

## APPENDIX F: GREENHOUSE GAS ANALYSIS

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# **Pepper Avenue Specific Plan Amendment and Industrial Warehouse Project GREENHOUSE GAS ANALYSIS CITY OF RIALTO**

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## **LIST OF ABBREVIATED TERMS**

%	Percent
°C	Degrees Celsius
°F	Degrees Fahrenheit
(1)	Reference
2017 Scoping Plan	Final 2017 Scoping Plan Update
AB	Assembly Bill
AB 32	Global Warming Solutions Act of 2006
AB 1493	Pavley Fuel Efficiency Standards
AB 1881	California Water Conservation Landscaping Act of 2006
Annex I	Industrialized Nations
APA	Administrative Procedure Act
AQIA	<i>Pepper Avenue Specific Plan Amendment and Industrial Warehouse Project Air Quality Impact Analysis</i>
BAU	Business as Usual
C <sub>2</sub> F <sub>6</sub>	Hexafluoroethane
C <sub>2</sub> H <sub>6</sub>	Ethane
C <sub>2</sub> H <sub>2</sub> F <sub>4</sub>	Tetrafluoroethane
C <sub>2</sub> H <sub>4</sub> F <sub>2</sub>	Ethylidene Fluoride
CAA	Federal Clean Air Act
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
CALGAPS	California LBNL GHG Analysis of Policies Spreadsheet
CALGreen	California Green Building Standards Code
CalSTA	California State Transportation Agency
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resource Board
CBSC	California Building Standards Commission
CEC	California Energy Commission
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
<i>CEQA Guidelines</i>	<i>2019 CEQA Statute and Guidelines</i>
CDFA	California Department of Food and Agriculture
CF <sub>4</sub>	Tetrafluoromethane

CFC	Chlorofluorocarbons
CFC-113	Trichlorotrifluoroethane
CH <sub>4</sub>	Methane
City	City of Rialto
CNRA	California Natural Resources Agency
<i>CNRA 2009</i>	<i>2009 California Climate Adaptation Strategy</i>
CO <sub>2</sub>	Carbon Dioxide
CO <sub>2</sub> e	Carbon Dioxide Equivalent
Convention	United Nation's Framework Convention on Climate Change
COP	Conference of the Parties
CPUC	California Public Utilities Commission
CTC	California Transportation Commission
DOF	Department of Finance
DWR	Department of Water Resources
EMFAC	Emission Factor Model
EPA	Environmental Protection Agency
EV	Electric Vehicle
FED	Functional Equivalent Document
GCC	Global Climate Change
Gg	Gigagram
GHGA	Greenhouse Gas Analysis
GO-Biz	Governor's Office of Business and Economic Development
gpd	Gallons Per Day
gpm	Gallons Per Minute
GWP	Global Warming Potential
H <sub>2</sub> O	Water
HFC	Hydrofluorocarbons
HDT	Heavy-Duty Trucks
HFC-23	Fluoroform
HFC-134a	1,1,1,2-tetrafluoroethane
HFC-152a	1,1-difluoroethane
HHDT	Heavy-Heavy-Duty Trucks
hp	Horsepower
I-210	Interstate 210
IBANK	California Infrastructure and Economic Development Bank
IPCC	Intergovernmental Panel on Climate Change
IRP	Integrated Resource Planning
ISO	Independent System Operator

ITE	Institute of Transportation Engineers
kWh	Kilowatt Hours
lbs	Pounds
LBNL	Lawrence Berkeley National Laboratory
LCA	Life-Cycle Analysis
LCD	Liquid Crystal Display
LCFS	Low Carbon Fuel Standard or Executive Order S-01-07
LDA	Light-Duty Auto
LDT1/LDT2	Light-Duty Trucks
LEV III	Low-Emission Vehicle
LHDT1/LHDT2	Light-Heavy-Duty Trucks
LULUCF	Land-Use, Land-Use Change and Forestry
MARB/IPA	March Air Reserve Base/Inland Port Airport
MCY	Motorcycles
MD	Medium Duty
MDT	Medium-Duty Trucks
MDV	Medium-Duty Vehicles
MHDT	Medium-Heavy-Duty Trucks
MMR	Mandatory Reporting Rule
MMTCO <sub>2e</sub>	Million Metric Ton of Carbon Dioxide Equivalent
mpg	Miles Per Gallon
MPOs	Metropolitan Planning Organizations
MMTCO <sub>2e</sub> /yr	Million Metric Ton of Carbon Dioxide Equivalent Per Year
MT/yr	Metric Tons Per Year
MTCO <sub>2e</sub>	Metric Ton of Carbon Dioxide Equivalent
MTCO <sub>2e</sub> /yr	Metric Ton of Carbon Dioxide Equivalent Per Year
MW	Megawatts
MWh	Megawatts Per Hour
MWELO	California Department of Water Resources' Model Water Efficient
N <sub>2</sub> O	Nitrous Oxide
NDC	Nationally Determined Contributions
NF <sub>3</sub>	Nitrogen Trifluoride
NHTSA	National Highway Traffic Safety Administration
NIOSH	National Institute for Occupational Safety and Health
NO <sub>x</sub>	Nitrogen Oxides
Non-Annex I	Developing Nations
OAL	Office of Administrative Law



OPR	Office of Planning and Research
PFC	Perfluorocarbons
ppb	Parts Per Billion
ppm	Parts Per Million
ppt	Parts Per Trillion
Project Warehouse Project	Pepper Avenue Specific Plan Amendment and Industrial Warehouse Project
RMC	Riverside Municipal Code
RTP	Regional Transportation Plan
SAFE	Safer Affordable Fuel-Efficient Vehicles Rule
SB	Senate Bill
SB 32	California Global Warming Solutions Act of 2006
SB 375	Regional GHG Emissions Reduction Targets/Sustainable Communities Strategies
SB 1078	Renewable Portfolio Standards
SB 1368	Statewide Retail Provider Emissions Performance Standards
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
Scoping Plan	California Air Resources Board Climate Change Scoping Plan
SCS	Sustainable Communities Strategy
sf	Square Feet
SF <sub>6</sub>	Sulfur Hexafluoride
SGC	Strategic Growth Council
SHGC	Solar Heat Gain Coefficient
SLPS	Short-Lived Climate Pollutant Strategy
SP	Service Population
SWCRB	State Water Resources Control Board
TA	<i>Pepper Avenue Specific Plan Amendment and Industrial Warehouse Project Traffic Analysis</i>
TDM	Transportation Demand Measures
Title 20	Appliance Energy Efficiency Standards
Title 24	California Building Code
TMA	Transportation Management Association
U.N.	United Nations
U.S.	United States

UNFCCC	United Nations' Framework Convention on Climate Change
URBEMIS	Urban Emissions
UTR	Utility Tractors
VFP	Vehicle Fueling Positions
VMT	Vehicle Miles Traveled
WCI	Western Climate Initiative
WRCOG	Western Riverside Council of Governments
WRI	World Resources Institute
ZE/NZE	Zero and Near-Zero Emissions
ZEV	Zero-Emissions Vehicles

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## EXECUTIVE SUMMARY

### ES.1 SUMMARY OF FINDINGS

The results of this *Pepper Avenue Specific Plan Amendment and Industrial Warehouse Project Greenhouse Gas Analysis* (GHGA) is summarized below based on the significance criteria in Section 3 of this report consistent with Appendix G of the *California Environmental Quality Act (CEQA) Guidelines* (CEQA Guidelines (1)). Table ES-1 shows the findings of significance for potential greenhouse gas (GHG) impacts under CEQA.

**TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS**

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
GHG Impact #1: Would the Project generate GHG emissions either directly or indirectly, that may have a significant impact on the environment?	3.7	<i>Potentially Significant</i>	<i>Significant and Unavoidable</i>
GHG Impact #2: Would the Project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs?	3.7	<i>Less Than Significant</i>	<i>n/a</i>

### ES.2 PROJECT REQUIREMENTS

The Project would be required to comply with regulations imposed by the State of California and the South Coast Air Quality Management District (SCAQMD) aimed at the reduction of air pollutant emissions. Those that are directly and indirectly applicable to the Project and that would assist in the reduction of GHG emissions include:

- Global Warming Solutions Act of 2006 (Assembly Bill (AB) 32) (2).
- Regional GHG Emissions Reduction Targets/Sustainable Communities Strategies (Senate Bill (SB) 375) (3).
- Pavley Fuel Efficiency Standards (AB 1493). Establishes fuel efficiency ratings for new vehicles (4).
- California Building Code (Title 24 California Code of Regulations (CCR)) and CALGreen standards. Establishes energy efficiency requirements for new construction (5).
- Appliance Energy Efficiency Standards (Title 20 CCR). Establishes energy efficiency requirements for appliances (6).
- Low Carbon Fuel Standard (LCFS). Requires carbon content of fuel sold in California to be 10 percent (%) less by 2020 (7).

- California Water Conservation in Landscaping Act of 2006 (AB 1881). Requires local agencies to adopt the Department of Water Resources updated Water Efficient Landscape Ordinance or equivalent by January 1, 2010, to ensure efficient landscapes in new development and reduced water waste in existing landscapes (8).
- Statewide Retail Provider Emissions Performance Standards (SB 1368). Requires energy generators to achieve performance standards for GHG emissions (9).
- Renewable Portfolio Standards (SB 1078 – also referred to as RPS). Requires electric corporations to increase the amount of energy obtained from eligible renewable energy resources to 20% by 2010 and 33% by 2020 (10).
- California Global Warming Solutions Act of 2006 (SB 32). Requires the state to reduce statewide GHG emissions to 40% below 1990 levels by 2030, a reduction target that was first introduced in Executive Order B-30-15 (11).

Promulgated regulations that will affect the Project's emissions are accounted for in the Project's GHG calculations provided in this report. In particular, AB 1493, LCFS, and RPS, and therefore are accounted for in the Project's emission calculations.

### **ES.3 MITIGATION MEASURES**

#### **OPERATIONAL-SOURCE MITIGATION MEASURES**

The Project would exceed regional thresholds of significance established by the SCAQMD. It is important to note that 79% of the Project's GHG emissions are derived from mobile-related activities. The *Pepper Avenue Specific Plan Amendment and Industrial Warehouse Project Air Quality Impact Analysis Report* (AQIA) identifies the following mitigation measures (MM AQ-1 through MM AQ-6), which are designed to reduce the mobile-source operational emissions but will not be sufficient enough to reduce the GHG emissions to less than the significant impacts.

#### **MM AQ-1**

Require Operational Equipment to Turn Off When Not in Use. Building operators/tenants shall ensure (by contract specifications) that equipment, including heavy-duty equipment, motor vehicles, and portable equipment, will be turned off when not in use for more than 5 minutes. Truck idling shall not exceed 5 minutes in time. All facilities will post signs requiring that trucks shall not be left idling for more than 5 minutes pursuant to Title 13 of the California Code of Regulations, Section 2485, which limits idle times to not more than 5 minutes.

#### **MM AQ-2**

Incorporate Environmental Protection Agency (EPA) Smartway Features. The City will require building operators/tenants to ensure that haul trucks incorporate EPA Smartway features, as required by California Air Resource Board (CARB). Project operators will maintain a daily log of incoming and outgoing haul trucks that are fitted with the combination of aerodynamic kits and low rolling resistance tires to reduce fuel consumption.

#### **MM AQ-3**

Incorporate Energy Efficiency in Vendor Trucks. The City will require building operators/tenants to encourage the vendor trucks to incorporate energy efficiency improvement features through

the Carl Moyer Program—including truck modernization, retrofits, and/or aerodynamic kits and low rolling resistance tires—to reduce fuel consumption.

#### **MM AQ-4**

Incorporate Electric Vehicle (EV) Charging Stations and Carpool Parking. The project will be designed to incorporate EV charging stations and a minimum of five carpool parking spaces at each building for employees and the public to use.

#### **MM AQ-5**

Provide Electric Interior Vehicles. All buildings will be designed to provide infrastructure to support use of electric-powered forklifts and/or other interior vehicles.

