	**0.0000**	**47.0095**	**47.0095**	**0.0152**	**0.0000**	**47.3896**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0500e-003	7.3000e-004	8.7600e-003	3.0000e-005	3.2300e-003	1.0000e-005	3.2500e-003	8.6000e-004	1.0000e-005	8.7000e-004	0.0000	2.5174	2.5174	6.0000e-005	7.0000e-005	2.5384
Total	**1.0500e-003**	**7.3000e-004**	**8.7600e-003**	**3.0000e-005**	**3.2300e-003**	**1.0000e-005**	**3.2500e-003**	**8.6000e-004**	**1.0000e-005**	**8.7000e-004**	**0.0000**	**2.5174**	**2.5174**	**6.0000e-005**	**7.0000e-005**	**2.5384**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.8 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.8169					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.7900e-003	0.0326	0.0453	7.0000e-005		1.7700e-003	1.7700e-003		1.7700e-003	1.7700e-003	0.0000	6.3831	6.3831	3.8000e-004	0.0000	6.3927
Total	**1.8217**	**0.0326**	**0.0453**	**7.0000e-005**		**1.7700e-003**	**1.7700e-003**		**1.7700e-003**	**1.7700e-003**	**0.0000**	**6.3831**	**6.3831**	**3.8000e-004**	**0.0000**	**6.3927**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.6500e-003	3.2500e-003	0.0388	1.2000e-004	0.0143	7.0000e-005	0.0144	3.8000e-003	6.0000e-005	3.8600e-003	0.0000	11.1347	11.1347	2.6000e-004	2.9000e-004	11.2276
Total	**4.6500e-003**	**3.2500e-003**	**0.0388**	**1.2000e-004**	**0.0143**	**7.0000e-005**	**0.0144**	**3.8000e-003**	**6.0000e-005**	**3.8600e-003**	**0.0000**	**11.1347**	**11.1347**	**2.6000e-004**	**2.9000e-004**	**11.2276**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.8 Architectural Coating - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.8169					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.4900e-003	0.0339	0.0458	7.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004	0.0000	6.3831	6.3831	3.8000e-004	0.0000	6.3927
Total	**1.8184**	**0.0339**	**0.0458**	**7.0000e-005**		**3.6000e-004**	**3.6000e-004**		**3.6000e-004**	**3.6000e-004**	**0.0000**	**6.3831**	**6.3831**	**3.8000e-004**	**0.0000**	**6.3927**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.6500e-003	3.2500e-003	0.0388	1.2000e-004	0.0143	7.0000e-005	0.0144	3.8000e-003	6.0000e-005	3.8600e-003	0.0000	11.1347	11.1347	2.6000e-004	2.9000e-004	11.2276
Total	**4.6500e-003**	**3.2500e-003**	**0.0388**	**1.2000e-004**	**0.0143**	**7.0000e-005**	**0.0144**	**3.8000e-003**	**6.0000e-005**	**3.8600e-003**	**0.0000**	**11.1347**	**11.1347**	**2.6000e-004**	**2.9000e-004**	**11.2276**

Costco Fresno Mitigated Construction Run - Fresno County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Automobile Care Center	0.00	0.00	0.00		
Discount Club	0.00	0.00	0.00		
Gasoline/Service Station	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Automobile Care Center	14.70	6.60	6.60	33.00	48.00	19.00	21	51	28
Discount Club	14.70	6.60	6.60	16.70	64.30	19.00	45	40	15
Gasoline/Service Station	14.70	6.60	6.60	2.00	79.00	19.00	14	27	59

Costco Fresno Mitigated Construction Run - Fresno County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Parking Lot	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Automobile Care Center	0.510058	0.053037	0.175964	0.161396	0.026773	0.007006	0.013819	0.022114	0.000717	0.000291	0.024206	0.001529	0.003090
Discount Club	0.510058	0.053037	0.175964	0.161396	0.026773	0.007006	0.013819	0.022114	0.000717	0.000291	0.024206	0.001529	0.003090
Gasoline/Service Station	0.510058	0.053037	0.175964	0.161396	0.026773	0.007006	0.013819	0.022114	0.000717	0.000291	0.024206	0.001529	0.003090
Parking Lot	0.510058	0.053037	0.175964	0.161396	0.026773	0.007006	0.013819	0.022114	0.000717	0.000291	0.024206	0.001529	0.003090

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Costco Fresno Mitigated Construction Run - Fresno County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Costco Fresno Mitigated Construction Run - Fresno County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Automobile Care Center	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Discount Club	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Gasoline/Service Station	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Costco Fresno Mitigated Construction Run - Fresno County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Automobile Care Center	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Discount Club	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Gasoline/Service Station	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Automobile Care Center	0	0.0000	0.0000	0.0000	0.0000
Discount Club	0	0.0000	0.0000	0.0000	0.0000
Gasoline/Service Station	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Automobile Care Center	0	0.0000	0.0000	0.0000	0.0000
Discount Club	0	0.0000	0.0000	0.0000	0.0000
Gasoline/Service Station	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Costco Fresno Mitigated Construction Run - Fresno County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Automobile Care Center	0 / 0	0.0000	0.0000	0.0000	0.0000
Discount Club	0 / 0	0.0000	0.0000	0.0000	0.0000
Gasoline/Service Station	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Automobile Care Center	0 / 0	0.0000	0.0000	0.0000	0.0000
Discount Club	0 / 0	0.0000	0.0000	0.0000	0.0000
Gasoline/Service Station	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Automobile Care Center	0	0.0000	0.0000	0.0000	0.0000
Discount Club	0	0.0000	0.0000	0.0000	0.0000
Gasoline/Service Station	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Automobile Care Center	0	0.0000	0.0000	0.0000	0.0000
Discount Club	0	0.0000	0.0000	0.0000	0.0000
Gasoline/Service Station	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Equipment Type	Number

11.0 Vegetation

Costco Fresno (Project) Operation - Fresno County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Costco Fresno (Project) Operation

Fresno County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	889.00	Space	8.00	355,600.00	0
Automobile Care Center	4.80	1000sqft	0.11	4,800.00	0
Discount Club	241.34	1000sqft	5.54	241,340.00	0
Gasoline/Service Station	32.00	Pump	0.10	4,517.60	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	45
Climate Zone	3			**Operational Year**	2023
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	191.61	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Project-specific values (RPS emission factor)

Land Use - Project-specific values

Construction Phase - Operational run

Off-road Equipment - Operational run

Vehicle Trips - Project-specific values, mobile emissions calculated seperately

Consumer Products - Updated emission factor for consumer products to refine the VOC emissions based on recent CARB regulations.

Table Name	Column Name	Default Value	New Value
tblConsumerProducts	ROG_EF	2.14E-05	1.62E-05

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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	203.98	191.61
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblVehicleTrips	ST_TR	23.72	0.00
tblVehicleTrips	ST_TR	53.75	0.00
tblVehicleTrips	ST_TR	182.17	0.00
tblVehicleTrips	SU_TR	11.88	0.00
tblVehicleTrips	SU_TR	33.67	0.00
tblVehicleTrips	SU_TR	166.88	0.00
tblVehicleTrips	WD_TR	23.72	0.00
tblVehicleTrips	WD_TR	41.80	0.00
tblVehicleTrips	WD_TR	172.01	0.00

2.0 Emissions Summary

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2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.9467	1.0000e-004	0.0107	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0209	0.0209	5.0000e-005	0.0000	0.0222
Energy	0.0149	0.1350	0.1134	8.1000e-004		0.0103	0.0103		0.0103	0.0103	0.0000	330.8528	330.8528	0.0345	6.5300e-003	333.6620
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	217.9149	0.0000	217.9149	12.8784	0.0000	539.8748
Water						0.0000	0.0000		0.0000	0.0000	5.9496	12.3158	18.2653	0.6132	0.0147	37.9717
Total	**0.9616**	**0.1351**	**0.1241**	**8.1000e-004**	**0.0000**	**0.0103**	**0.0103**	**0.0000**	**0.0103**	**0.0103**	**223.8644**	**343.1895**	**567.0539**	**13.5261**	**0.0212**	**911.5307**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.9467	1.0000e-004	0.0107	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0209	0.0209	5.0000e-005	0.0000	0.0222
Energy	0.0149	0.1350	0.1134	8.1000e-004		0.0103	0.0103		0.0103	0.0103	0.0000	330.8528	330.8528	0.0345	6.5300e-003	333.6620
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	217.9149	0.0000	217.9149	12.8784	0.0000	539.8748
Water						0.0000	0.0000		0.0000	0.0000	5.9496	12.3158	18.2653	0.6132	0.0147	37.9717
Total	**0.9616**	**0.1351**	**0.1241**	**8.1000e-004**	**0.0000**	**0.0103**	**0.0103**	**0.0000**	**0.0103**	**0.0103**	**223.8644**	**343.1895**	**567.0539**	**13.5261**	**0.0212**	**911.5307**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	4/1/2023	4/30/2023	5	20	

Acres of Grading (Site Preparation Phase): 0

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Acres of Grading (Grading Phase): 0