#### **MM AQ-6**

A Transportation Management Plan or similar mechanism shall be established by the Project Applicant. The Transportation Management Association (TMA) shall encourage and coordinate carpooling. The TMA shall advertise its services to the building occupants. The TMA shall offer transit incentives to employees and shall provide shuttle service to and from public transit, should a minimum of five (5) employees request and use such service from a transit stop at the same drop-off and/or pickup time. The TMA shall distribute public transportation information to its employees. The TMA shall provide electronic message board space for coordination rides.

#### **FEASIBILITY OF ADDITIONAL MITIGATION MEASURES**

As noted above, 79% of the mobile-source emissions derive from the operation of heavy-duty trucks (HDT). The CARB through its regulatory programs is aggressively reducing emissions from heavy duty vehicles through a combination of measures requiring the use of ultra-low sulfur diesel fuel, new emission standards, restrictions on idling, addition of post-combustion filter and catalyst equipment, and retrofits for diesel truck fleets. These programs are expected to result in significant reductions in emissions as they are fully implemented by 2023.

Federal and State agencies regulate and enforce vehicle emission standards. It is not feasible for the City of Rialto staff to effectively enforce a prohibition on trucks from entering the property that are otherwise permitted to operate in California and access other properties in the County, region, and State. Even if the City were to apply such a restriction, it would merely cause warehouse operators using truck fleets older than 2007/2010 to locate in another location in the SCAB where the restriction does not apply, thereby resulting in no improvement to regional air quality. Based on the regulatory changes discussed in Section 2.8, Regulatory Setting, most HDTs entering the project site will meet or exceed EPA 2007 and 2010 emission standards within a relatively short time after the Project becomes fully operational in 2023, and all such trucks entering the property will meet or exceed such standards by 2023. For instance, CARB projects that are approximately 50% of all instate heavy-heavy duty trucks (HHDT) will meet the 2010 engine standard in 2019. The percentage increases to 59% in 2020, 62% in 2021, 65% in 2022, and 90% by 2023 (12).

Since neither the Project Applicant nor the City have regulatory authority to control tailpipe emissions, no feasible mitigation measures exist that would reduce mobile-source emissions

emissions to levels that are less-than-significant, thus NO<sub>x</sub> emissions are considered significant and unavoidable.

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# **1 INTRODUCTION**

This report presents the results of the GHGA prepared by Urban Crossroads, Inc., for the proposed Pepper Avenue Specific Plan Amendment and Industrial Warehouse Project (Project). The purpose of this GHGA is to evaluate Project-related construction and operational emissions and determine the level of GHG impacts as a result of constructing and operating the Project.

## **1.1 SITE LOCATION**

The Pepper Avenue Specific Plan ("Specific Plan" or "Specific Plan area") is located within the northeast portion of the City of Rialto. The Specific Plan area is located east of Eucalyptus Avenue, south of Interstate 210 (I-210), west of Meridian Avenue and north of Walnut Avenue. Pepper Avenue bisects the Specific Plan area into two east and west halves of the site. The proposed industrial development Project is located on the east side of Pepper Avenue south of Interstate-210 (APNs 0264-201-05, -06, and portions of -26), in the City of Rialto, as shown on Exhibit 1-A.

The Project is surrounded by vacant uses. According to the City of Rialto General Plan, the Project site is located within the Pepper Avenue Specific Plan. As per the Specific Plan, the Project site is currently designated for Community Commercial land uses with a portion of the site within a Residential Overlay. The Community Commercial land use designation provides for a variety of retail, office, and service-oriented business activities that serve the local community, including supermarkets, restaurants, small-scale service businesses, and specialty retail stores. The Residential Overlay designates the location of a potential multi-family development that would be made possible by a comparable reduction of retail square footage (13).

## **1.2 PROJECT DESCRIPTION**

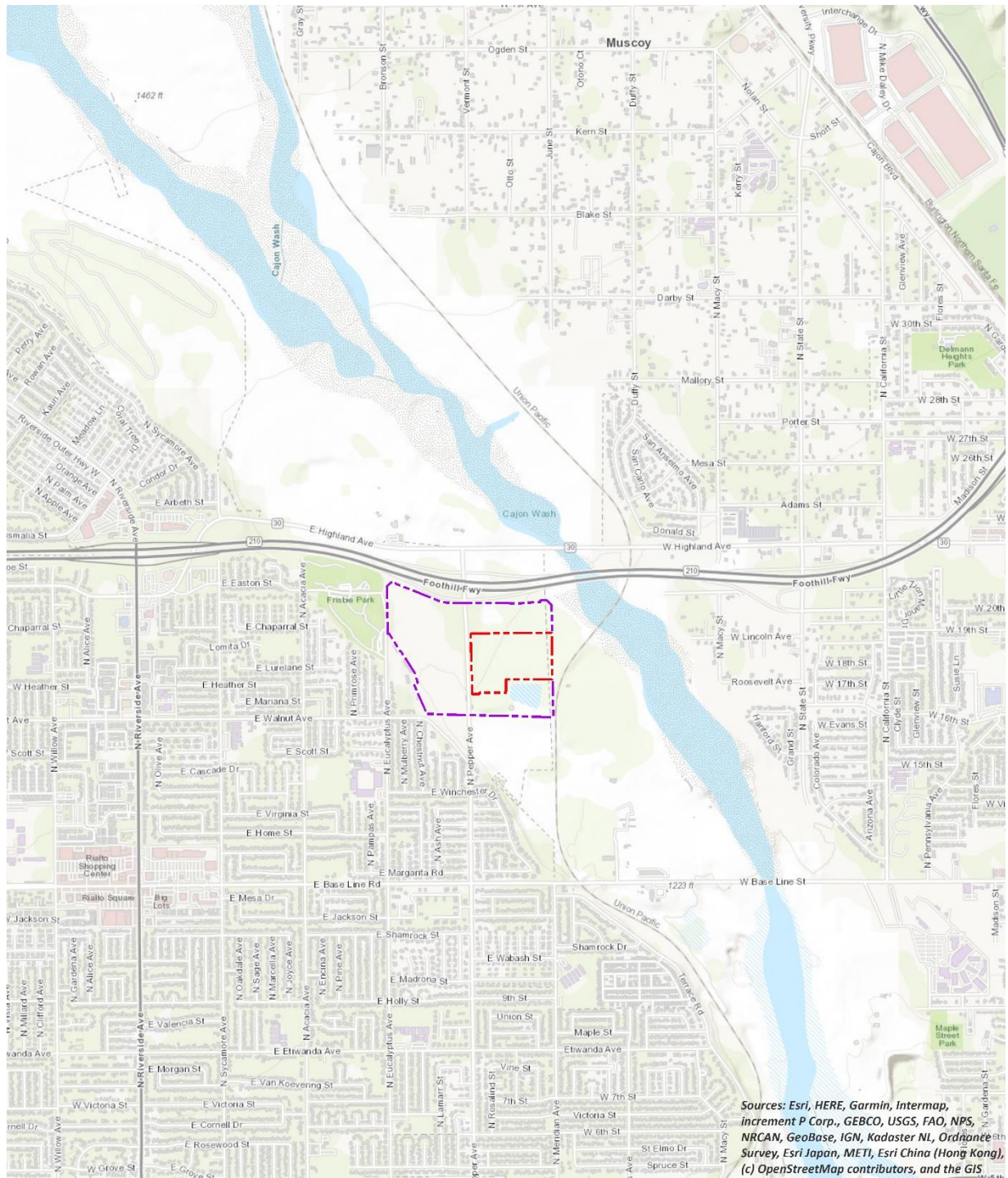
The proposed Specific Plan Amendment would redesignate the land use of approximately 35.56-acres of land on the east side of Pepper Avenue that is adjacent to the south of I-210 from Community Commercial to Light Industrial. Under the new land use, development would change from the anticipated buildout of a portion of the Pepper Avenue Specific Plan area from 125,000 square feet of business park uses and 351,650 square feet of retail uses to 735,185 square feet of light industrial uses and 13,000 square feet of retail uses, as detailed in Table 1.

In addition, the Project includes development and operation of a single 485,000 square foot (sf) warehouse building on PA 2 and PA3 (APNs 0264-201-05, -06, and -26), which is part of the buildout of the proposed Specific Plan Amendment. Although the site plan shows 470,000 sf, the analysis will be based on 485,000 sf to allow a contingency for future changes in the site plan and the proposed Specific Plan Amendment build out of PA 2 and PA 3 that the industrial development site. Therefore, the analysis of the proposed warehouse on PA 2 and PA 3 overstates the proposed development Project's impacts. It is anticipated that the proposed warehouse Project would be developed in a single phase with an anticipated Opening Year of 2023.

**TABLE 1-1: SUMMARY OF PROPOSED SPECIFIC PLAN AMENDMENT CHANGES TO PLANNING AREA BUILDOUT**

Existing Specific Plan				Proposed Specific Plan Amendment			
Planning Area	Acres	Land Use	Buildout	Planning Area	Acres	Land Use	Buildout
PA 1	15.1	Community Commercial	95,000 sf Business Park	PA 1	2.86	Community Commercial	13,000 sf Commercial and Retail
			108,650 sf Retail				
PA 2	14.6	Community Commercial	30,000 sf Business Park	PA 2	14.6	Light Industrial	295,000 sf Industrial
			127,000 sf Retail				
PA 3	9.4	Community Commercial w/ Residential Overlay	116,000 sf Retail	PA 3	9.4	Light Industrial w/ Residential Overlay	190,000 sf Industrial
				PA 10	11.56	Light Industrial	250,185 sf Industrial
Total Square Footage			476,650 sf	Total Square Footage			748,185 sf

## EXHIBIT 1-A: LOCATION MAP

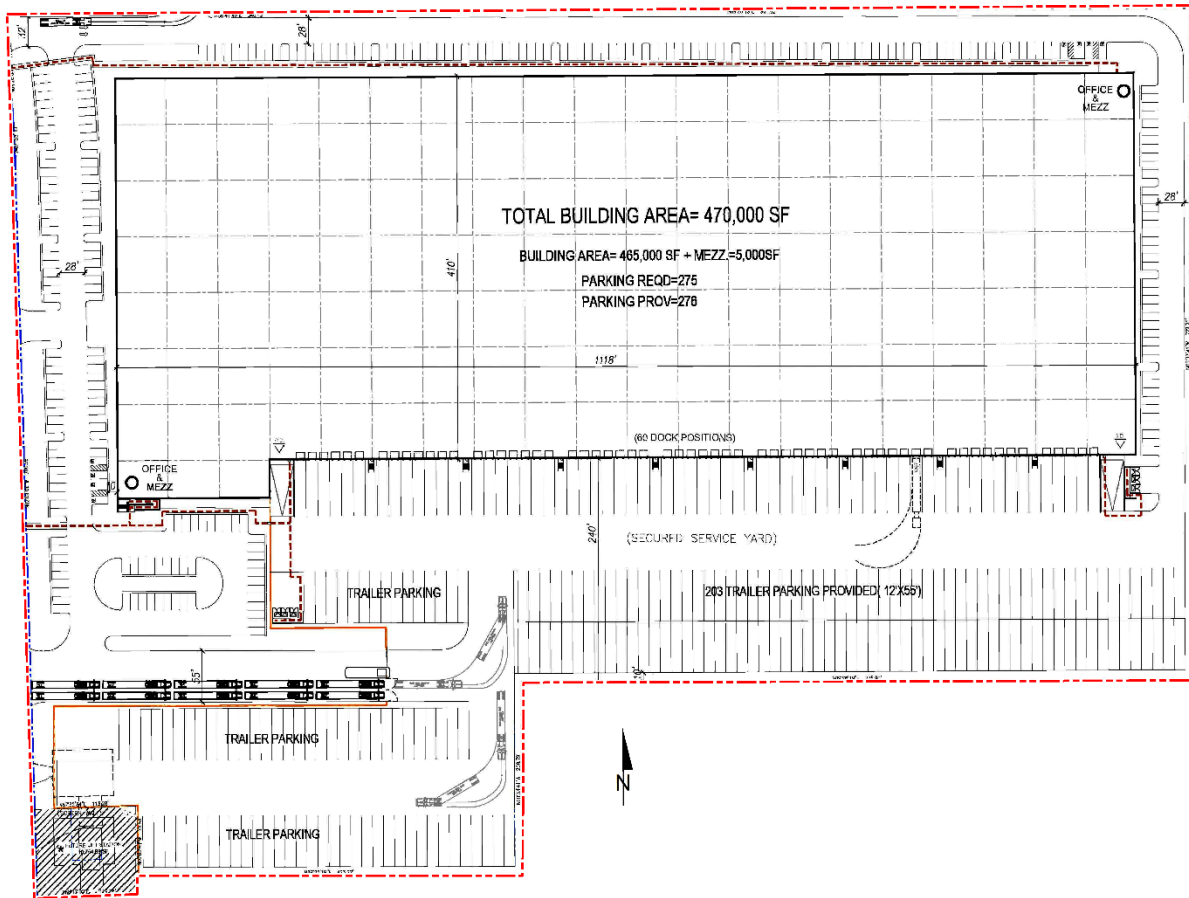


**LEGEND:**

Site Boundary

SP Boundary

## EXHIBIT 1-B: SITE PLAN



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## 2 CLIMATE CHANGE SETTING

### 2.1 INTRODUCTION TO GLOBAL CLIMATE CHANGE (GCC)

GCC is defined as the change in average meteorological conditions on the earth with respect to temperature, precipitation, and storms. The majority of scientists believe that the climate shift taking place since the Industrial Revolution is occurring at a quicker rate and magnitude than in the past. Scientific evidence suggests that GCC is the result of increased concentrations of GHGs in the earth's atmosphere, including carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), and fluorinated gases. The majority of scientists believe that this increased rate of climate change is the result of GHGs resulting from human activity and industrialization over the past 200 years.