Acres of Paving: 8

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Excavators	0	8.00	158	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Automobile Care Center	0.00	0.00	0.00		
Discount Club	0.00	0.00	0.00		
Gasoline/Service Station	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Automobile Care Center	14.70	6.60	6.60	33.00	48.00	19.00	21	51	28
Discount Club	14.70	6.60	6.60	16.70	64.30	19.00	45	40	15
Gasoline/Service Station	14.70	6.60	6.60	2.00	79.00	19.00	14	27	59
Parking Lot	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Automobile Care Center	0.510058	0.053037	0.175964	0.161396	0.026773	0.007006	0.013819	0.022114	0.000717	0.000291	0.024206	0.001529	0.003090
Discount Club	0.510058	0.053037	0.175964	0.161396	0.026773	0.007006	0.013819	0.022114	0.000717	0.000291	0.024206	0.001529	0.003090
Gasoline/Service Station	0.510058	0.053037	0.175964	0.161396	0.026773	0.007006	0.013819	0.022114	0.000717	0.000291	0.024206	0.001529	0.003090
Parking Lot	0.510058	0.053037	0.175964	0.161396	0.026773	0.007006	0.013819	0.022114	0.000717	0.000291	0.024206	0.001529	0.003090

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	183.9160	183.9160	0.0317	3.8400e-003	185.8520
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	183.9160	183.9160	0.0317	3.8400e-003	185.8520
NaturalGas Mitigated	0.0149	0.1350	0.1134	8.1000e-004		0.0103	0.0103		0.0103	0.0103	0.0000	146.9368	146.9368	2.8200e-003	2.6900e-003	147.8100
NaturalGas Unmitigated	0.0149	0.1350	0.1134	8.1000e-004		0.0103	0.0103		0.0103	0.0103	0.0000	146.9368	146.9368	2.8200e-003	2.6900e-003	147.8100

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5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Automobile Care Center	99360	5.4000e-004	4.8700e-003	4.0900e-003	3.0000e-005		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	5.3022	5.3022	1.0000e-004	1.0000e-004	5.3337
Discount Club	2.56062e+006	0.0138	0.1255	0.1054	7.5000e-004		9.5400e-003	9.5400e-003		9.5400e-003	9.5400e-003	0.0000	136.6443	136.6443	2.6200e-003	2.5100e-003	137.4563
Gasoline/Service Station	93514.3	5.0000e-004	4.5800e-003	3.8500e-003	3.0000e-005		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004	0.0000	4.9903	4.9903	1.0000e-004	9.0000e-005	5.0199
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0149**	**0.1350**	**0.1134**	**8.1000e-004**		**0.0103**	**0.0103**		**0.0103**	**0.0103**	**0.0000**	**146.9368**	**146.9368**	**2.8200e-003**	**2.7000e-003**	**147.8100**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Automobile Care Center	99360	5.4000e-004	4.8700e-003	4.0900e-003	3.0000e-005		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	5.3022	5.3022	1.0000e-004	1.0000e-004	5.3337
Discount Club	2.56062e+006	0.0138	0.1255	0.1054	7.5000e-004		9.5400e-003	9.5400e-003		9.5400e-003	9.5400e-003	0.0000	136.6443	136.6443	2.6200e-003	2.5100e-003	137.4563
Gasoline/Service Station	93514.3	5.0000e-004	4.5800e-003	3.8500e-003	3.0000e-005		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004	0.0000	4.9903	4.9903	1.0000e-004	9.0000e-005	5.0199
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0149**	**0.1350**	**0.1134**	**8.1000e-004**		**0.0103**	**0.0103**		**0.0103**	**0.0103**	**0.0000**	**146.9368**	**146.9368**	**2.8200e-003**	**2.7000e-003**	**147.8100**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Automobile Care Center	41328	3.5919	6.2000e-004	7.0000e-005	3.6297
Discount Club	1.91141e+006	166.1263	0.0286	3.4700e-003	167.8751
Gasoline/Service Station	38896.5	3.3806	5.8000e-004	7.0000e-005	3.4162
Parking Lot	124460	10.8172	1.8600e-003	2.3000e-004	10.9310
Total		**183.9160**	**0.0317**	**3.8400e-003**	**185.8520**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Automobile Care Center	41328	3.5919	6.2000e-004	7.0000e-005	3.6297
Discount Club	1.91141e+006	166.1263	0.0286	3.4700e-003	167.8751
Gasoline/Service Station	38896.5	3.3806	5.8000e-004	7.0000e-005	3.4162
Parking Lot	124460	10.8172	1.8600e-003	2.3000e-004	10.9310
Total		**183.9160**	**0.0317**	**3.8400e-003**	**185.8520**

6.0 Area Detail

6.1 Mitigation Measures Area

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.9467	1.0000e-004	0.0107	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0209	0.0209	5.0000e-005	0.0000	0.0222
Unmitigated	0.9467	1.0000e-004	0.0107	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0209	0.0209	5.0000e-005	0.0000	0.0222

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1817					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.7641					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	9.9000e-004	1.0000e-004	0.0107	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0209	0.0209	5.0000e-005	0.0000	0.0222
Total	**0.9467**	**1.0000e-004**	**0.0107**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**0.0209**	**0.0209**	**5.0000e-005**	**0.0000**	**0.0222**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1817					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.7641					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	9.9000e-004	1.0000e-004	0.0107	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0209	0.0209	5.0000e-005	0.0000	0.0222
Total	**0.9467**	**1.0000e-004**	**0.0107**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**0.0209**	**0.0209**	**5.0000e-005**	**0.0000**	**0.0222**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	18.2653	0.6132	0.0147	37.9717
Unmitigated	18.2653	0.6132	0.0147	37.9717

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Automobile Care Center	0.451589 / 0.276781	0.4398	0.0148	3.5000e-004	0.9144
Discount Club	17.8767 / 10.9567	17.4115	0.5845	0.0140	36.1967
Gasoline/Service Station	0.42502 / 0.260496	0.4140	0.0139	3.3000e-004	0.8606
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**18.2653**	**0.6132**	**0.0147**	**37.9717**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Automobile Care Center	0.451589 / 0.276781	0.4398	0.0148	3.5000e-004	0.9144
Discount Club	17.8767 / 10.9567	17.4115	0.5845	0.0140	36.1967
Gasoline/Service Station	0.42502 / 0.260496	0.4140	0.0139	3.3000e-004	0.8606
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**18.2653**	**0.6132**	**0.0147**	**37.9717**

8.0 Waste Detail

8.1 Mitigation Measures Waste

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	217.9149	12.8784	0.0000	539.8748
Unmitigated	217.9149	12.8784	0.0000	539.8748

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Automobile Care Center	18.34	3.7229	0.2200	0.0000	9.2232
Discount Club	1037.93	210.6904	12.4515	0.0000	521.9766
Gasoline/Service Station	17.25	3.5016	0.2069	0.0000	8.6751
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**217.9149**	**12.8784**	**0.0000**	**539.8748**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Automobile Care Center	18.34	3.7229	0.2200	0.0000	9.2232
Discount Club	1037.93	210.6904	12.4515	0.0000	521.9766
Gasoline/Service Station	17.25	3.5016	0.2069	0.0000	8.6751
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**217.9149**	**12.8784**	**0.0000**	**539.8748**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Equipment Type	Number

11.0 Vegetation

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Gasoline/Service Station	32.00	Pump	1.33	4,517.60	0
Automobile Care Center	4.80	1000sqft	0.11	4,800.00	0
Discount Club	241.34	1000sqft	5.54	241,340.00	0
Parking Lot	889.00	Space	15.55	355,600.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	45
Climate Zone	3			**Operational Year**	2030
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	130.13	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Project-specific values (RPS emission factor)

Land Use - Project-specific values

Construction Phase - Operational emissions only

Off-road Equipment - Operational emissions only

Vehicle Trips - Project-specific values, mobile emissions calculated seperately

Consumer Products - Updated emission factor for consumer products to refine the VOC emissions based on recent CARB regulations.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	0.00

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstructionPhase	PhaseEndDate	5/26/2023	4/30/2023
tblConsumerProducts	ROG_EF	2.14E-05	1.62E-05
tblLandUse	LotAcreage	0.10	1.33
tblLandUse	LotAcreage	8.00	15.55
tblProjectCharacteristics	CO2IntensityFactor	203.98	130.13
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblVehicleTrips	ST_TR	23.72	0.00
tblVehicleTrips	ST_TR	53.75	0.00
tblVehicleTrips	ST_TR	182.17	0.00
tblVehicleTrips	SU_TR	11.88	0.00
tblVehicleTrips	SU_TR	33.67	0.00
tblVehicleTrips	SU_TR	166.88	0.00
tblVehicleTrips	WD_TR	23.72	0.00
tblVehicleTrips	WD_TR	41.80	0.00
tblVehicleTrips	WD_TR	172.01	0.00