An individual project like the proposed Project evaluated in this GHGA cannot generate enough GHG emissions to affect a discernible change in global climate. However, the proposed Project may participate in the potential for GCC by its incremental contribution of GHGs combined with the cumulative increase of all other sources of GHGs, which when taken together constitute potential influences on GCC. Because these changes may have serious environmental consequences, Section 3.0 will evaluate the potential for the proposed Project to have a significant effect upon the environment as a result of its potential contribution to the greenhouse effect.

### 2.2 GLOBAL CLIMATE CHANGE DEFINED

GCC refers to the change in average meteorological conditions on the earth with respect to temperature, wind patterns, precipitation, and storms. Global temperatures are regulated by naturally occurring atmospheric gases such as water vapor, CO<sub>2</sub>, N<sub>2</sub>O, CH<sub>4</sub>, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>). These particular gases are important due to their residence time (duration they stay) in the atmosphere, which ranges from 10 years to more than 100 years. These gases allow solar radiation into the earth's atmosphere, but prevent radioactive heat from escaping, thus warming the earth's atmosphere. GCC can occur naturally as it has in the past with the previous ice ages.

Gases that trap heat in the atmosphere are often referred to as GHGs. GHGs are released into the atmosphere by both natural and anthropogenic activity. Without the natural GHG effect, the earth's average temperature would be approximately 61 degrees Fahrenheit (°F) cooler than it is currently. The cumulative accumulation of these gases in the earth's atmosphere is considered to be the cause for the observed increase in the earth's temperature.

### 2.3 GHGs

#### 2.3.1 GHGs AND HEALTH EFFECTS

GHGs trap heat in the atmosphere, creating a GHG effect that results in global warming and climate change. Many gases demonstrate these properties and as discussed in Table 2-1. For the purposes of this analysis, emissions of CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O were evaluated (see Table 3-1 later in this report) because these gases are the primary contributors to GCC from development projects.

Although there are other substances such as fluorinated gases that also contribute to GCC, these fluorinated gases were not evaluated as their sources are not well-defined and do not contain accepted emissions factors or methodology to accurately calculate these gases.

**TABLE 2-1: GHGS**

GHGs	Description	Sources	Health Effects
Water	<p>Water is the most abundant, important, and variable GHG in the atmosphere. Water vapor is not considered a pollutant; in the atmosphere it maintains a climate necessary for life. Changes in its concentration are primarily considered to be a result of climate feedbacks related to the warming of the atmosphere rather than a direct result of industrialization. Climate feedback is an indirect, or secondary, change, either positive or negative, that occurs within the climate system in response to a forcing mechanism. The feedback loop in which water is involved is critically important to projecting future climate change.</p> <p>As the temperature of the atmosphere rises, more water is evaporated from ground storage (rivers, oceans, reservoirs, soil). Because the air is warmer, the relative humidity can be higher (in essence, the air is able to 'hold' more water when it is warmer), leading to more water vapor in the atmosphere. As a GHG, the higher concentration of water vapor is then able to absorb more thermal indirect energy radiated from the Earth, thus further warming the atmosphere. The warmer atmosphere can then hold more water vapor and so on and so on. This is referred to as a "positive feedback loop." The extent to which this positive feedback loop would continue is</p>	<p>The main source of water vapor is evaporation from the oceans (approximately 85%). Other sources include evaporation from other water bodies, sublimation (change from solid to gas) from sea ice and snow, and transpiration from plant leaves.</p>	<p>There are no known direct health effects related to water vapor at this time. It should be noted however that when some pollutants react with water vapor, the reaction forms a transport mechanism for some of these pollutants to enter the human body through water vapor.</p>

GHGs	Description	Sources	Health Effects
	unknown as there are also dynamics that hold the positive feedback loop in check. As an example, when water vapor increases in the atmosphere, more of it would eventually condense into clouds, which are more able to reflect incoming solar radiation (thus allowing less energy to reach the earth's surface and heat it up) (14).		
CO <sub>2</sub>	CO <sub>2</sub> is an odorless and colorless GHG. Since the industrial revolution began in the mid-1700s, the sort of human activity that increases GHG emissions has increased dramatically in scale and distribution. Data from the past 50 years suggests a corollary increase in levels and concentrations. As an example, prior to the industrial revolution, CO <sub>2</sub> concentrations were fairly stable at 280 parts per million (ppm). Today, they are around 370 ppm, an increase of more than 30%. Left unchecked, the concentration of CO <sub>2</sub> in the atmosphere is projected to increase to a minimum of 540 ppm by 2100 as a direct result of anthropogenic sources (15).	CO <sub>2</sub> is emitted from natural and manmade sources. Natural sources include: the decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources include: the burning of coal, oil, natural gas, and wood. CO <sub>2</sub> is naturally removed from the air by photosynthesis, dissolution into ocean water, transfer to soils and ice caps, and chemical weathering of carbonate rocks (16).	Outdoor levels of CO <sub>2</sub> are not high enough to result in negative health effects.  According to the National Institute for Occupational Safety and Health (NIOSH) high concentrations of CO <sub>2</sub> can result in health effects such as: headaches, dizziness, restlessness, difficulty breathing, sweating, increased heart rate, increased cardiac output, increased blood pressure, coma, asphyxia, and/or convulsions. It should be noted that current concentrations of CO <sub>2</sub> in the earth's atmosphere are estimated to be approximately 370 ppm, the actual reference exposure level (level at which adverse health effects typically occur) is at exposure levels of 5,000 ppm averaged over 10 hours in a 40-hour workweek and short-term reference exposure levels of 30,000 ppm averaged over a 15 minute period (17).



GHGs	Description	Sources	Health Effects
CH <sub>4</sub>	CH <sub>4</sub> is an extremely effective absorber of radiation, although its atmospheric concentration is less than CO <sub>2</sub> and its lifetime in the atmosphere is brief (10-12 years), compared to other GHGs.	CH <sub>4</sub> has both natural and anthropogenic sources. It is released as part of the biological processes in low oxygen environments, such as in swamplands or in rice production (at the roots of the plants). Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of CH <sub>4</sub> . Other anthropogenic sources include fossil-fuel combustion and biomass burning (18).	CH <sub>4</sub> is extremely reactive with oxidizers, halogens, and other halogen-containing compounds. Exposure to elevated levels of CH <sub>4</sub> can cause asphyxiation, loss of consciousness, headache and dizziness, nausea and vomiting, weakness, loss of coordination, and an increased breathing rate.
N <sub>2</sub> O	N <sub>2</sub> O, also known as laughing gas, is a colorless GHG. Concentrations of N <sub>2</sub> O also began to rise at the beginning of the industrial revolution. In 1998, the global concentration was 314 parts per billion (ppb).	N <sub>2</sub> O is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. It is used as an aerosol spray propellant, i.e., in whipped cream	N <sub>2</sub> O can cause dizziness, euphoria, and sometimes slight hallucinations. In small doses, it is considered harmless. However, in some cases, heavy and extended use can cause Olney's Lesions (brain damage) (19).

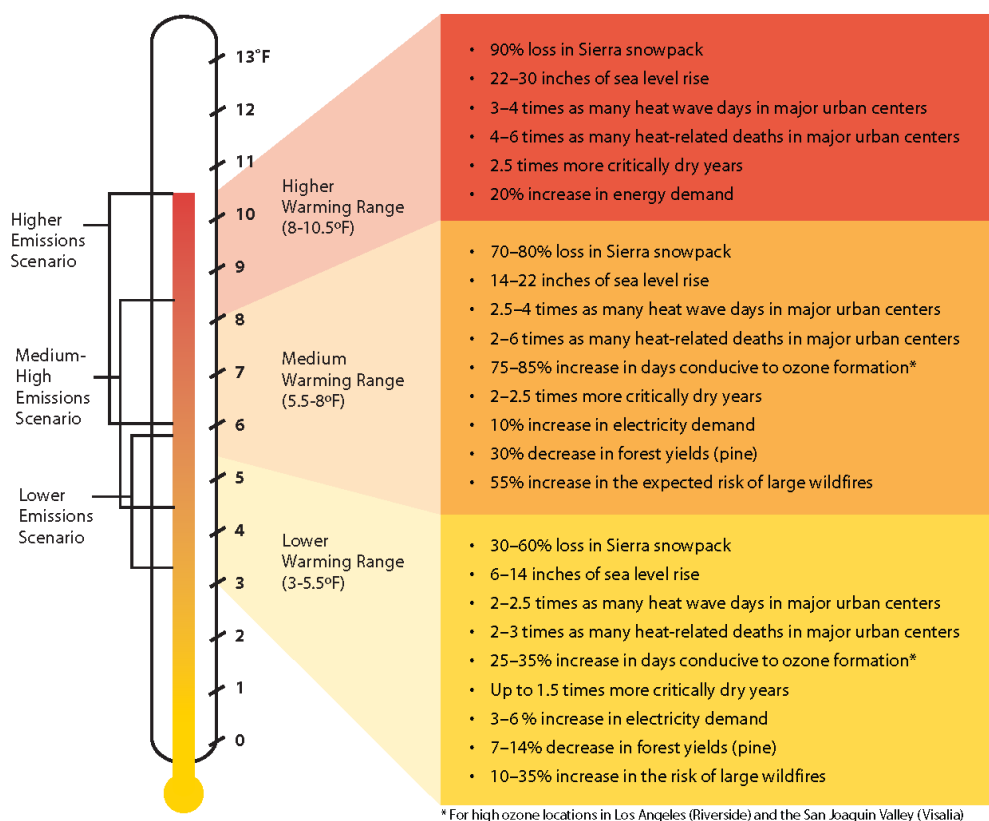
GHGs	Description	Sources	Health Effects
		bottles. It is also used in potato chip bags to keep chips fresh. It is used in rocket engines and in race cars. N <sub>2</sub> O can be transported into the stratosphere, be deposited on the earth's surface, and be converted to other compounds by chemical reaction (19).	
Chlorofluorocarbons (CFCs)	CFCs are gases formed synthetically by replacing all hydrogen atoms in CH <sub>4</sub> or ethane (C <sub>2</sub> H <sub>6</sub> ) with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble and chemically unreactive in the troposphere (the level of air at the earth's surface).	CFCs have no natural source but were first synthesized in 1928. They were used for refrigerants, aerosol propellants and cleaning solvents. Due to the discovery that they are able to destroy stratospheric ozone, a global effort to halt their production was undertaken and was extremely successful, so much so that levels of the major CFCs are now remaining steady or declining. However, their long atmospheric lifetimes mean that some of the CFCs would remain in the atmosphere for over 100 years (20).	In confined indoor locations, working with CFC-113 or other CFCs is thought to result in death by cardiac arrhythmia (heart frequency too high or too low) or asphyxiation.