2.0 Emissions Summary

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.9467	1.0000e-004	0.0107	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0209	0.0209	5.0000e-005	0.0000	0.0222
Energy	0.0149	0.1350	0.1134	8.1000e-004		0.0103	0.0103		0.0103	0.0103	0.0000	271.8415	271.8415	0.0345	6.5300e-003	274.6507
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	217.9149	0.0000	217.9149	12.8784	0.0000	539.8748
Water						0.0000	0.0000		0.0000	0.0000	5.9496	8.3641	14.3137	0.6132	0.0147	34.0200
Total	**0.9616**	**0.1351**	**0.1241**	**8.1000e-004**	**0.0000**	**0.0103**	**0.0103**	**0.0000**	**0.0103**	**0.0103**	**223.8644**	**280.2265**	**504.0909**	**13.5261**	**0.0212**	**848.5677**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.9467	1.0000e-004	0.0107	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0209	0.0209	5.0000e-005	0.0000	0.0222
Energy	0.0149	0.1350	0.1134	8.1000e-004		0.0103	0.0103		0.0103	0.0103	0.0000	271.8415	271.8415	0.0345	6.5300e-003	274.6507
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	217.9149	0.0000	217.9149	12.8784	0.0000	539.8748
Water						0.0000	0.0000		0.0000	0.0000	5.9496	8.3641	14.3137	0.6132	0.0147	34.0200
Total	**0.9616**	**0.1351**	**0.1241**	**8.1000e-004**	**0.0000**	**0.0103**	**0.0103**	**0.0000**	**0.0103**	**0.0103**	**223.8644**	**280.2265**	**504.0909**	**13.5261**	**0.0212**	**848.5677**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/1/2023	4/30/2023	5	0	

Acres of Grading (Site Preparation Phase): 0

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Acres of Grading (Grading Phase): 0

Acres of Paving: 15.55

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition			0.00	0.00	16.80	6.60				

3.1 Mitigation Measures Construction

3.2 Demolition - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Demolition - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Automobile Care Center	0.00	0.00	0.00		
Discount Club	0.00	0.00	0.00		
Gasoline/Service Station	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Automobile Care Center	14.70	6.60	6.60	33.00	48.00	19.00	21	51	28
Discount Club	14.70	6.60	6.60	16.70	64.30	19.00	45	40	15
Gasoline/Service Station	14.70	6.60	6.60	2.00	79.00	19.00	14	27	59
Parking Lot	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Automobile Care Center	0.542478	0.054482	0.176258	0.134700	0.021641	0.005926	0.015139	0.022678	0.000679	0.000278	0.021974	0.001325	0.002442
Discount Club	0.542478	0.054482	0.176258	0.134700	0.021641	0.005926	0.015139	0.022678	0.000679	0.000278	0.021974	0.001325	0.002442
Gasoline/Service Station	0.542478	0.054482	0.176258	0.134700	0.021641	0.005926	0.015139	0.022678	0.000679	0.000278	0.021974	0.001325	0.002442
Parking Lot	0.542478	0.054482	0.176258	0.134700	0.021641	0.005926	0.015139	0.022678	0.000679	0.000278	0.021974	0.001325	0.002442

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	124.9047	124.9047	0.0317	3.8400e-003	126.8407
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	124.9047	124.9047	0.0317	3.8400e-003	126.8407
NaturalGas Mitigated	0.0149	0.1350	0.1134	8.1000e-004		0.0103	0.0103		0.0103	0.0103	0.0000	146.9368	146.9368	2.8200e-003	2.6900e-003	147.8100
NaturalGas Unmitigated	0.0149	0.1350	0.1134	8.1000e-004		0.0103	0.0103		0.0103	0.0103	0.0000	146.9368	146.9368	2.8200e-003	2.6900e-003	147.8100

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Automobile Care Center	99360	5.4000e-004	4.8700e-003	4.0900e-003	3.0000e-005		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	5.3022	5.3022	1.0000e-004	1.0000e-004	5.3337
Discount Club	2.56062e+006	0.0138	0.1255	0.1054	7.5000e-004		9.5400e-003	9.5400e-003		9.5400e-003	9.5400e-003	0.0000	136.6443	136.6443	2.6200e-003	2.5100e-003	137.4563
Gasoline/Service Station	93514.3	5.0000e-004	4.5800e-003	3.8500e-003	3.0000e-005		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004	0.0000	4.9903	4.9903	1.0000e-004	9.0000e-005	5.0199
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0149**	**0.1350**	**0.1134**	**8.1000e-004**		**0.0103**	**0.0103**		**0.0103**	**0.0103**	**0.0000**	**146.9368**	**146.9368**	**2.8200e-003**	**2.7000e-003**	**147.8100**

Costco Fresno (Project) 2030 Operation - Fresno County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Automobile Care Center	99360	5.4000e-004	4.8700e-003	4.0900e-003	3.0000e-005		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	5.3022	5.3022	1.0000e-004	1.0000e-004	5.3337
Discount Club	2.56062e+006	0.0138	0.1255	0.1054	7.5000e-004		9.5400e-003	9.5400e-003		9.5400e-003	9.5400e-003	0.0000	136.6443	136.6443	2.6200e-003	2.5100e-003	137.4563
Gasoline/Service Station	93514.3	5.0000e-004	4.5800e-003	3.8500e-003	3.0000e-005		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004	0.0000	4.9903	4.9903	1.0000e-004	9.0000e-005	5.0199
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0149**	**0.1350**	**0.1134**	**8.1000e-004**		**0.0103**	**0.0103**		**0.0103**	**0.0103**	**0.0000**	**146.9368**	**146.9368**	**2.8200e-003**	**2.7000e-003**	**147.8100**

Costco Fresno (Project) 2030 Operation - Fresno County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Automobile Care Center	41328	2.4394	6.2000e-004	7.0000e-005	2.4772
Discount Club	1.91141e+006	112.8230	0.0286	3.4700e-003	114.5718
Gasoline/Service Station	38896.5	2.2959	5.8000e-004	7.0000e-005	2.3315
Parking Lot	124460	7.3464	1.8600e-003	2.3000e-004	7.4602
Total		**124.9047**	**0.0317**	**3.8400e-003**	**126.8407**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Automobile Care Center	41328	2.4394	6.2000e-004	7.0000e-005	2.4772
Discount Club	1.91141e+006	112.8230	0.0286	3.4700e-003	114.5718
Gasoline/Service Station	38896.5	2.2959	5.8000e-004	7.0000e-005	2.3315
Parking Lot	124460	7.3464	1.8600e-003	2.3000e-004	7.4602
Total		**124.9047**	**0.0317**	**3.8400e-003**	**126.8407**

6.0 Area Detail

6.1 Mitigation Measures Area

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.9467	1.0000e-004	0.0107	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0209	0.0209	5.0000e-005	0.0000	0.0222
Unmitigated	0.9467	1.0000e-004	0.0107	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0209	0.0209	5.0000e-005	0.0000	0.0222

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1817					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.7641					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	9.8000e-004	1.0000e-004	0.0107	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0209	0.0209	5.0000e-005	0.0000	0.0222
Total	**0.9467**	**1.0000e-004**	**0.0107**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**0.0209**	**0.0209**	**5.0000e-005**	**0.0000**	**0.0222**

Costco Fresno (Project) 2030 Operation - Fresno County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1817					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.7641					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	9.8000e-004	1.0000e-004	0.0107	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0209	0.0209	5.0000e-005	0.0000	0.0222
Total	**0.9467**	**1.0000e-004**	**0.0107**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**0.0209**	**0.0209**	**5.0000e-005**	**0.0000**	**0.0222**

7.0 Water Detail

7.1 Mitigation Measures Water

Costco Fresno (Project) 2030 Operation - Fresno County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	14.3137	0.6132	0.0147	34.0200
Unmitigated	14.3137	0.6132	0.0147	34.0200

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Automobile Care Center	0.451589 / 0.276781	0.3447	0.0148	3.5000e-004	0.8192
Discount Club	17.8767 / 10.9567	13.6446	0.5845	0.0140	32.4298
Gasoline/Service Station	0.42502 / 0.260496	0.3244	0.0139	3.3000e-004	0.7710
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**14.3137**	**0.6132**	**0.0147**	**34.0200**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Automobile Care Center	0.451589 / 0.276781	0.3447	0.0148	3.5000e-004	0.8192
Discount Club	17.8767 / 10.9567	13.6446	0.5845	0.0140	32.4298
Gasoline/Service Station	0.42502 / 0.260496	0.3244	0.0139	3.3000e-004	0.7710
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**14.3137**	**0.6132**	**0.0147**	**34.0200**

8.0 Waste Detail

8.1 Mitigation Measures Waste

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	217.9149	12.8784	0.0000	539.8748
Unmitigated	217.9149	12.8784	0.0000	539.8748

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Automobile Care Center	18.34	3.7229	0.2200	0.0000	9.2232
Discount Club	1037.93	210.6904	12.4515	0.0000	521.9766
Gasoline/Service Station	17.25	3.5016	0.2069	0.0000	8.6751
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**217.9149**	**12.8784**	**0.0000**	**539.8748**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Automobile Care Center	18.34	3.7229	0.2200	0.0000	9.2232
Discount Club	1037.93	210.6904	12.4515	0.0000	521.9766
Gasoline/Service Station	17.25	3.5016	0.2069	0.0000	8.6751
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**217.9149**	**12.8784**	**0.0000**	**539.8748**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Equipment Type	Number

11.0 Vegetation

Costco Fresno (Project) 2035 Operation - Fresno County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Costco Fresno (Project) 2035 Operation

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Gasoline/Service Station	32.00	Pump	1.33	4,517.60	0
Automobile Care Center	4.80	1000sqft	0.11	4,800.00	0
Discount Club	241.34	1000sqft	5.54	241,340.00	0
Parking Lot	889.00	Space	15.55	355,600.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	45
Climate Zone	3			**Operational Year**	2035
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	86.75	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Project-specific values (RPS emission factor)

Land Use - Project-specific values

Construction Phase - Operational emissions only

Off-road Equipment - Operational emissions only

Vehicle Trips - Project-specific values, mobile emissions calculated seperately

Consumer Products - Updated emission factor for consumer products to refine the VOC emissions based on recent CARB regulations.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	0.00

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstructionPhase	PhaseEndDate	5/26/2023	4/30/2023
tblConsumerProducts	ROG_EF	2.14E-05	1.62E-05
tblLandUse	LotAcreage	0.10	1.33
tblLandUse	LotAcreage	8.00	15.55
tblProjectCharacteristics	CO2IntensityFactor	203.98	86.75
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblVehicleTrips	ST_TR	23.72	0.00
tblVehicleTrips	ST_TR	53.75	0.00
tblVehicleTrips	ST_TR	182.17	0.00
tblVehicleTrips	SU_TR	11.88	0.00
tblVehicleTrips	SU_TR	33.67	0.00
tblVehicleTrips	SU_TR	166.88	0.00
tblVehicleTrips	WD_TR	23.72	0.00
tblVehicleTrips	WD_TR	41.80	0.00
tblVehicleTrips	WD_TR	172.01	0.00

2.0 Emissions Summary

Costco Fresno (Project) 2035 Operation - Fresno County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.9467	1.0000e-004	0.0107	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0209	0.0209	5.0000e-005	0.0000	0.0222
Energy	0.0149	0.1350	0.1134	8.1000e-004		0.0103	0.0103		0.0103	0.0103	0.0000	230.2034	230.2034	0.0345	6.5300e-003	233.0126
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	217.9149	0.0000	217.9149	12.8784	0.0000	539.8748
Water						0.0000	0.0000		0.0000	0.0000	5.9496	5.5759	11.5254	0.6132	0.0147	31.2318
Total	**0.9616**	**0.1351**	**0.1240**	**8.1000e-004**	**0.0000**	**0.0103**	**0.0103**	**0.0000**	**0.0103**	**0.0103**	**223.8644**	**235.8002**	**459.6646**	**13.5261**	**0.0212**	**804.1414**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.9467	1.0000e-004	0.0107	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0209	0.0209	5.0000e-005	0.0000	0.0222
Energy	0.0149	0.1350	0.1134	8.1000e-004		0.0103	0.0103		0.0103	0.0103	0.0000	230.2034	230.2034	0.0345	6.5300e-003	233.0126
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	217.9149	0.0000	217.9149	12.8784	0.0000	539.8748
Water						0.0000	0.0000		0.0000	0.0000	5.9496	5.5759	11.5254	0.6132	0.0147	31.2318
Total	**0.9616**	**0.1351**	**0.1240**	**8.1000e-004**	**0.0000**	**0.0103**	**0.0103**	**0.0000**	**0.0103**	**0.0103**	**223.8644**	**235.8002**	**459.6646**	**13.5261**	**0.0212**	**804.1414**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/1/2023	4/30/2023	5	0	

Acres of Grading (Site Preparation Phase): 0

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Acres of Grading (Grading Phase): 0

Acres of Paving: 15.55

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition			0.00	0.00	16.80	6.60				

3.1 Mitigation Measures Construction

3.2 Demolition - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Demolition - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Costco Fresno (Project) 2035 Operation - Fresno County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Automobile Care Center	0.00	0.00	0.00		
Discount Club	0.00	0.00	0.00		
Gasoline/Service Station	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Automobile Care Center	14.70	6.60	6.60	33.00	48.00	19.00	21	51	28
Discount Club	14.70	6.60	6.60	16.70	64.30	19.00	45	40	15
Gasoline/Service Station	14.70	6.60	6.60	2.00	79.00	19.00	14	27	59
Parking Lot	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Automobile Care Center	0.553747	0.055870	0.176952	0.125831	0.019734	0.005457	0.015107	0.021893	0.000653	0.000272	0.021077	0.001181	0.002226
Discount Club	0.553747	0.055870	0.176952	0.125831	0.019734	0.005457	0.015107	0.021893	0.000653	0.000272	0.021077	0.001181	0.002226
Gasoline/Service Station	0.553747	0.055870	0.176952	0.125831	0.019734	0.005457	0.015107	0.021893	0.000653	0.000272	0.021077	0.001181	0.002226
Parking Lot	0.553747	0.055870	0.176952	0.125831	0.019734	0.005457	0.015107	0.021893	0.000653	0.000272	0.021077	0.001181	0.002226

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	83.2666	83.2666	0.0317	3.8400e-003	85.2026
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	83.2666	83.2666	0.0317	3.8400e-003	85.2026
NaturalGas Mitigated	0.0149	0.1350	0.1134	8.1000e-004		0.0103	0.0103		0.0103	0.0103	0.0000	146.9368	146.9368	2.8200e-003	2.6900e-003	147.8100
NaturalGas Unmitigated	0.0149	0.1350	0.1134	8.1000e-004		0.0103	0.0103		0.0103	0.0103	0.0000	146.9368	146.9368	2.8200e-003	2.6900e-003	147.8100

Costco Fresno (Project) 2035 Operation - Fresno County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Automobile Care Center	99360	5.4000e-004	4.8700e-003	4.0900e-003	3.0000e-005		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	5.3022	5.3022	1.0000e-004	1.0000e-004	5.3337
Discount Club	2.56062e+006	0.0138	0.1255	0.1054	7.5000e-004		9.5400e-003	9.5400e-003		9.5400e-003	9.5400e-003	0.0000	136.6443	136.6443	2.6200e-003	2.5100e-003	137.4563
Gasoline/Service Station	93514.3	5.0000e-004	4.5800e-003	3.8500e-003	3.0000e-005		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004	0.0000	4.9903	4.9903	1.0000e-004	9.0000e-005	5.0199
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0149**	**0.1350**	**0.1134**	**8.1000e-004**		**0.0103**	**0.0103**		**0.0103**	**0.0103**	**0.0000**	**146.9368**	**146.9368**	**2.8200e-003**	**2.7000e-003**	**147.8100**

Costco Fresno (Project) 2035 Operation - Fresno County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Automobile Care Center	99360	5.4000e-004	4.8700e-003	4.0900e-003	3.0000e-005		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	5.3022	5.3022	1.0000e-004	1.0000e-004	5.3337
Discount Club	2.56062e+006	0.0138	0.1255	0.1054	7.5000e-004		9.5400e-003	9.5400e-003		9.5400e-003	9.5400e-003	0.0000	136.6443	136.6443	2.6200e-003	2.5100e-003	137.4563
Gasoline/Service Station	93514.3	5.0000e-004	4.5800e-003	3.8500e-003	3.0000e-005		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004	0.0000	4.9903	4.9903	1.0000e-004	9.0000e-005	5.0199
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0149**	**0.1350**	**0.1134**	**8.1000e-004**		**0.0103**	**0.0103**		**0.0103**	**0.0103**	**0.0000**	**146.9368**	**146.9368**	**2.8200e-003**	**2.7000e-003**	**147.8100**

Costco Fresno (Project) 2035 Operation - Fresno County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Automobile Care Center	41328	1.6262	6.2000e-004	7.0000e-005	1.6640
Discount Club	1.91141e+006	75.2125	0.0286	3.4700e-003	76.9612
Gasoline/Service Station	38896.5	1.5306	5.8000e-004	7.0000e-005	1.5661
Parking Lot	124460	4.8974	1.8600e-003	2.3000e-004	5.0113
Total		**83.2666**	**0.0317**	**3.8400e-003**	**85.2026**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Automobile Care Center	41328	1.6262	6.2000e-004	7.0000e-005	1.6640
Discount Club	1.91141e+006	75.2125	0.0286	3.4700e-003	76.9612
Gasoline/Service Station	38896.5	1.5306	5.8000e-004	7.0000e-005	1.5661
Parking Lot	124460	4.8974	1.8600e-003	2.3000e-004	5.0113
Total		**83.2666**	**0.0317**	**3.8400e-003**	**85.2026**

6.0 Area Detail

6.1 Mitigation Measures Area

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.9467	1.0000e-004	0.0107	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0209	0.0209	5.0000e-005	0.0000	0.0222
Unmitigated	0.9467	1.0000e-004	0.0107	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0209	0.0209	5.0000e-005	0.0000	0.0222

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1817					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.7641					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	9.8000e-004	1.0000e-004	0.0107	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0209	0.0209	5.0000e-005	0.0000	0.0222
Total	**0.9467**	**1.0000e-004**	**0.0107**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**0.0209**	**0.0209**	**5.0000e-005**	**0.0000**	**0.0222**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1817					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.7641					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	9.8000e-004	1.0000e-004	0.0107	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0209	0.0209	5.0000e-005	0.0000	0.0222
Total	**0.9467**	**1.0000e-004**	**0.0107**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**0.0209**	**0.0209**	**5.0000e-005**	**0.0000**	**0.0222**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	11.5254	0.6132	0.0147	31.2318
Unmitigated	11.5254	0.6132	0.0147	31.2318