GHGs	Description	Sources	Health Effects
HFCs	HFCs are synthetic, man-made chemicals that are used as a substitute for CFCs. Out of all the GHGs, they are one of three groups with the highest global warming potential (GWP). The HFCs with the largest measured atmospheric abundances are (in order), Fluoroform (HFC-23), 1,1,1,2-tetrafluoroethane (HFC-134a), and 1,1-difluoroethane (HFC-152a). Prior to 1990, the only significant emissions were of HFC-23. HCF-134a emissions are increasing due to its use as a refrigerant.	HFCs are manmade for applications such as automobile air conditioners and refrigerants.	No health effects are known to result from exposure to HFCs.
PFCs	PFCs have stable molecular structures and do not break down through chemical processes in the lower atmosphere. High-energy ultraviolet rays, which occur about 60 kilometers above earth's surface, are able to destroy the compounds. Because of this, PFCs have exceptionally long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane (CF <sub>4</sub> ) and hexafluoroethane (C <sub>2</sub> F <sub>6</sub> ). The EPA estimates that concentrations of CF <sub>4</sub> in the atmosphere are over 70 parts per trillion (ppt).	The two main sources of PFCs are primary aluminum production and semiconductor manufacture.	No health effects are known to result from exposure to PFCs.
SF <sub>6</sub>	SF <sub>6</sub> is an inorganic, odorless, colorless, nontoxic, nonflammable gas. It also has the highest GWP of any gas evaluated (23,900) (21). The EPA indicates that concentrations in the 1990s were about 4 ppt.	SF <sub>6</sub> is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.	In high concentrations in confined areas, the gas presents the hazard of suffocation because it displaces the oxygen needed for breathing.

GHGs	Description	Sources	Health Effects
Nitrogen Trifluoride (NF <sub>3</sub> )	NF <sub>3</sub> is a colorless gas with a distinctly moldy odor. The World Resources Institute (WRI) indicates that NF <sub>3</sub> has a 100-year GWP of 17,200 (22).	NF <sub>3</sub> is used in industrial processes and is produced in the manufacturing of semiconductors, Liquid Crystal Display (LCD) panels, types of solar panels, and chemical lasers.	Long-term or repeated exposure may affect the liver and kidneys and may cause fluorosis (23).

The potential health effects related directly to the emissions of CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O as they relate to development projects such as the proposed Project are still being debated in the scientific community. Their cumulative effects to GCC have the potential to cause adverse effects to human health. Increases in Earth's ambient temperatures would result in more intense heat waves, causing more heat-related deaths. Scientists also purport those higher ambient temperatures would increase disease survival rates and result in more widespread disease. Climate change would likely cause shifts in weather patterns, potentially resulting in devastating droughts and food shortages in some areas (24). Exhibit 2-A presents the potential impacts of global warming (25).

#### EXHIBIT 2-A: SUMMARY OF PROJECTED GLOBAL WARMING IMPACT, 2070-2099 (AS COMPARED WITH 1961-1990)



Source: Barbara H. Allen-Diaz. "Climate change affects us all." *University of California, Agriculture and Natural Resources*, 2009.

## 2.4 GLOBAL WARMING POTENTIAL

GHGs have varying GWP values. GWP of a GHG indicates the amount of warming a gas cause over a given period of time and represents the potential of a gas to trap heat in the atmosphere. CO<sub>2</sub> is utilized as the reference gas for GWP, and thus has a GWP of 1. CO<sub>2</sub> equivalent (CO<sub>2</sub>e) is a term used for describing the difference GHGs in a common unit. CO<sub>2</sub>e signifies the amount of CO<sub>2</sub> which would have the equivalent GWP.

The atmospheric lifetime and GWP of selected GHGs are summarized at Table 2-2. As shown in the table below, GWP for the 2<sup>nd</sup> Assessment Report, the Intergovernmental Panel on Climate Change (IPCC)'s scientific and socio-economic assessment on climate change, range from 1 for CO<sub>2</sub> to 23,900 for SF<sub>6</sub> and GWP for the IPCC's 5<sup>th</sup> Assessment Report range from 1 for CO<sub>2</sub> to 23,500 for SF<sub>6</sub> (26).

**TABLE 2-2: GWP AND ATMOSPHERIC LIFETIME OF SELECT GHGS**

Gas	Atmospheric Lifetime (years)	GWP (100-year time horizon)	
		2 <sup>nd</sup> Assessment Report	5 <sup>th</sup> Assessment Report
CO <sub>2</sub>	See*	1	1
CH <sub>4</sub>	12 .4	21	28
N <sub>2</sub> O	121	310	265
HFC-23	222	11,700	12,400
HFC-134a	13.4	1,300	1,300
HFC-152a	1.5	140	138
SF <sub>6</sub>	3,200	23,900	23,500

\*As per Appendix 8.A. of IPCC's 5th Assessment Report, no single lifetime can be given.

Source: Table 2.14 of the IPCC Fourth Assessment Report, 2007

## 2.5 GHG EMISSIONS INVENTORIES

### 2.5.1 GLOBAL

Worldwide anthropogenic GHG emissions are tracked by the IPCC for industrialized nations (referred to as Annex I) and developing nations (referred to as Non-Annex I). Human GHG emissions data for Annex I nations are available through 2018. Based on the latest available data, the sum of these emissions totaled approximately 28,768,440 gigagram (Gg) CO<sub>2</sub>e<sup>1</sup> (27) (28) as summarized on Table 2-3.

<sup>1</sup> The global emissions are the sum of Annex I and non-Annex I countries, without counting Land-Use, Land-Use Change and Forestry (LULUCF). For countries without 2018 data, the United Nations' Framework Convention on Climate Change (UNFCCC) data for the most recent year were used U.N. Framework Convention on Climate Change, "Annex I Parties – GHG total without LULUCF," The most recent GHG emissions for China and India are from 2014 and 2010, respectively.

## 2.5.2 UNITED STATES

As noted in Table 2-3, the United States, as a single country, was the number two producer of GHG emissions in 2018.

**TABLE 2-3: TOP GHG PRODUCING COUNTRIES AND THE EUROPEAN UNION <sup>2</sup>**

<b>Emitting Countries</b>	<b>GHG Emissions (Gg CO<sub>2</sub>e)</b>
China	12,300,200
United States	6,676,650
European Union (28-member countries)	4,232,274
Russian Federation	2,220,123
India	2,100,850
Japan	1,238,343
<b>Total</b>	<b>28,768,440</b>

## 2.5.3 STATE OF CALIFORNIA

California has significantly slowed the rate of growth of GHG emissions due to the implementation of energy efficiency programs as well as adoption of strict emission controls but is still a substantial contributor to the United States (U.S.) emissions inventory total (29). The CARB compiles GHG inventories for the State of California. Based upon the 2020 GHG inventory data (i.e., the latest year for which data are available) for the 2000-2019 GHG emissions period, California emitted an average 418.1 million metric tons of CO<sub>2</sub>e per year (MMT CO<sub>2</sub>e/yr) or 418,100 Gg CO<sub>2</sub>e (6.26% of the total United States GHG emissions) (30).

## 2.6 EFFECTS OF CLIMATE CHANGE IN CALIFORNIA

### 2.6.1 PUBLIC HEALTH

Higher temperatures may increase the frequency, duration, and intensity of conditions conducive to air pollution formation. For example, days with weather conducive to ozone formation could increase from 25 to 35% under the lower warming range to 75 to 85% under the medium warming range. In addition, if global background ozone levels increase as predicted in some scenarios, it may become impossible to meet local air quality standards. Air quality could be further compromised by increases in wildfires, which emit fine particulate matter that can travel long distances, depending on wind conditions. Based on *Our Changing Climate Assessing the Risks to California* by the California Climate Change Center, large wildfires could become up to 55% more frequent if GHG emissions are not significantly reduced (31).

In addition, under the higher warming range scenario, there could be up to 100 more days per year with temperatures above 90°F in Los Angeles and 95°F in Sacramento by 2100. This is a

<sup>2</sup> Used <http://unfccc.int> data for Annex I countries. Consulted the CAIT Climate Data Explorer in <https://www.climatewatchdata.org> site to reference Non-Annex I countries of China and India.

significant increase over historical patterns and approximately twice the increase projected if temperatures remain within or below the lower warming range. Rising temperatures could increase the risk of death from dehydration, heat stroke/exhaustion, heart attack, stroke, and respiratory distress caused by extreme heat.

### **2.6.2 WATER RESOURCES**

A vast network of man-made reservoirs and aqueducts captures and transports water throughout the state from northern California rivers and the Colorado River. The current distribution system relies on Sierra Nevada snowpack to supply water during the dry spring and summer months. Rising temperatures, potentially compounded by decreases in precipitation, could severely reduce spring snowpack, increasing the risk of summer water shortages.

If temperatures continue to increase, more precipitation could fall as rain instead of snow, and the snow that does fall could melt earlier, reducing the Sierra Nevada spring snowpack by as much as 70 to 90%. Under the lower warming range scenario, snowpack losses could be only half as large as those possible if temperatures were to rise to the higher warming range. How much snowpack could be lost depends in part on future precipitation patterns, the projections for which remain uncertain. However, even under the wetter climate projections, the loss of snowpack could pose challenges to water managers and hamper hydropower generation. It could also adversely affect winter tourism. Under the lower warming range, the ski season at lower elevations could be reduced by as much as a month. If temperatures reach the higher warming range and precipitation declines, there might be many years with insufficient snow for skiing and snowboarding.

The State's water supplies are also at risk from rising sea levels. An influx of saltwater could degrade California's estuaries, wetlands, and groundwater aquifers. Saltwater intrusion caused by rising sea levels is a major threat to the quality and reliability of water within the southern edge of the Sacramento/San Joaquin River Delta – a major fresh water supply.

### **2.6.3 AGRICULTURE**

Increased temperatures could cause widespread changes to the agriculture industry reducing the quantity and quality of agricultural products statewide. First, California farmers could possibly lose as much as 25% of the water supply needed. Although higher CO<sub>2</sub> levels can stimulate plant production and increase plant water-use efficiency, California's farmers could face greater water demand for crops and a less reliable water supply as temperatures rise. Crop growth and development could change, as could the intensity and frequency of pest and disease outbreaks. Rising temperatures could aggravate ozone pollution, which makes plants more susceptible to disease and pests and interferes with plant growth.

Plant growth tends to be slow at low temperatures, increasing with rising temperatures up to a threshold. However, faster growth can result in less-than-optimal development for many crops, so rising temperatures could worsen the quantity and quality of yield for a number of California's agricultural products. Products likely to be most affected include wine grapes, fruits, and nuts.

In addition, continued GCC could shift the ranges of existing invasive plants and weeds and alter competition patterns with native plants. Range expansion could occur in many species while range contractions may be less likely in rapidly evolving species with significant populations already established. Should range contractions occur, new or different weed species could fill the emerging gaps. Continued GCC could alter the abundance and types of many pests, lengthen pests' breeding season, and increase pathogen growth rates.

#### **2.6.4 FORESTS AND LANDSCAPES**

GCC has the potential to intensify the current threat to forests and landscapes by increasing the risk of wildfire and altering the distribution and character of natural vegetation. If temperatures rise into the medium warming range, the risk of large wildfires in California could increase by as much as 55%, which is almost twice the increase expected if temperatures stay in the lower warming range. However, since wildfire risk is determined by a combination of factors, including precipitation, winds, temperature, and landscape and vegetation conditions, future risks would not be uniform throughout the state. In contrast, wildfires in northern California could increase by up to 90% due to decreased precipitation.

Moreover, continued GCC has the potential to alter natural ecosystems and biological diversity within the state. For example, alpine and subalpine ecosystems could decline by as much as 60 to 80% by the end of the century as a result of increasing temperatures. The productivity of the state's forests has the potential to decrease as a result of GCC.

#### **2.6.5 RISING SEA LEVELS**

Rising sea levels, more intense coastal storms, and warmer water temperatures could increasingly threaten the state's coastal regions. Under the higher warming range scenario, sea level is anticipated to rise 22 to 35 inches by 2100. Elevations of this magnitude would inundate low-lying coastal areas with saltwater, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and natural habitats. Under the lower warming range scenario, sea level could rise 12-14 inches.