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Automobile Care Center	0.451589 / 0.276781	0.2775	0.0148	3.5000e-004	0.7521
Discount Club	17.8767 / 10.9567	10.9867	0.5845	0.0140	29.7718
Gasoline/Service Station	0.42502 / 0.260496	0.2612	0.0139	3.3000e-004	0.7078
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**11.5254**	**0.6132**	**0.0147**	**31.2318**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Automobile Care Center	0.451589 / 0.276781	0.2775	0.0148	3.5000e-004	0.7521
Discount Club	17.8767 / 10.9567	10.9867	0.5845	0.0140	29.7718
Gasoline/Service Station	0.42502 / 0.260496	0.2612	0.0139	3.3000e-004	0.7078
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**11.5254**	**0.6132**	**0.0147**	**31.2318**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Costco Fresno (Project) 2035 Operation - Fresno County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	217.9149	12.8784	0.0000	539.8748
Unmitigated	217.9149	12.8784	0.0000	539.8748

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Automobile Care Center	18.34	3.7229	0.2200	0.0000	9.2232
Discount Club	1037.93	210.6904	12.4515	0.0000	521.9766
Gasoline/Service Station	17.25	3.5016	0.2069	0.0000	8.6751
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**217.9149**	**12.8784**	**0.0000**	**539.8748**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Automobile Care Center	18.34	3.7229	0.2200	0.0000	9.2232
Discount Club	1037.93	210.6904	12.4515	0.0000	521.9766
Gasoline/Service Station	17.25	3.5016	0.2069	0.0000	8.6751
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**217.9149**	**12.8784**	**0.0000**	**539.8748**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Equipment Type	Number

11.0 Vegetation

APPENDIX B
OPERATIONAL MOBILE SOURCE EMISSIONS CALCULATIONS

Table B-1a. Trip Lengths and Vehicle Miles Traveled by Operational Mobile Sources (Herndon/Riverside)
Costco Commercial Center
Fresno, California

Trip Type		Average One-Way Trip Length[1,2]	Peak Daily Trips (one-way trips/day)[3]	Peak Daily VMT[4]	Annual Average Trips (one-way trips/yr)	Annual Average VMT
Member Vehicles	Primary	17.3	10,046	173,528	3,666,790	63,337,720
	Diverted	1.0	4,038	4,119	1,473,870	1,503,435
	Pass-By	0.1	3,788	379	1,382,620	138,262
Warehouse, Fuel Station, and Car Wash Employee Vehicles	Primary	30.7	300	9,210	109,500	3,361,650
MDO Driver and Warehouse Employee Vehicles	Primary	30.7	136	4,175	49,640	1,523,875
MDO Delivery Trucks	Primary	81.5	20	1,630	7,300	594,950
Fuel Delivery Trucks	Primary	125.0	14	1,750	5,110	638,750
Warehouse Delivery Trucks	Primary	125.0	26	3,250	9,490	1,186,250

Notes:

[1] Average trip lengths for primary and diverted trip types are based on Project-specific data provided by Kittelson & Associates. Pass-by trip length for member vehicles is assumed to be equal to the CalEEMod® default trip length of 0.1 miles.

[2] Average trip length for MDO delivery trucks provided by Costco. The average routed round trip length for Fresno MDO delivery trucks is 163 miles.

[3] Peak daily trips are based on Project-specific data provided by Kittelson & Associates.

[4] Peak daily VMT based on Project-specific data provided by Kittelson & Associates or estimated as a product of average trip length and number of trips presented in this table.

Abbreviations:

CalEEMod® - CALifornia Emissions Estimator MODel

MDO - market delivery operation

VMT - vehicle miles traveled

Table B-1b. Trip Lengths and Vehicle Miles Traveled by Operational Mobile Sources (4500 W. Shaw Avenue)
Costco Commercial Center
Fresno, California

Trip Type		Peak Daily Trips (one-way trips/day)[1]	Peak Daily VMT[2]	Annual Average Trips (one-way trips/yr)	Annual Average VMT
Passenger Vehicles	Primary	1,363	58,264	497,495	21,266,360
	Pass-by	48	0	17,520	0
	Diverted	2,099	3,442	766,135	1,256,330

Notes:

[1] Peak daily trips are based on Project-specific data provided by Kittelson & Associates.

[2] Peak daily VMT based on Project-specific data provided by Kittelson & Associates or estimated as a product of average trip length and number of trips presented in this table.

Abbreviations:

CalEEMod® - CALifornia Emissions Estimator MODel

MDO - market delivery operation

VMT - vehicle miles traveled

Table B-2. Operational Mobile Source Fleet Mixes
Costco Commercial Center
Fresno, California

Vehicle Category	Fuel Type	Fleet Mix CalEEMod® Default[1]	EMFAC VMT Output[2] (miles/day)	Employee Vehicle Fleet Mix[3]	Member Vehicle Fleet Mix[4]
LDA	Gas	51.0%	12,057,533	52.8%	55.0%
	Phe		351,337	1.54%	1.6%
	Elec		514,390	2.25%	0%
	Dsl		22,675	0.10%	0%
LDT1	Gas	5.3%	1,013,826	5.88%	5.9%
	Phe		1,027	0.01%	0.0%
	Elec		1,049	0.01%	0%
	Dsl		250	0.00%	0%
LDT2	Gas	17.6%	5,488,159	19.29%	19.4%
	Phe		39,774	0.14%	0.1%
	Elec		17,710	0.06%	0%
	Dsl		14,595	0.05%	0%
MDV	Gas	16.1%	4,629,686	17.47%	17.8%
	Phe		29,118	0.11%	0.1%
	Elec		19,405	0.07%	0%
	Dsl		71,606	0.27%	0%
LHD1	All	2.7%	--	--	--
LHD2	All	0.7%	--	--	--
MHD	All	1.4%	--	--	--
HHDT	All	2.2%	--	--	--
OBUS	All	0.1%	--	--	--
UBUS	All	0.0%	--	--	--
MCY	All	2.4%	--	--	--
SBUS	All	0.2%	--	--	--
MH	All	0.3%	--	--	--

Notes:

[1] CalEEMod® default for Fresno County calendar year 2023.

[2] Data obtained from EMFAC2021 for default emissions activity.

[3] Fleet mix for employee vehicles estimated based on the ratio of the vehicle classes in CalEEMod® default fleet mix and the EMFAC2021 VMT output.

[4] Fleet mix for member vehicles visiting the Costco Gas Station are estimated based on the ratio of the vehicle classes in CalEEMod® default fleet mix and the EMFAC2021 VMT output. Vehicles are assumed to be gasoline or plug-in hybrid.

Abbreviations:

CalEEMod® - CALifornia Emissions Estimator MODel
EMFAC - EMission FACtors model
HHDT - Heavy heavy-duty truck
LDA - light duty automobiles
LDT - light-duty trucks
LHD - light heavy-duty trucks
MCY - motorcycles
MDV - medium-duty vehicle
MH - motor homes
MHD - medium heavy-duty trucks
OBUS - other buses
SBUS - school buses
UBUS - urban buses
VMT - vehicle miles traveled

Table B-3. Operational Mobile Source GHG Emission Factors - Running Exhaust
Costco Commercial Center
Fresno, California

EMFAC Vehicle Class	Fuel	EMFAC VMT Output[1] (miles/day)	EMFAC Emissions Output[1]		
			CO_2	N_2O	CH_4
Passenger Vehicles					
LDA	Gas	12,057,533	3,843	0.06	0.03
LDA	Phe	351,337	53	0.00	0.00
LDA	Elec	514,390	0	0.00	0.00
LDA	Dsl	22,675	6	0.00	0.00
LDT1	Gas	1,013,826	388	0.01	0.01
LDT1	Phe	1,027	0	0.00	0.00
LDT1	Elec	1,049	0	0.00	0.00
LDT1	Dsl	250	0	0.00	0.00
LDT2	Gas	5,488,159	2,188	0.04	0.02
LDT2	Phe	39,774	6	0.00	0.00
LDT2	Elec	17,710	0	0.00	0.00
LDT2	Dsl	14,595	5	0.00	0.00
MDV	Gas	4,629,686	2,265	0.05	0.02
MDV	Phe	29,118	4	0.00	0.00
MDV	Elec	19,405	0	0.00	0.00
MDV	Dsl	71,606	32	0.01	0.00
Delivery Trucks[2]					
HHDT	Dsl	2,030,441	3,590	0.57	0.00

EMFAC Vehicle Class	Fuel	Running Exhaust Emission Factors[3] (grams/mile)		
		CO_2	N_2O	CH_4
Passenger Vehicles				
LDA	Gas	289	0.005	0.002
LDA	Phe	136	0.001	0.000
LDA	Elec	0	0.000	0.000
LDA	Dsl	231	0.036	0.001
LDT1	Gas	347	0.013	0.009
LDT1	Phe	124	0.001	0.000
LDT1	Elec	0	0.000	0.000
LDT1	Dsl	401	0.063	0.012
LDT2	Gas	362	0.007	0.003
LDT2	Phe	129	0.001	0.000
LDT2	Elec	0	0.000	0.000
LDT2	Dsl	307	0.048	0.001
MDV	Gas	444	0.009	0.005
MDV	Phe	136	0.001	0.000
MDV	Elec	0	0.000	0.000
MDV	Dsl	412	0.065	0.001

Table B-3. Operational Mobile Source GHG Emission Factors - Running Exhaust
Costco Commercial Center
Fresno, California

EMFAC Vehicle Class	Fuel	Running Exhaust Emission Factors[3] (grams/mile)		
		CO_2	N_2O	CH_4
Member Vehicle Emission Factor[4]		331	0.006	0.003
Employee Vehicle Emission Factor[4]		324	0.006	0.003
Delivery Trucks[2]				
HHDT	Dsl	1604.00	0.25	0.00

Notes:

[1] Data obtained from EMFAC2021 for default emissions activity.

[2] Delivery trucks are assumed to be diesel-fueled.

[3] Emission factors for EMFAC vehicle classes are estimated as a ratio of the EMFAC emissions output and EMFAC VMT output.

[4] Emission factors for EMFAC vehicle classes are weighted based on the project-specific fleet mix in Table B-2 to estimate trip-based emission factors for passenger vehicles.

Abbreviations:

CH_4 - methane
CO_2 - carbon dioxide
Dsl - Diesel
Elec - Electric
EMFAC - EMission FACtors model
LDA - Light Duty Automobile
LDT - Light-Duty Truck
HHDT - Heavy-Heavy Duty truck
MDV - medium-duty vehicle
N_2O - nitrous oxide
Phe - Plug-in hybrid
VMT - vehicle miles traveled

Conversion Factor:

907184.74 grams per ton

Table B-4. Operational Mobile Source GHG Emission Factors - Starting Exhaust
Costco Commercial Center
Fresno, California

EMFAC Vehicle Class	Fuel	EMFAC Vehicle Trips Output[1] (trips/day)	EMFAC Emissions Output[1] (tons/day)		
			CO_2	N_2O	CH_4
Passenger Vehicles					
LDA	Gas	1,459,129	115.4	0.1	0.119
LDA	Phe	31,224	2.29	0.0	0.001
LDA	Elec	56,838	0	0	0
LDA	Dsl	3,207	0	0	0
LDT1	Gas	135,565	13.9	0.0	0.021
LDT1	Phe	83	0.0066	0.000	0.0
LDT1	Elec	118	0	0	0
LDT1	Dsl	62	0	0	0
LDT2	Gas	657,946	66.5	0.0	0.067
LDT2	Phe	3,337	0.290	0.0	0.000
LDT2	Elec	2,516	0	0	0
LDT2	Dsl	1,661	0	0	0
MDV	Gas	598,810	75.1	0.0	0.081
MDV	Phe	2,568	0.3	0.0	0.000
MDV	Elec	2,761	0	0	0
MDV	Dsl	8,640	0	0	0
Delivery Trucks[2]					
HHDT	Dsl	237,288	0.0	0.0	0.0

Vehicle Class	Fuel	Starting Exhaust Emission Factors[3] (grams/trip)		
		CO_2	N_2O	CH_4
Passenger Vehicles				
LDA	Gas	71.73	0.03	0.0742
LDA	Phe	66.44	0.02	0.0416
LDA	Elec	0	0	0
LDA	Dsl	0	0	0
LDT1	Gas	93.34	0.04	0.1408
LDT1	Phe	72.34	0.02	0.0416
LDT1	Elec	0	0	0
LDT1	Dsl	0	0	0
LDT2	Gas	91.64	0.04	0.0925
LDT2	Phe	78.85	0.02	0.0416
LDT2	Elec	0	0	0
LDT2	Dsl	0	0	0
MDV	Gas	113.71	0.05	0.1229
MDV	Phe	99.36	0.02	0.0416
MDV	Elec	0	0	0
MDV	Dsl	0	0	0
Member Vehicle Weighted Emission Factor[4]		84	0.038	0.090
Employee Vehicle Weighted Emission Factor[4]		82	0.037	0.087

Table B-4. Operational Mobile Source GHG Emission Factors - Starting Exhaust
Costco Commercial Center
Fresno, California

Vehicle Class	Fuel	Starting Exhaust Emission Factors[3] (grams/trip)		
		CO_2	N_2O	CH_4
Delivery Trucks[2]				
HHDT	Dsl	0.0	0.0	0.0

Notes:

[1] Data obtained from EMFAC2021 for default emissions activity.

[2] Delivery trucks are assumed to be diesel-fueled.

[3] Emission factors for EMFAC vehicle classes are estimated as a ratio of the EMFAC emissions output and EMFAC VMT output.

[4] Emission factors for EMFAC vehicle classes are weighted based on the project-specific fleet mix in Table B-2 to estimate trip-based emission factors for passenger vehicles.

Abbreviations:

CH_4 - methane
CO_2 - carbon dioxide
Dsl - Diesel
Elec - Electric
EMFAC - EMission FACtors model
LDA - Light Duty Automobile
LDT - Light-Duty Truck
HHDT - Heavy-Heavy Duty truck
MDV - medium-duty vehicle
N_2O - nitrous oxide
Phe - Plug-in hybrid
VMT - vehicle miles traveled

Conversion Factor:

907184.74 grams per ton

Table B-5. Operational Mobile Source GHG Emission Factors - Idling Exhaust
Costco Commercial Center
Fresno, California

EMFAC Vehicle Class	Fuel	Idling Emission Factors[1] (grams/idle-minute)		
		CO_2	N_2O	CH_4
Passenger Vehicles				
LDA	Gas	27.7	0	0.0007
LDA	Phe	17.1	0	0.0002
LDA	Elec	0.0	0	0.0000
LDA	Dsl	25.1	0	0.0006
LDT1	Gas	33.2	0	0.0023
LDT1	Phe	15.5	0	0.0002
LDT1	Elec	0.0	0	0.0000
LDT1	Dsl	43.0	0	0.0023
LDT2	Gas	34.9	0	0.0009
LDT2	Phe	16.1	0	0.0002
LDT2	Elec	0.0	0	0.0000
LDT2	Dsl	32.9	0	0.0005
MDV	Gas	43.1	0	0.0013
MDV	Phe	16.9	0	0.0002
MDV	Elec	0.0	0	0.0000
MDV	Dsl	41.6	0	0.0004
Member Vehicle Weighted Emission Factor[2]		32.0	0	0.0009
Employee Vehicle Weighted Emission Factor[2]		31.3	0	0.0009
Delivery Trucks[3]				
HHDT	Dsl	224.0	0	0.0021

Notes:

[1] Data obtained from EMFAC2021 project-level output. Passenger vehicle emission rates are equivalent to the running exhaust emission rate in grams per mile at 5 mph, multiplied by the speed correction factor of 2.5 mph.

[2] Emission factors for EMFAC vehicle classes are weighted based on the project-specific fleet mix in Table B-2 to estimate trip-based emission factors for passenger vehicles.

[3] Delivery trucks are assumed to be diesel-fueled.

Abbreviations:

CH_4 - methane
CO_2 - carbon dioxide
Dsl - Diesel
Elec - Electric
EMFAC - EMission FACtors model
LDA - Light Duty Automobile
mph - miles per hour
LDT - Light-Duty Truck
HHDT - Heavy-Heavy Duty truck
MDV - medium-duty vehicle
N_2O - nitrous oxide
Phe - Plug-in hybrid
VMT - vehicle miles traveled

Conversion Factor:

60 minutes per hour

Table B-6a. Greenhouse Gas Emission Estimates for Operational Mobile Sources (Herndon/Riverside)
Costco Commercial Center
Fresno, California

Mobile Source Activity	Trip Type	Trip Distance[1] (miles)	Annual Average Trips[1] (one-way trips/year)	Annual Average VMT[1] (miles/year)	Idle Duration[2,3] (minutes/year)	GHG Emissions[4] (MT/yr)			
						CO_2	N_2O	CH_4	CO_2e[5]
Member Vehicles	Primary	17.3	3,666,790	63,337,720	--	21,293	0.54	0.54	21,468.0
	Diverted	1.0	1,473,870	1,503,435	--	622.32	0.07	0.14	645.2
	Pass-By	0.10	1,382,620	138,262	--	162.36	0.05	0.12	181.3
Warehouse, Fuel Station, and Car Wash Employee Vehicles	Primary	30.7	109,500	3,361,650	--	1,099	0.03	0.02	1,106.9
MDO Driver and Warehouse Employee Vehicles	Primary	30.70	49,640	1,523,875	--	498	0.01	0.01	501.8
MDO Delivery Trucks	Primary	81.5	7,300	594,950	18,250	958	0.15	0.00	1,003.2
Fuel Delivery Trucks	Primary	125.0	5,110	638,750	12,775	1,027	0.16	0.00	1,075.5
Warehouse Delivery Trucks	Primary	125.0	9,490	1,186,250	23,725	1,908	0.30	0.00	1,997.4
Member Vehicle Idling at Gasoline Dispensing Facility	Primary	--	--	--	33,638,400	1,076	0.00	0.03	1,076.5
					Total Emissions	28,643	1.31	0.86	29,056

Notes

[1] Data obtained from Table B-1a.

[2] Idle duration for passenger vehicles visiting the gas station is estimated using a maximum queue length of 3 vehicles per queue lane and a transaction time of 4 minutes per vehicle. The queue is assumed to stay constant while the gas station is open (6 AM to 10 PM), 7 days/week. Queue length is based on Saturday midday peak hour average queue length projections from existing Costco facilities provided by Kittelson & Associates.