### **2.7 REGULATORY SETTING**

#### **2.7.1 INTERNATIONAL**

Climate change is a global issue involving GHG emissions from all around the world; therefore, countries such as the ones discussed below have made an effort to reduce GHGs.

#### **IPCC**

In 1988, the United Nations (U.N.) and the World Meteorological Organization established the IPCC to assess the scientific, technical, and socioeconomic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation.



## **UNITED NATION'S FRAMEWORK CONVENTION ON CLIMATE CHANGE (UNFCCC)**

On March 21, 1994, the U.S. joined a number of countries around the world in signing the Convention. Under the UNFCCC, governments gather and share information on GHG emissions, national policies, and best practices; launch national strategies for addressing GHG emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.

## **INTERNATIONAL CLIMATE CHANGE TREATIES**

The Kyoto Protocol is an international agreement linked to the UNFCCC. The major feature of the Kyoto Protocol is that it sets binding targets for 37 industrialized countries and the European community for reducing GHG emissions at an average of 5% against 1990 levels over the five-year period 2008–2012. The Convention (as discussed above) encouraged industrialized countries to stabilize emissions; however, the Protocol commits them to do so. Developed countries have contributed more emissions over the last 150 years; therefore, the Protocol places a heavier burden on developed nations under the principle of “common but differentiated responsibilities.”

In 2001, President George W. Bush indicated that he would not submit the treaty to the U.S. Senate for ratification, which effectively ended American involvement in the Kyoto Protocol. In December 2009, international leaders met in Copenhagen to address the future of international climate change commitments post-Kyoto. No binding agreement was reached in Copenhagen; however, the UN Climate Change Committee identified the long-term goal of limiting the maximum global average temperature increase to no more than 2 degrees Celsius (°C) above pre-industrial levels, subject to a review in 2015. The Committee held additional meetings in Durban, South Africa in November 2011; Doha, Qatar in November 2012; and Warsaw, Poland in November 2013. The meetings gradually gained consensus among participants on individual climate change issues.

On September 23, 2014, more than 100 Heads of State and Government and leaders from the private sector and civil society met at the Climate Summit in New York hosted by the U.N. At the Summit, heads of government, business and civil society announced actions in areas that would have the greatest impact on reducing emissions, including climate finance, energy, transport, industry, agriculture, cities, forests, and building resilience.

Parties to the UNFCCC reached a landmark agreement on December 12, 2015, in Paris, charting a fundamentally new course in the two-decade-old global climate effort. Culminating a four-year negotiating round, the new treaty ends the strict differentiation between developed and developing countries that characterized earlier efforts, replacing it with a common framework that commits all countries to put forward their best efforts and to strengthen them in the years ahead. This includes, for the first time, requirements that all parties report regularly on their emissions and implementation efforts and undergo international review.

The agreement and a companion decision by parties were the key outcomes of the conference, known as the 21<sup>st</sup> session of the UNFCCC Conference of the Parties (COP) 21. Together, the Paris Agreement and the accompanying COP decision:

- Reaffirm the goal of limiting global temperature increase well below 2°C, while urging efforts to limit the increase to 1.5 degrees;
- Establish binding commitments by all parties to make “nationally determined contributions” (NDCs), and to pursue domestic measures aimed at achieving them;
- Commit all countries to report regularly on their emissions and “progress made in implementing and achieving” their NDCs, and to undergo international review;
- Commit all countries to submit new NDCs every five years, with the clear expectation that they would “represent a progression” beyond previous ones;
- Reaffirm the binding obligations of developed countries under the UNFCCC to support the efforts of developing countries, while for the first time encouraging voluntary contributions by developing countries too;
- Extend the current goal of mobilizing \$100 billion a year in support by 2020 through 2025, with a new, higher goal to be set for the period after 2025;
- Extend a mechanism to address “loss and damage” resulting from climate change, which explicitly would not “involve or provide a basis for any liability or compensation;”
- Require parties engaging in international emissions trading to avoid “double counting;” and
- Call for a new mechanism, similar to the Clean Development Mechanism under the Kyoto Protocol, enabling emission reductions in one country to be counted toward another country’s NDC (C2ES 2015a) (32).

Following President Biden’s day one executive order, the United States officially rejoined the landmark Paris Agreement on February 19, 2021, positioning the country to once again be part of the global climate solution. Meanwhile, city, state, business, and civic leaders across the country and around the world have been ramping up efforts to drive the clean energy advances needed to meet the goals of the agreement and put the brakes on dangerous climate change.

## **2.7.2 NATIONAL**

Prior to the last decade, there have been no concrete federal regulations of GHGs or major planning for climate change adaptation. The following are actions regarding the federal government, GHGs, and fuel efficiency.

### **GHG ENDANGERMENT**

In *Massachusetts v. Environmental Protection Agency* 549 U.S. 497 (2007), decided on April 2, 2007, the United States Supreme Court (Supreme Court) found that four GHGs, including CO<sub>2</sub>, are air pollutants subject to regulation under Section 202(a)(1) of the Clean Air Act (CAA). The Supreme Court held that the EPA Administrator must determine whether emissions of GHGs from new motor vehicles cause or contribute to air pollution, which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned

decision. On December 7, 2009, the EPA Administrator signed two distinct findings regarding GHGs under section 202(a) of the CAA:

- **Endangerment Finding:** The Administrator finds that the current and projected concentrations of the six key well-mixed GHGs— CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, and SF<sub>6</sub>—in the atmosphere threaten the public health and welfare of current and future generations.
- **Cause or Contribute Finding:** The Administrator finds that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution, which threatens public health and welfare.

These findings do not impose requirements on industry or other entities. However, this was a prerequisite for implementing GHG emissions standards for vehicles, as discussed in the section “Clean Vehicles” below. After a lengthy legal challenge, the Supreme Court declined to review an Appeals Court ruling that upheld the EPA Administrator’s findings (33).

### **CLEAN VEHICLES**

Congress first passed the Corporate Average Fuel Economy law in 1975 to increase the fuel economy of cars and light duty trucks. The law has become more stringent over time. On May 19, 2009, President Obama put in motion a new national policy to increase fuel economy for all new cars and trucks sold in the U.S. On April 1, 2010, the EPA, and the Department of Transportation’s National Highway Traffic Safety Administration (NHTSA) announced a joint final rule establishing a national program that would reduce GHG emissions and improve fuel economy for new cars and trucks sold in the U.S.

The first phase of the national program applies to passenger cars, light-duty trucks, and medium-duty (MD) passenger vehicles, covering model years 2012 through 2016. They require these vehicles to meet an estimated combined average emissions level of 250 grams of CO<sub>2</sub> per mile, equivalent to 35.5 miles per gallon (mpg) if the automobile industry were to meet this CO<sub>2</sub> level solely through fuel economy improvements. Together, these standards would cut CO<sub>2</sub> emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012–2016). The EPA and the NHTSA issued final rules on a second-phase joint rulemaking establishing national standards for light-duty vehicles for model years 2017 through 2025 in August 2012. The new standards for model years 2017 through 2025 apply to passenger cars, light-duty trucks, and MD passenger vehicles. The final standards are projected to result in an average industry fleetwide level of 163 grams/mile of CO<sub>2</sub> in model year 2025, which is equivalent to 54.5 mpg if achieved exclusively through fuel economy improvements.

The EPA and the U.S. Department of Transportation issued final rules for the first national standards to reduce GHG emissions and improve fuel efficiency of HDT and buses on September 15, 2011, effective November 14, 2011. For combination tractors, the agencies are proposing engine and vehicle standards that begin in the 2014 model year and achieve up to a 20% reduction in CO<sub>2</sub> emissions and fuel consumption by the 2018 model year. For HDT and vans, the agencies are proposing separate gasoline and diesel truck standards, which phase in starting in the 2014 model year and achieve up to a 10% reduction for gasoline vehicles and a 15% reduction for diesel vehicles by the 2018 model year (12 and 17% respectively if accounting for air

conditioning leakage). Lastly, for vocational vehicles, the engine and vehicle standards would achieve up to a 10% reduction in fuel consumption and CO<sub>2</sub> emissions from the 2014 to 2018 model years.

On April 2, 2018, the EPA signed the Mid-term Evaluation Final Determination, which declared that the MY 2022-2025 GHG standards are not appropriate and should be revised (34). This Final Determination serves to initiate a notice to further consider appropriate standards for MY 2022-2025 light-duty vehicles. On August 2, 2018, the NHTSA in conjunction with the EPA, released a notice of proposed rulemaking, the *Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks* (SAFE Vehicles Rule). The SAFE Vehicles Rule was proposed to amend existing Corporate Average Fuel Economy (CAFE) and tailpipe CO<sub>2</sub> standards for passenger cars and light trucks and to establish new standards covering model years 2021 through 2026. As of March 31, 2020, the NHTSA and EPA finalized the SAFE Vehicle Rule which increased stringency of CAFE and CO<sub>2</sub> emissions standards by 1.5% each year through model year 2026 (35).

#### **MANDATORY REPORTING OF GHGS**

The Consolidated Appropriations Act of 2008, passed in December 2007, requires the establishment of mandatory GHG reporting requirements. On September 22, 2009, the EPA issued the Final Mandatory Reporting of GHGs Rule, which became effective January 1, 2010. The rule requires reporting of GHG emissions from large sources and suppliers in the U.S. and is intended to collect accurate and timely emissions data to inform future policy decisions. Under the rule, suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons per year (MT/yr) or more of GHG emissions are required to submit annual reports to the EPA.

#### **NEW SOURCE REVIEW**

The EPA issued a final rule on May 13, 2010, that establishes thresholds for GHGs that define when permits under the New Source Review Prevention of Significant Deterioration and Title V Operating Permit programs are required for new and existing industrial facilities. This final rule “tailors” the requirements of these CAA permitting programs to limit which facilities would be required to obtain Prevention of Significant Deterioration and Title V permits. In the preamble to the revisions to the Federal Code of Regulations, the EPA states:

*“This rulemaking is necessary because without it the Prevention of Significant Deterioration and Title V requirements would apply, as of January 2, 2011, at the 100 or 250 tons per year levels provided under the CAA, greatly increasing the number of required permits, imposing undue costs on small sources, overwhelming the resources of permitting authorities, and severely impairing the functioning of the programs. EPA is relieving these resource burdens by phasing in the applicability of these programs to GHG sources, starting with the largest GHG emitters. This rule establishes two initial steps of the phase-in. The rule also commits the agency to take certain actions on future steps addressing smaller sources but excludes certain smaller sources from Prevention of Significant*

*Deterioration and Title V permitting for GHG emissions until at least April 30, 2016.”*

The EPA estimates that facilities responsible for nearly 70% of the national GHG emissions from stationary sources would be subject to permitting requirements under this rule. This includes the nation’s largest GHG emitters—power plants, refineries, and cement production facilities.

#### **STANDARDS OF PERFORMANCE FOR GHG EMISSIONS FOR NEW STATIONARY SOURCES: ELECTRIC UTILITY GENERATING UNITS**

As required by a settlement agreement, the EPA proposed new performance standards for emissions of CO<sub>2</sub> for new, affected, fossil fuel-fired electric utility generating units on March 27, 2012. New sources greater than 25 megawatts (MW) would be required to meet an output-based standard of 1,000 pounds (lbs) of CO<sub>2</sub> per MW-hour (MWh), based on the performance of widely used natural gas combined cycle technology. It should be noted that on February 9, 2016, the Supreme Court issued a stay of this regulation pending litigation. Additionally, the current EPA Administrator has also signed a measure to repeal the Clean Power Plan, including the CO<sub>2</sub> standards. The Clean Power Plan was officially repealed on June 19, 2019, when the EPA issued the final Affordable Clean Energy rule (ACE). Under ACE, new state emission guidelines were established that provided existing coal-fired electric utility generating units with achievable standards.

#### **CAP-AND-TRADE**

Cap-and-trade refers to a policy tool where emissions are limited to a certain amount and can be traded or provides flexibility on how the emitter can comply. Successful examples in the U.S. include the Acid Rain Program and the N<sub>2</sub>O Budget Trading Program and Clean Air Interstate Rule in the northeast. There is no federal GHG cap-and-trade program currently; however, some states have joined to create initiatives to provide a mechanism for cap-and-trade.

The Regional GHG Initiative is an effort to reduce GHGs among the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont. Each state caps CO<sub>2</sub> emissions from power plants, auctions CO<sub>2</sub> emission allowances, and invests the proceeds in strategic energy programs that further reduce emissions, save consumers money, create jobs, and build a clean energy economy. The Initiative began in 2008 and in 2020 has retained all participating states.

The Western Climate Initiative (WCI) partner jurisdictions have developed a comprehensive initiative to reduce regional GHG emissions to 15% below 2005 levels by 2020. The partners were originally California, British Columbia, Manitoba, Ontario, and Quebec. However, Manitoba and Ontario are not currently participating. California linked with Quebec’s cap-and-trade system January 1, 2014, and joint offset auctions took place in 2015. While the WCI has yet to publish whether it has successfully reached the 2020 emissions goal initiative set in 2007, SB 32 requires that California, a major partner in the WCI, adopt the goal of reducing statewide GHG emissions to 40% below the 1990 level by 2030.

## **SMARTWAY PROGRAM**

The SmartWay Program is a public-private initiative between the EPA, large and small trucking companies, rail carriers, logistics companies, commercial manufacturers, retailers, and other federal and state agencies. Its purpose is to improve fuel efficiency and the environmental performance (reduction of both GHG emissions and air pollution) of the goods movement supply chains. SmartWay is comprised of four components (36):

1. SmartWay Transport Partnership: A partnership in which freight carriers and shippers commit to benchmark operations, track fuel consumption, and improve performance annually.
2. SmartWay Technology Program: A testing, verification, and designation program to help freight companies identify equipment, technologies, and strategies that save fuel and lower emissions.
3. SmartWay Vehicles: A program that ranks light-duty cars and small trucks and identifies superior environmental performers with the SmartWay logo.
4. SmartWay International Interests: Guidance and resources for countries seeking to develop freight sustainability programs modeled after SmartWay.

SmartWay effectively refers to requirements geared towards reducing fuel consumption. Most large trucking fleets driving newer vehicles are compliant with SmartWay design requirements. Moreover, over time, all HDTs would have to comply with the CARB GHG Regulation that is designed with the SmartWay Program in mind, to reduce GHG emissions by making them more fuel-efficient. For instance, in 2015, 53 foot or longer dry vans or refrigerated trailers equipped with a combination of SmartWay-verified low-rolling resistance tires and SmartWay-verified aerodynamic devices would obtain a total of 10% or more fuel savings over traditional trailers.

Through the SmartWay Technology Program, the EPA has evaluated the fuel saving benefits of various devices through grants, cooperative agreements, emissions, and fuel economy testing, demonstration projects and technical literature review. As a result, the EPA has determined the following types of technologies provide fuel saving and/or emission reducing benefits when used properly in their designed applications, and has verified certain products:

- Idle reduction technologies – less idling of the engine when it is not needed would reduce fuel consumption.
- Aerodynamic technologies minimize drag and improve airflow over the entire tractor-trailer vehicle. Aerodynamic technologies include gap fairings that reduce turbulence between the tractor and trailer, side skirts that minimize wind under the trailer, and rear fairings that reduce turbulence and pressure drop at the rear of the trailer.
- Low rolling resistance tires can roll longer without slowing down, thereby reducing the amount of fuel used. Rolling resistance (or rolling friction or rolling drag) is the force resisting the motion when a tire rolls on a surface. The wheel would eventually slow down because of this resistance.
- Retrofit technologies include things such as diesel particulate filters, emissions upgrades (to a higher tier), etc., which would reduce emissions.
- Federal excise tax exemptions.

**EXECUTIVE ORDER 13990**

On January 20, 2021, Federal agencies were directed to immediately review, and take action to address, Federal regulations promulgated and other actions taken during the last 4 years that conflict with national objectives to improve public health and the environment; ensure access to clean air and water; limit exposure to dangerous chemicals and pesticides; hold polluters accountable, including those who disproportionately harm communities of color and low-income communities; reduce greenhouse gas emissions; bolster resilience to the impacts of climate change; restore and expand our national treasures and monuments; and prioritize both environmental justice and employment.

**2.7.3 CALIFORNIA****2.7.3.1 LEGISLATIVE ACTIONS TO REDUCE GHGs**

The State of California legislature has enacted a series of bills that constitute the most aggressive program to reduce GHGs of any state in the nation. Some legislation such as the landmark AB 32 was specifically enacted to address GHG emissions. Other legislation such as Title 24 and Title 20 energy standards were originally adopted for other purposes such as energy and water conservation, but also provide GHG reductions. This section describes the major provisions of the legislation.

**AB 32**

The California State Legislature enacted AB 32, which required that GHGs emitted in California be reduced to 1990 levels by the year 2020 (this goal has been met<sup>3</sup>). GHGs as defined under AB 32 include CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, and SF<sub>6</sub>. Since AB 32 was enacted, a seventh chemical, NF<sub>3</sub>, has also been added to the list of GHGs. CARB is the state agency charged with monitoring and regulating sources of GHGs. Pursuant to AB 32, CARB adopted regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions. AB 32 states the following:

*“Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.”*

**SB 375**

On September 30, 2008, SB 375 was signed by Governor Schwarzenegger. According to SB 375, the transportation sector is the largest contributor of GHG emissions, which emits over 40% of the total

<sup>3</sup> Based upon the 2019 GHG inventory data (i.e., the latest year for which data are available) for the 2000-2017 GHG emissions period, California emitted an average 424.1 MMTCO<sub>2</sub>e (29). This is less than the 2020 emissions target of 431 MMTCO<sub>2</sub>e.

GHG emissions in California. SB 375 states, “Without improved land use and transportation policy, California would not be able to achieve the goals of AB 32.” SB 375 does the following: it (1) requires metropolitan planning organizations (MPOs) to include sustainable community strategies in their regional transportation plans for reducing GHG emissions, (2) aligns planning for transportation and housing, and (3) creates specified incentives for the implementation of the strategies.

SB 375 requires MPOs to prepare a Sustainable Communities Strategy (SCS) within the Regional Transportation Plan (RTP) that guides growth while taking into account the transportation, housing, environmental, and economic needs of the region. SB 375 uses CEQA streamlining as an incentive to encourage residential projects, which help achieve AB 32 goals to reduce GHG emissions. Although SB 375 does not prevent CARB from adopting additional regulations, such actions are not anticipated in the foreseeable future.

Concerning CEQA, SB 375, as codified in Public Resources Code Section 21159.28, states that CEQA findings for certain projects are not required to reference, describe, or discuss (1) growth inducing impacts, or (2) any project-specific or cumulative impacts from cars and light-duty truck trips generated by the project on global warming or the regional transportation network, if the project:

1. Is in an area with an approved sustainable communities strategy or an alternative planning strategy that CARB accepts as achieving the GHG emission reduction targets.
2. Is consistent with that strategy (in designation, density, building intensity, and applicable policies).
3. Incorporates the MMs required by an applicable prior environmental document.

### **AB 1493 - Pavley Fuel Efficiency Standards**

Enacted on July 22, 2002, California AB 1493, also known as the Pavley Fuel Efficiency Standards, required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. Implementation of the regulation was delayed by lawsuits filed by automakers and by the EPA’s denial of an implementation waiver. The EPA subsequently granted the requested waiver in 2009, which was upheld by the U.S. District Court for the District of Columbia in 2011.

The standards phase in during the 2009 through 2016 MY. Several technologies stand out as providing significant reductions in emissions at favorable costs. These include discrete variable valve lift or camless valve actuation to optimize valve operation rather than relying on fixed valve timing and lift as has historically been done; turbocharging to boost power and allow for engine downsizing; improved multi-speed transmissions; and improved air conditioning systems that operate optimally, leak less, and/or use an alternative refrigerant.

The second phase of the implementation for the Pavley bill was incorporated into Amendments to the Low-Emission Vehicle Program (LEV III) or the Advanced Clean Cars (ACC) program. The ACC program combines the control of smog-causing pollutants and GHG emissions into a single coordinated package of requirements for MY 2017 through 2025. The regulation would reduce GHGs from new cars by 34% from 2016 levels by 2025. The new rules would clean up gasoline and diesel-powered cars, and deliver increasing numbers of zero-emission technologies, such as full battery electric cars, newly emerging plug-in hybrid EVs and hydrogen fuel cell cars. The



package would also ensure adequate fueling infrastructure is available for the increasing numbers of hydrogen fuel cell vehicles planned for deployment in California.

### **CLEAN ENERGY AND POLLUTION REDUCTION ACT OF 2015 (SB 350)**

In October 2015, the legislature approved, and Governor Jerry Brown signed SB 350, which reaffirms California's commitment to reducing its GHG emissions and addressing climate change. Key provisions include an increase in the RPS, higher energy efficiency requirements for buildings, initial strategies towards a regional electricity grid, and improved infrastructure for EV charging stations. Provisions for a 50% reduction in the use of petroleum statewide were removed from the Bill because of opposition and concern that it would prevent the Bill's passage. Specifically, SB 350 requires the following to reduce statewide GHG emissions:

- Increase the amount of electricity procured from renewable energy sources from 33% to 50% by 2030, with interim targets of 40% by 2024, and 25% by 2027.
- Double the energy efficiency in existing buildings by 2030. This target would be achieved through the California Public Utilities Commission (CPUC), the California Energy Commission (CEC), and local publicly owned utilities.
- Reorganize the Independent System Operator (ISO) to develop more regional electrify transmission markets and to improve accessibility in these markets, which would facilitate the growth of renewable energy markets in the western United States.

### **SB 32**

On September 8, 2016, Governor Brown signed SB 32 and its companion bill, AB 197. SB 32 requires the state to reduce statewide GHG emissions to 40% below 1990 levels by 2030, a reduction target that was first introduced in Executive Order B-30-15. The new legislation builds upon the AB 32 goal and provides an intermediate goal to achieving S-3-05, which sets a statewide GHG reduction target of 80% below 1990 levels by 2050. AB 197 creates a legislative committee to oversee regulators to ensure that CARB not only responds to the Governor, but also the Legislature (11).

### **CARB SCOPING PLAN UPDATE**

In November 2017, CARB released the *Final 2017 Scoping Plan Update (2017 Scoping Plan)*, which identifies the State's post-2020 reduction strategy. The *2017 Scoping Plan* reflects the 2030 target of a 40% reduction below 1990 levels, set by Executive Order B-30-15 and codified by SB 32. Key programs that the proposed Second Update builds upon include the Cap-and-Trade Regulation, the LCFS, and much cleaner cars, trucks, and freight movement, utilizing cleaner, renewable energy, and strategies to reduce CH<sub>4</sub> emissions from agricultural and other wastes.

The *2017 Scoping Plan* establishes a new emissions limit of 260 MMTCO<sub>2e</sub> for the year 2030, which corresponds to a 40% decrease in 1990 levels by 2030 (37).

California's climate strategy would require contributions from all sectors of the economy, including the land base, and would include enhanced focus on zero and near-zero emission (ZE/NZE) vehicle technologies; continued investment in renewables, including solar roofs, wind, and other distributed generation; greater use of low carbon fuels; integrated land conservation

and development strategies; coordinated efforts to reduce emissions of short-lived climate pollutants (CH<sub>4</sub>, black carbon, and fluorinated gases); and an increased focus on integrated land use planning to support livable, transit-connected communities and conservation of agricultural and other lands. Requirements for direct GHG reductions at refineries would further support air quality co-benefits in neighborhoods, including in disadvantaged communities historically located adjacent to these large stationary sources, as well as efforts with California's local air pollution control and air quality management districts (air districts) to tighten emission limits on a broad spectrum of industrial sources. Major elements of the *2017 Scoping Plan* framework include:

- Implementing and/or increasing the standards of the Mobile Source Strategy, which include increasing zero-emission vehicles (ZEV) buses and trucks.
- LCFS, with an increased stringency (18% by 2030).
- Implementing SB 350, which expands the RPS to 50% RPS and doubles energy efficiency savings by 2030.
- California Sustainable Freight Action Plan, which improves freight system efficiency, utilizes near-zero emissions technology, and deployment of ZEV trucks.
- Implementing the proposed Short-Lived Climate Pollutant Strategy (SLPS), which focuses on reducing CH<sub>4</sub> and HCF emissions by 40% and anthropogenic black carbon emissions by 50% by year 2030.
- Continued implementation of SB 375.
- Post-2020 Cap-and-Trade Program that includes declining caps.
- 20% reduction in GHG emissions from refineries by 2030.
- Development of a Natural and Working Lands Action Plan to secure California's land base as a net carbon sink.