[3] Delivery truck idle duration is 5 minutes based on the CARB Air Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling. Available at: https://ww2.arb.ca.gov/our-work/programs/atcm-to-limit-vehicle-idling/about. Accessed: September 2021. For GDF idling this is actually idling duration in units of minutes per year.

[4] GHG emissions include running exhaust, starting exhaust, and idling exhaust. Emissions were estimated using emission factors from Tables B-3, B-4, and B-5 along with annual VMT, annual trips, and idle duration.

[5] CO_2e was estimated using the global warming potentials of CO_2, CH_4, and N_2O, which are 1, 25, and 298 respectively.

Abbreviations:

CH_4 - methane
CO_2 - carbon dioxide
MT - metric tonnes
N_2O - nitrous oxide
VMT - vehicle miles traveled
yr - year

Table B-6b. Greenhouse Gas Emission Estimates for Operational Mobile Sources (4500 W. Shaw Avenue)
Costco Commercial Center
Fresno, California

Mobile Source Activity	Trip Type	Annual Average Trips[1] (one-way trips/year)	Annual Average VMT[1] (miles/year)	GHG Emissions[2] (MT/yr)			
				CO_2	N_2O	CH_4	CO_2e[3]
Passenger Vehicles	Primary	497,495	21,266,360	7,087	0.15	0.11	7,136
	Pass-by	17,520	0	1.48	0.00	0.00	1.7
	Diverted	766,135	1,256,330	481	0.04	0.07	494
Total Emissions				**7,570**	**0.19**	**0.19**	**7,632**

Notes

[1] Data obtained from Table B-1b.

[2] GHG emissions include running exhaust and starting exhaust. Emissions were estimated using emission factors from Tables B-3 and B-4 along with annual VMT and annual trips.

[3] CO_2e was estimated using the global warming potentials of CO_2, CH_4, and N_2O, which are 1, 25, and 298, respectively.

Abbreviations:

CH_4 - methane
CO_2 - carbon dioxide
MT - metric tonnes
N_2O - nitrous oxide
VMT - vehicle miles traveled
yr - year

APPENDIX C
GHG CONSISTENCY

Table C-1. Consistency with 2022 CARB Scoping Plan Update
Costco Commercial Center
Fresno, California

Priority Areas	Priority GHG Reduction Strategies	Consistency
Transportation Electrification	Convert local government fleets to ZEVs and provide EV charging at public sites	**Consistent.** Although this goal is not applicable to an individual commercial development project, the Project includes an EV parking requirement and includes 45 installed EV spaces.
	Create a jurisdiction-specific ZEV ecosystem to support deployment of ZEVs statewide (such as building standards that exceed state building codes, permit streamlining, infrastructure siting, consumer education, preferential parking policies, and ZEV readiness plans)	
VMT Reduction	Reduce or eliminate minimum parking standards	**Consistent.** Although this goal is not applicable to an individual commercial development project, the Project is implementing neighborhood design improvements such as pedestrian network improvements and constructing bikeway facilities as part of the project. The Project also includes a redesignation from Expressway Area to Superarterial, which allows for multiple modes of travel traffic, including pedestrian and bikes. This could lead to further development of these types of non-vehicular facilities, including bike lanes and sidewalks, which are not currently allowed under the Expressway Area designation. In addition, the Project plans to encourage employee commute trip reduction through a variety of strategies. The project will provide carpool incentives, partner with local agencies to provide vanpool services, subsidize transit passes and provide bicycle storage and locker rooms for employees who bike to work. This will reduce the employee VMT and provide incentives for employees to commute to work alternative ways.
	Implement Complete Streets policies and investments, consistent with general plan circulation element requirements	
	Increase access to public transit by increasing density of development near transit, improving transit service by increasing service frequency, creating bus priority lanes, reducing or eliminating fares, microtransit, etc.	
	Increase public access to clean mobility options by planning for and investing in electric shuttles, bike share, car share, and walking	
	Implement parking pricing or transportation demand management pricing strategies	
	Amend zoning or development codes to enable mixed-use, walkable, transit-oriented, and compact infill development (such as increasing the allowable density of a neighborhood)	
	Preserve natural and working lands by implementing land use policies that guide development toward infill areas and do not convert "greenfield" land to urban uses (e.g., green belts, strategic conservation easements)	
Building Decarbonization	Adopt all-electric new construction reach codes for residential and commercial uses	**Consistent.** Although this goal is not applicable to an individual commercial development project, the Project plans to use PG&E's Solar Choice program, which provides 100% solar energy to customers. In addition, to the extent applicable to the Project, the Project would meet the CalGreen Building Standards Code in effect at the time of building permit application, which would include a number of energy saving requirements.
	Adopt policies and incentive programs to implement energy efficiency retrofits for existing buildings, such as weatherization, lighting upgrades, and replacing energy-intensive appliances and equipment with more efficient systems (such as Energy Star-rated equipment and equipment controllers)	
	Adopt policies and incentive programs to electrify all appliances and equipment in existing buildings such as appliance rebates, existing building reach codes, or time of sale electrification ordinances	
	Facilitate deployment of renewable energy production and distribution and energy storage on privately owned land uses (e.g., permit streamlining, information sharing)	
	Deploy renewable energy production and energy storage directly in new public projects and on existing public facilities (e.g., solar photovoltaic systems on rooftops of municipal buildings and on canopies in public parking lots, battery storage systems in municipal buildings)	

Abbreviations:
CalGreen - California Green Building Standards Code
CARB - California Air Resources Board
EV - electric vehicle
GHG - greenhouse gas
PG&E - Pacific Gas & Electric
VMT - vehicle miles traveled
ZEV - zero emission vehicle

Table C-2. Consistency with Fresno Regional Transportation Plan/Sustainable Communities Strategy
Costco Commercial Center
Fresno, California

#	Goal	Policy	Consistency Analysis
1	Improved mobility and accessibility for all	Encourage and prioritize full, fair, and equitable participation by all affected communities in transportation decision-making and planning processes.	**Consistent.** Although this goal is not applicable to an individual commercial development project, it is envisioned that Project's location will provide convenient access for nearby residences for additional retail shopping experiences. In addition, the project is implementing neighborhood design improvements such as pedestrian network improvements and constructing bikeway facilities as part of the project, and will be located in close proximity to transit stops (e.g., NW Herndon-Hayes transit stop).
		Actively work to ensure equitable distribution of the benefits and burdens of transportation projects.	
		Promote the improvement and expansion of accessible transportation options to serve the needs of all residents, especially those who have historically faced disproportionate transportation burdens.	
2	Vibrant communities that are accessible by sustainable transportation options	Encourage alternatives to single-occupancy vehicles that reduce vehicle miles traveled (VMT) and greenhouse gas emissions.	**Consistent.** Although this goal is not applicable to an individual commercial development project, the Project includes a redesignation from Expressway Area to Superarterial, which allows for multiple modes of travel traffic, including pedestrian and bikes. This could lead to further development of these types of non-vehicular facilities, including bike lanes and sidewalks, which are not currently allowed under the Expressway Area designation. In addition, the project is implementing neighborhood design improvements such as pedestrian network improvements and constructing bikeway facilities as part of the project. The Project will be located nearby transit facilities such as the NW Herndon-Hayes transit stop, thus allowing for alternatives to single-occupancy vehicle visits to the Project that would support efforts to improve air quality and minimize pollutants from transportation.
		Support investment in and promotion of active transportation and transit to improve public health and mobility, especially in historically underinvested areas.	
		Encourage sustainable development that focuses growth near activity centers and mobility options that achieve greater location efficiency.	
		Support local jurisdictions' efforts to minimize the loss of farmland, environmentally sensitive areas, and natural resources	
		Support local jurisdictions' efforts to facilitate the development of diverse housing choices for all income groups.	
		Facilitate and promote interagency coordination and consistency across planning efforts.	
		Incentivize and support efforts to improve air quality and minimize pollutants from transportation.	
3	A safe, well-maintained, efficient, and climate-resilient multimodal transportation network	Prioritize investment in and promote multimodal safety measures to reduce traffic fatalities and incidents in the region.	**Consistent.** Per the Transportation Impact Analysis, the Project would be consistent with the applicable plans, policies, and programs and would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. The Project plans to encourage commute trip reduction through a variety of strategies. The Project will provide carpool incentives, partner with local agencies to provide vanpool services, subsidize transit passes and provide bicycle storage and locker rooms for employees who bike to work. This will reduce the employee VMT and provide incentives for employees to commute to work alternative ways. The Project is implementing neighborhood design improvements such as pedestrian network improvements and constructing bikeway facilities as part of the project. In addition, the Project would be located nearby to transit stops and thus would allow for utilization of existing transit facilities to visit the Project.
		Promote enhanced Transportation Systems Management (TSM) and Transportation Demand Management (TDM) strategies to reduce congestion and vehicle miles traveled.	
		Encourage improvements in travel connections across all modes to create an integrated, accessible, and seamless transportation network.	
		Maximize the cost-effectiveness of transportation improvements.	
		Encourage investments that increase the system's resilience to extreme weather events, natural disasters, and pandemics.	
		Preserve and maintain existing multimodal transportation assets in a state of good repair	
4	A transportation network that supports a sustainable and vibrant economy	Support local and regional economic development by leveraging planning and transportation funds that foster public and private investment.	**Consistent.** Although this goal is not applicable to an individual commercial development project, the Project will facilitate goods movement to the Fresno area and provide approximately 165 to 175 jobs.
		Facilitate efficient, reliable, resilient, and sustainable goods movement.	
5	A region embracing clean transportation, technology, and innovation	Support innovative mobility solutions that are accessible, affordable, reduce greenhouse gas emissions, and improve air quality.	**Consistent.** Although this goal is not applicable to an individual commercial development project, the Project would be located nearby to transit stops and thus would allow for utilization of existing transit facilities to visit the Project. In addition, the Project includes an EV parking requirement and includes 45 installed EV spaces.
		Support efforts to expand broadband access throughout the region.	**Not Applicable.**