Note, however, that the *2017 Scoping Plan* acknowledges that:

*"[a]chieving 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."*

In addition to the statewide strategies listed above, the *2017 Scoping Plan* also identifies local governments as essential partners in achieving the State's long-term GHG reduction goals and identifies local actions to reduce GHG emissions. As part of the recommended actions, CARB recommends that local governments achieve a community-wide goal to achieve emissions of no more than 6 metric tons of CO<sub>2</sub>e (MTCO<sub>2</sub>e) or less per capita by 2030 and 2 MTCO<sub>2</sub>e or less per capita by 2050. For CEQA projects, CARB states that lead agencies may develop evidence-based bright-line numeric thresholds—consistent with the *2017 Scoping Plan* and the State's long-term GHG goals—and projects with emissions over that amount may be required to incorporate on-site design features and MMs that avoid or minimize project emissions to the degree feasible; or a performance-based metric using a CAP or other plan to reduce GHG emissions is appropriate.

According to research conducted by the Lawrence Berkeley National Laboratory (LBNL) and supported by CARB, California, under its existing and proposed GHG reduction policies, could achieve the 2030 goals under SB 32. The research utilized a new, validated model known as the California LBNL GHG Analysis of Policies Spreadsheet (CALGAPS), which simulates GHG and criteria pollutant emissions in California from 2010 to 2050 in accordance to existing and future GHG-reducing policies. The CALGAPS model showed that by 2030, emissions could range from 211 to 428 MTCO<sub>2</sub>e per year (MTCO<sub>2</sub>e/yr), indicating that “even if all modeled policies are not implemented, reductions could be sufficient to reduce emissions 40% below the 1990 level [of SB 32].” CALGAPS analyzed emissions through 2050 even though it did not generally account for policies that might be put in place after 2030. Although the research indicated that the emissions would not meet the State’s 80% reduction goal by 2050, various combinations of policies could allow California’s cumulative emissions to remain very low through 2050 (38) (39).

#### **CAP-AND-TRADE PROGRAM**

The *2017 Scoping Plan* identifies a Cap-and-Trade Program as one of the key strategies for California to reduce GHG emissions. According to CARB, a cap-and-trade program would help put California on the path to meet its goal of achieving a 40% reduction in GHG emissions from 1990 levels by 2030. Under cap-and-trade, an overall limit on GHG emissions from capped sectors is established, and facilities subject to the cap would be able to trade permits to emit GHGs within the overall limit.

CARB adopted a California Cap-and-Trade Program pursuant to its authority under AB 32. The Cap-and-Trade Program is designed to reduce GHG emissions from regulated entities by more than 16% between 2013 and 2020, and by an additional 40% by 2030. The statewide cap for GHG emissions from the capped sectors (e.g., electricity generation, petroleum refining, and cement production) commenced in 2013 and would decline over time, achieving GHG emission reductions throughout the program’s duration.

Covered entities that emit more than 25,000 MTCO<sub>2</sub>e/yr must comply with the Cap-and-Trade Program. Triggering of the 25,000 MTCO<sub>2</sub>e/yr “inclusion threshold” is measured against a subset of emissions reported and verified under the California Regulation for the Mandatory Reporting of GHG Emissions (Mandatory Reporting Rule or “MRR”).

Under the Cap-and-Trade Program, CARB issues allowances equal to the total amount of allowable emissions over a given compliance period and distributes these to regulated entities. Covered entities are allocated free allowances in whole or part (if eligible), and may buy allowances at auction, purchase allowances from others, or purchase offset credits. Each covered entity with a compliance obligation is required to surrender “compliance instruments” for each MTCO<sub>2</sub>e of GHG they emit. There also are requirements to surrender compliance instruments covering 30% of the prior year’s compliance obligation by November of each year (40).

The Cap-and-Trade Program provides a firm cap, which provides the highest certainty of achieving the 2030 target. An inherent feature of the Cap-and-Trade program is that it does not guarantee GHG emissions reductions in any discrete location or by any particular source. Rather,

GHG emissions reductions are only guaranteed on an accumulative basis. As summarized by CARB in the *First Update to the Climate Change Scoping Plan*:

*“The Cap-and-Trade Regulation gives companies the flexibility to trade allowances with others or take steps to cost-effectively reduce emissions at their own facilities. Companies that emit more have to turn in more allowances or other compliance instruments. Companies that can cut their GHG emissions have to turn in fewer allowances. But as the cap declines, aggregate emissions must be reduced. In other words, a covered entity theoretically could increase its GHG emissions every year and still comply with the Cap-and-Trade Program if there is a reduction in GHG emissions from other covered entities. Such a focus on aggregate GHG emissions is considered appropriate because climate change is a global phenomenon, and the effects of GHG emissions are considered cumulative.” (41)*

The Cap-and-Trade Program covers approximately 80% of California’s GHG emissions (37). The Cap-and-Trade Program covers the GHG emissions associated with electricity consumed in California, whether generated in-state or imported. Accordingly, GHG emissions associated with CEQA projects’ electricity usage are covered by the Cap-and-Trade Program. The Cap-and-Trade Program also covers fuel suppliers (natural gas and propane fuel providers and transportation fuel providers) to address emissions from such fuels and from combustion of other fossil fuels not directly covered at large sources in the Program’s first compliance period. The Cap-and-Trade Program covers the GHG emissions associated with the combustion of transportation fuels in California, whether refined in-state or imported.

#### **2.7.3.2 EXECUTIVE ORDERS RELATED TO GHG EMISSIONS**

California’s Executive Branch has taken several actions to reduce GHGs through the use of Executive Orders. Although not regulatory, they set the tone for the state and guide the actions of state agencies.

##### **EXECUTIVE ORDER S-3-05**

California Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S-3-05, the following reduction targets for GHG emissions:

- By 2010, reduce GHG emissions to 2000 levels.
- By 2020, reduce GHG emissions to 1990 levels.
- By 2050, reduce GHG emissions to 80% below 1990 levels.

The 2050 reduction goal represents what some scientists believe is necessary to reach levels that would stabilize the climate. The 2020 goal was established to be a mid-term target. Because this is an executive order, the goals are not legally enforceable for local governments or the private sector.

**EXECUTIVE ORDER S-01-07 (LCFS)**

Governor Schwarzenegger signed Executive Order S-01-07 on January 18, 2007. The order mandates that a statewide goal shall be established to reduce the carbon intensity of California's transportation fuels by at least 10% by 2020. CARB adopted the LCFS on April 23, 2009.

The LCFS was challenged in the U.S. District Court in Fresno in 2011. The court's ruling issued on December 29, 2011, included a preliminary injunction against CARB's implementation of the rule. The Ninth Circuit Court of Appeals stayed the injunction on April 23, 2012, pending final ruling on appeal, allowing CARB to continue to implement and enforce the regulation. The Ninth Circuit Court's decision, filed September 18, 2013, vacated the preliminary injunction. In essence, the court held that LCFS adopted by CARB were not in conflict with federal law. On August 8, 2013, the Fifth District Court of Appeal (California) ruled CARB failed to comply with CEQA and the Administrative Procedure Act (APA) when adopting regulations for LCFS. In a partially published opinion, the Court of Appeal reversed the trial court's judgment and directed issuance of a writ of mandate setting aside Resolution 09-31 and two executive orders of CARB approving LCFS regulations promulgated to reduce GHG emissions. However, the court tailored its remedy to protect the public interest by allowing the LCFS regulations to remain operative while CARB complies with the procedural requirements it failed to satisfy.

To address the Court ruling, CARB was required to bring a new LCFS regulation to the Board for consideration in February 2015. The proposed LCFS regulation was required to contain revisions to the 2010 LCFS as well as new provisions designed to foster investments in the production of the low-carbon intensity fuels, offer additional flexibility to regulated parties, update critical technical information, simplify, and streamline program operations, and enhance enforcement. On November 16, 2015, the Office of Administrative Law (OAL) approved the Final Rulemaking Package. The new LCFS regulation became effective on January 1, 2016.

In 2018, CARB approved amendments to the regulation, which included strengthening the carbon intensity benchmarks through 2030 in compliance with the SB 32 GHG emissions reduction target for 2030. The amendments included crediting opportunities to promote zero emission vehicle adoption, alternative jet fuel, carbon capture and sequestration, and advanced technologies to achieve deep decarbonization in the transportation sector (42).

**EXECUTIVE ORDER S-13-08**

Executive Order S-13-08 states that "climate change in California during the next century is expected to shift precipitation patterns, accelerate sea level rise and increase temperatures, thereby posing a serious threat to California's economy, to the health and welfare of its population and to its natural resources." Pursuant to the requirements in the Order, the *2009 California Climate Adaptation Strategy (CNRA 2009)* was adopted, which is the "...first statewide, multi-sector, region-specific, and information-based climate change adaptation strategy in the United States." Objectives include analyzing risks of climate change in California, identifying, and exploring strategies to adapt to climate change, and specifying a direction for future research.

**EXECUTIVE ORDER B-30-15**

On April 29, 2015, Governor Brown issued an executive order to establish a California GHG reduction target of 40% below 1990 levels by 2030. The Governor's executive order aligned California's GHG reduction targets with those of leading international governments ahead of the U.N. Climate Change Conference in Paris late 2015. The Order sets a new interim statewide GHG emission reduction target to reduce GHG emissions to 40% below 1990 levels by 2030 in order to ensure California meets its target of reducing GHG emissions to 80% below 1990 levels by 2050 and directs CARB to update the *2017 Scoping Plan* to express the 2030 target in terms of MMTCO<sub>2</sub>e. The Order also requires the state's climate adaptation plan to be updated every three years, and for the State to continue its climate change research program, among other provisions. As with Executive Order S-3-05, this Order is not legally enforceable as to local governments and the private sector. Legislation that would update AB 32 to make post 2020 targets and requirements a mandate is in process in the State Legislature.

**EXECUTIVE ORDER B-55-18 AND SB 100**

SB 100 and Executive Order B-55-18 were signed by Governor Brown on September 10, 2018. Under the existing RPS, 25% of retail sales of electricity are required to be from renewable sources by December 31, 2016, 33% by December 31, 2020, 40% by December 31, 2024, 45% by December 31, 2027, and 50% by December 31, 2030. SB 100 raises California's RPS requirement to 50% renewable resources target by December 31, 2026, and to achieve a 60% target by December 31, 2030. SB 100 also requires that retail sellers and local publicly owned electric utilities procure a minimum quantity of electricity products from eligible renewable energy resources so that the total kilowatt hours (kWh) of those products sold to their retail end-use customers achieve 44% of retail sales by December 31, 2024, 52% by December 31, 2027, and 60% by December 31, 2030. In addition to targets under AB 32 and SB 32, Executive Order B-55-18 establishes a carbon neutrality goal for the state of California by 2045; and sets a goal to maintain net negative emissions thereafter. The Executive Order directs the California Natural Resources Agency (CNRA), California EPA (CalEPA), the California Department of Food and Agriculture (CDFA), and CARB to include sequestration targets in the Natural and Working Lands Climate Change Implementation Plan consistent with the carbon neutrality goal.

**2.7.3.3 CALIFORNIA REGULATIONS AND BUILDING CODES**

California has a long history of adopting regulations to improve energy efficiency in new and remodeled buildings. These regulations have kept California's energy consumption relatively flat even with rapid population growth.

**TITLE 20 CCR SECTIONS 1601 ET SEQ. – APPLIANCE EFFICIENCY REGULATIONS**

The Appliance Efficiency Regulations regulate the sale of appliances in California. The Appliance Efficiency Regulations include standards for both federally regulated appliances and non-federally regulated appliances. 23 categories of appliances are included in the scope of these regulations. The standards within these regulations apply to appliances that are sold or offered for sale in California, except those sold wholesale in California for final retail sale outside the state

and those designed and sold exclusively for use in recreational vehicles (RV) or other mobile equipment (CEC 2012).