Abbreviations:
EV - electric vehicle
NW - northwest
TDM - Transportation Demand Management
TSM - Transportation Systems Management
VMT - vehicle miles traveled

3. Greenhouse Gas (GHG) Reduction Plan Update - CEQA Project Consistency Checklist

GHG Reduction Plan Update consistency review involves the evaluation of project consistency with the applicable strategies of the GHG Reduction Plan Update. The GHG reduction strategies identified in the GHG Reduction Plan Update relies upon the General Plan and additional local measures as the basis of the development related strategies to reduce GHG emissions. This checklist is developed based on the key local GHG reduction strategies and actions identified in the GHG Reduction Plan Update that are applicable to proposed development projects. Note that not all strategies listed below will apply to all projects. For example, not all projects will meet mixed-use related policies of the General Plan, because not all projects are required to be mixed use.

Checklist Item (Check the appropriate box and provide an explanation for your answer)	Relevant General Plan Policy	Yes	No	Not Applicable (NA)	Explanation
1: Land Use and Transportation Demand Strategies					
a. Does the project include mixed-use, development? For GHG Reduction Plan consistency, mixed-use development is defined as pedestrian-friendly development that blends two or more residential, commercial, cultural, or institutional, uses, one of which must be residential	Policy UF-1-c, LU-3-b, Objective-UF 12, UF-12-a, UF-12-b, UF-12-d, Policy RC-2-a			NA	The project is not a mixed-use development as it does not include residential development.
b. Is the project high density? For GHG Reduction Plan consistency, is the project developed at 12 units per acre or higher?	LU-5-f			NA	The project is not high density.
c. Is the project infill development, pursuant to the General Plan definition of location within the City limits as of December 31, 2012?	LU-2-a, Objective-12, UF-12-a, UF-12-b, UF-12-d	yes			
d. Does the project implement pedestrian bicycle, and transit linkages with surrounding land uses and neighborhoods? For GHG Reduction Plan consistency, the project must include all sidewalks, paths, trails, and facilities required by the General Plan and Active Transportation Plan, as implemented through the Fresno Municipal Code and project conditions of approval.	Policy UF-1-c, UF-12-e, Policy RC-2-a, Objective MT-4,5,6, Policy MT-4-c, Policy MT-6-a, Policy POSS-7-h Objective MT 8, Policies MT-8-a, MT-8-b	yes			The project implements pedestrian, bicycle, and transit linkages to surrounding land uses and neighborhoods consistent with Fresno's General Plan and Active Transportation Plan.
e. If the project includes mixed-use or high density development, is it located within ½ mile of a High Quality Transit Area as defined in the City's CEQA Guidelines for Vehicle Miles Traveled? Or, is the project located within 500 feet of an existing or planned transit stop?	Policy UF-12-a, UF-12-b, LU-3-b, Objective MT 8, Policies MT-8-a, MT-8-b			NA	The project is not a mixed-use or high density development
f. Will the project accommodate a large employer (over 100 employees) and will it implement trip reduction programs such as increasing transit use, carpooling, vanpooling, bicycling, or other measures to reduce vehicle miles traveled pursuant to San Joaquin Valley Air Pollution Control District Rule 9410? See the SJVAPCD website for details: https://www.valleyair.org/rules/currntrules/r9410.pdf	Policy MT-8-b, Objective MT-9, Policy MT-10-c, San Joaquin Valley Air Pollution Control District Rule 9410	yes			The project will implement trip reduction programs to encourage carpooling and other measures to reduce employee VMT.

Checklist Item (Check the appropriate box and provide an explanation for your answer)	Relevant General Plan Policy	Yes	No	Not Applicable (NA)	Explanation
g. If the project includes modifications to the transportation network, do those improvements meet the requirements of the City of Fresno's Complete Streets Policy, adopted in October 2019? According to the policy, a complete street is a transportation facility that is planned, designed, operated, and maintained to provide safe mobility for all users - including bicyclists, pedestrians, transit vehicles, trucks, and motorists - appropriate to the function and context of the facility while connecting to a larger transportation network. See City of Fresno website for details: https://www.fresno.gov/publicworks/wp-content/uploads/sites/17/2019/10/Complete-Streets-091119.pdf	MT-1-g, MT-1-h	yes			The project includes modifications to the transportation network consistent with the City's Complete Streets Policy. Such improvements include constructing sidewalk along the project frontage, constructing a multi-use path, and installing striping to better delineate the roadway cross section for different users.
h. Does the project have a less than significant VMT impact, either through satisfying screening criteria or mitigating VMT impacts, pursuant to the City's adopted VMT thresholds? See City of Fresno website for details: https://www.fresno.gov/darm/wp-content/uploads/sites/10/2021/01/CEQA-Guidelines-for-Vehicle-Miles-Traveled-Final-Adopted-Version.pdf	MT-2-b, MT-2-c	no			The project has a significant VMT impact.
2: Electric Vehicle Strategies					
a. For new multi-family dwelling units with parking, does the project provide EV charging spaces capable of supporting future EV supply equipment (EV capable) at 10% of the parking spaces per 2019 California Green Building Standards Code (CALGREEN, Title 24, Part 11), Section 4.106.4	Policy RC-8-j			NA	The project does not consist of multi-family dwelling units.
b. For new commercial buildings, does project provide EV charging spaces capable of supporting EV capable spaces at 4% to 10% of the parking spaces per 2019 California Green Building Standards Code (CALGREEN, Title 24, Part 11), Section 5.106.5.3	Policy RC-8-j	yes			Of 889 parking spaces, there will be 45 installed EV spaces, which is 5% of the parking spaces (in range).
3: Energy Conservation Strategies					
a. Does the project meet or exceed mandatory state building energy codes? If yes, does the project follow any other GreenPoint ratings such as LEED, Energy Star or others? If yes, indicate level of certification-Silver, gold, platinum if applicable?	Policy RC-5-c, Objective RC-8, Policy RC 8-a	yes			The project meets mandatory building energy codes; Costco's warehouse designs are consistent with the requirements of LEED.
b. For commercial projects, does the project achieve net zero emissions electricity? Mark NA if project will be permitted before 2030. Mark Yes if voluntary. Add source and capacity in explanation.	Additional Recommended GHG Plan Measure, supports Objective RC-8			NA	Project buildout is in 2023.

Checklist Item (Check the appropriate box and provide an explanation for your answer)	Relevant General Plan Policy	Yes	No	Not Applicable (NA)	Explanation
4: Water Conservation Strategies					
a. Does the project meet or exceed the mandatory outdoor water use measures of the 2019 California Green Building Standards Code (CALGREEN, Title 24, Part 11), Section 4.304? If the project exceeds CalGreen Code mandatory measures provide methods in excess of requirements in the explanation. Examples include outdoor water conservation measures such as; drought tolerant landscaping plants, compliant irrigation systems, xeriscape, replacing turf etc. Provide the conservation measure that the project will include in the explanation.	Objective RC-7, Policy RC-7-a, RC-7-h	yes			The project meets the mandatory outdoor water use measures.
b. Does the project meet or exceed the mandatory indoor water use measures of the 2019 California Green Building Standards Code (CALGREEN, Title 24, Part 11), Section 4.303? If the project exceeds CalGreen Code, mandatory measures provide methods in excess of requirements in the explanation. Examples may include water conserving devices and systems such as water leak detection system, hot water pipe insulation, pressure reducing valves, energy efficient appliances such as Energy Star Certified dishwashers, washing machines, dual flush toilets, point of use and/or tankless water heaters.	Objective RC-7, Policy RC-7-a, RC-7-e	yes			The project meets the mandatory indoor water use measures. High-efficiency restroom fixtures save 40% more water.
5: Waste Diversion and Recycling Strategies					
a. Does the project implement techniques of solid waste segregation, disposal and reduction, such as recycling, composting, waste to energy technology, and/or waste separation, to reduce the volume of solid wastes that must be sent to landfill facilities?	Policy PU-9-a, RC-11-a	yes			Costco prefers full metal buildings in order to use the maximum amount of recycled material.
b. During construction will the project recycle construction and demolition waste?	Policy RC-11-a	yes			The project will recycle construction and demolition waste.
c. Does the project provide recycling canisters in public areas where trashcans are also provided?	Policy RC-11-a	yes			The project will provide recycling canisters.

Note: The GHG reduction strategies included in this checklist are based on the GHG reduction strategies identified in the Chapter 5 of the GHG Reduction Plan Update.