#### **TITLE 24 CCR PART 6 – CALIFORNIA ENERGY CODE**

The California Energy Code was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption.

The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods.

#### **TITLE 24 CCR PART 11 – CALIFORNIA GREEN BUILDING STANDARDS CODE**

The California Green Building Standards Code (CALGreen) is a comprehensive and uniform regulatory code for all residential, commercial, and school buildings that went in effect on January 1, 2009, and is administered by the California Building Standards Commission (CBSC).

CALGreen is updated on a regular basis, with the most recent approved update consisting of the 2019 California Green Building Code Standards that became effective January 1, 2020.

Local jurisdictions are permitted to adopt more stringent requirements, as state law provides methods for local enhancements. CALGreen recognizes that many jurisdictions have developed existing construction waste and demolition ordinances and defers to them as the ruling guidance provided they establish a minimum 65% diversion requirement.

The code also provides exemptions for areas not served by construction waste and demolition recycling infrastructure. The State Building Code provides the minimum standard that buildings must meet in order to be certified for occupancy, which is generally enforced by the local building official.

Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas (GHG) emissions. The 2019 version of Title 24 was adopted by the CEC and became effective on January 1, 2020.

The 2019 Title 24 standards would result in less energy use, thereby reducing air pollutant emissions associated with energy consumption in the SCAB and across the State of California. For example, the 2019 Title 24 standards would require solar photovoltaic systems for new homes, establish requirements for newly constructed healthcare facilities, encourage demand responsive technologies for residential buildings, and update indoor and outdoor lighting requirements for nonresidential buildings.

The CEC anticipates that single-family homes built with the 2019 standards would use approximately 7% less energy compared to the residential homes built under the 2016 standards. Additionally, after implementation of solar photovoltaic systems, homes built under the 2019 standards would use about 53% less energy than homes built under the 2016 standards. Nonresidential buildings (such as the Project) would use approximately 30% less energy due to lighting upgrade requirements (19).

Because the Project would be constructed after January 1, 2020, the 2019 CALGreen standards are applicable to the Project and require, among other items (20):

**NONRESIDENTIAL MANDATORY MEASURES**

- Short-term bicycle parking. If the new project or an additional alteration is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5% of new visitor motorized vehicle parking spaces being added, with a minimum of one two-bike capacity rack (5.106.4.1.1).
- Long-term bicycle parking. For new buildings with tenant spaces that have 10 or more tenant-occupants, provide secure bicycle parking for 5% of the tenant-occupant vehicular parking spaces with a minimum of one bicycle parking facility (5.106.4.1.2).
- Designated parking for clean air vehicles. In new projects or additions to alterations that add 10 or more vehicular parking spaces, provide designated parking for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles as shown in Table 5.106.5.2 (5.106.5.2).
- EV charging stations. New construction shall facilitate the future installation of EV supply equipment. The compliance requires empty raceways for future conduit and documentation that the electrical system has adequate capacity for the future load. The number of spaces to be provided for is contained in Table 5.106. 5.3.3 (5.106.5.3).
- Outdoor light pollution reduction. Outdoor lighting systems shall be designed to meet the backlight, uplight and glare ratings per Table 5.106.8 (5.106.8).
- Construction waste management. Recycle and/or salvage for reuse a minimum of 65% of the nonhazardous construction and demolition waste in accordance with Section 5.408.1.1, 5.405.1.2, or 5.408.1.3; or meet a local construction and demolition waste management ordinance, whichever is more stringent (5.408.1).
- Excavated soil and land clearing debris. 100% of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reused or recycled. For a phased project, such material may be stockpiled on site until the storage site is developed (5.408.3).
- Recycling by Occupants. Provide readily accessible areas that serve the entire building and are identified for the depositing, storage, and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, organic waste, and metals or meet a lawfully enacted local recycling ordinance, if more restrictive (5.410.1).
- Water conserving plumbing fixtures and fittings. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the following:
  - Water Closets. The effective flush volume of all water closets shall not exceed 1.28 gallons per flush (5.303.3.1)
  - Urinals. The effective flush volume of wall-mounted urinals shall not exceed 0.125 gallons per flush (5.303.3.2.1). The effective flush volume of floor-mounted or other urinals shall not exceed 0.5 gallons per flush (5.303.3.2.2).



- Showerheads. Single showerheads shall have a minimum flow rate of not more than 1.8 gallons per minute and 80 psi (5.303.3.3.1). When a shower is served by more than one showerhead, the combine flow rate of all showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.8 gallons per minute at 80 psi (5.303.3.3.2).
- Faucets and fountains. Nonresidential lavatory faucets shall have a maximum flow rate of not more than 0.5 gallons per minute at 60 psi (5.303.3.4.1). Kitchen faucets shall have a maximum flow rate of not more than 1.8 gallons per minute of 60 psi (5.303.3.4.2). Wash fountains shall have a maximum flow rate of not more than 1.8 gallons per minute (5.303.3.4.3). Metering faucets shall not deliver more than 0.20 gallons per cycle (5.303.3.4.4). Metering faucets for wash fountains shall have a maximum flow rate not more than 0.20 gallons per cycle (5.303.3.4.5).
- Outdoor potable water uses in landscaped areas. Nonresidential developments shall comply with a local water efficient landscape ordinance or the current California Department of Water Resources' Model Water Efficient Landscape Ordinance (MWELO), whichever is more stringent (5.304.1).
- Water meters. Separate submeters or metering devices shall be installed for new buildings or additions in excess of 50,000 sf or for excess consumption where any tenant within a new building or within an addition that is project to consume more than 1,000 gallons per day (GPD) (5.303.1.1 and 5.303.1.2).
- Outdoor water uses in rehabilitated landscape projects equal or greater than 2,500 sf. Rehabilitated landscape projects with an aggregate landscape area equal to or greater than 2,500 sf requiring a building or landscape permit (5.304.3).
- Commissioning. For new buildings 10,000 sf and over, building commissioning shall be included in the design and construction processes of the building project to verify that the building systems and components meet the owner's or owner representative's project requirements (5.410.2).

#### **CARB REFRIGERANT MANAGEMENT PROGRAM**

CARB adopted a regulation in 2009 to reduce refrigerant GHG emissions from stationary sources through refrigerant leak detection and monitoring, leak repair, system retirement and retrofitting, reporting and recordkeeping, and proper refrigerant cylinder use, sale, and disposal. The regulation is set forth in sections 95380 to 95398 of Title 17, CCR. The rules implementing the regulation establish a limit on statewide GHG emissions from stationary facilities with refrigeration systems with more than 50 pounds of a high GWP refrigerant. The refrigerant management program is designed to (1) reduce emissions of high-GWP GHG refrigerants from leaky stationary, non-residential refrigeration equipment; (2) reduce emissions from the installation and servicing of refrigeration and air-conditioning appliances using high-GWP refrigerants; and (3) verify GHG emission reductions.

#### **TRACTOR-TRAILER GHG REGULATION**

The tractors and trailers subject to this regulation must either use EPA SmartWay certified tractors and trailers or retrofit their existing fleet with SmartWay verified technologies. The regulation applies primarily to owners of 53-foot or longer box-type trailers, including both dry-van and refrigerated-van trailers, and owners of the HD tractors that pull them on California

highways. These owners are responsible for replacing or retrofitting their affected vehicles with compliant aerodynamic technologies and low rolling resistance tires. Sleeper cab tractors MY 2011 and later must be SmartWay certified. All other tractors must use SmartWay verified low rolling resistance tires. There are also requirements for trailers to have low rolling resistance tires and aerodynamic devices.

#### **PHASE 1 AND 2 HEAVY-DUTY VEHICLE GHG STANDARDS**

In September 2011, CARB has adopted a regulation for GHG emissions from HDTs and engines sold in California. It establishes GHG emission limits on truck and engine manufacturers and harmonizes with the EPA rule for new trucks and engines nationally. Existing HD vehicle regulations in California include engine criteria emission standards, tractor-trailer GHG requirements to implement SmartWay strategies (i.e., the Heavy-Duty Tractor-Trailer GHG Regulation), and in-use fleet retrofit requirements such as the Truck and Bus Regulation. The EPA rule has compliance requirements for new compression and spark ignition engines, as well as trucks from Class 2b through Class 8. Compliance requirements began with MY 2014 with stringency levels increasing through MY 2018. The rule organizes truck compliance into three groupings, which include a) HD pickups and vans; b) vocational vehicles; and c) combination tractors. The EPA rule does not regulate trailers.

CARB staff has worked jointly with the EPA and the NHTSA on the next phase of federal GHG emission standards for medium-duty trucks (MDT) and HDT vehicles, called federal Phase 2. The federal Phase 2 standards were built on the improvements in engine and vehicle efficiency required by the Phase 1 emission standards and represent a significant opportunity to achieve further GHG reductions for 2018 and later MY HDT vehicles, including trailers. The EPA and NHTSA have proposed to roll back GHG and fuel economy standards for cars and light-duty trucks, which suggests a similar rollback of Phase 2 standards for MDT and HDT vehicles may be pursued.

#### **SB 97 AND THE CEQA GUIDELINES UPDATE**

Passed in August 2007, SB 97 added Section 21083.05 to the Public Resources Code. The code states “(a) On or before July 1, 2009, the Office of Planning and Research (OPR) shall prepare, develop, and transmit to the Resources Agency guidelines for the mitigation of GHG emissions or the effects of GHG emissions as required by this division, including, but not limited to, effects associated with transportation or energy consumption. (b) On or before January 1, 2010, the Resources Agency shall certify and adopt guidelines prepared and developed by the OPR pursuant to subdivision (a).”

In 2012, Public Resources Code Section 21083.05 was amended to state:

*“The Office of Planning and Research and the Natural Resources Agency shall periodically update the guidelines for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions as required by this division, including, but not limited to, effects associated with transportation or energy consumption, to incorporate new information or criteria established by the State Air Resources Board pursuant to Division 25.5 (commencing with Section 38500) of the Health and Safety Code.”*

On December 28, 2018, the Natural Resources Agency announced the OAL approved the amendments to the *CEQA Guidelines* for implementing CEQA. The CEQA Amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in CEQA documents. The CEQA Amendments fit within the existing CEQA framework by amending existing *CEQA Guidelines* to reference climate change.

Section 15064.4 was added to the *CEQA Guidelines* and states that in determining the significance of a project's GHG emissions, the lead agency should focus its analysis on the reasonably foreseeable incremental contribution of the project's emissions to the effects of climate change. A project's incremental contribution may be cumulatively considerable even if it appears relatively insignificant compared to statewide, national, or global emissions. The agency's analysis should consider a timeframe that is appropriate for the project. The agency's analysis also must reasonably reflect evolving scientific knowledge and state regulatory schemes. Additionally, a lead agency may use a model or methodology to estimate GHG emissions resulting from a project. The lead agency has discretion to select the model or methodology it considers most appropriate to enable decision makers to intelligently take into account the project's incremental contribution to climate change. The lead agency must support its selection of a model or methodology with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use (43).

#### **2.7.4 REGIONAL**

The project is within the SCAB, which is under the jurisdiction of the SCAQMD.

#### **SCAQMD**

SCAQMD is the agency responsible for air quality planning and regulation in the SCAB. The SCAQMD addresses the impacts to climate change of projects subject to SCAQMD permit as a lead agency if they are the only agency having discretionary approval for the project and acts as a responsible agency when a land use agency must also approve discretionary permits for the project. The SCAQMD acts as an expert commenting agency for impacts to air quality. This expertise carries over to GHG emissions, so the agency helps local land use agencies through the development of models and emission thresholds that can be used to address GHG emissions.

In 2008, SCAQMD formed a Working Group to identify GHG emissions thresholds for land use projects that could be used by local lead agencies in the SCAB. The Working Group developed several different options that are contained in the SCAQMD Draft Guidance Document – Interim CEQA GHG Significance Threshold, which could be applied by lead agencies. The working group has not provided additional guidance since release of the interim guidance in 2008. The SCAQMD Board has not approved the thresholds; however, the Guidance Document provides substantial evidence supporting the approaches to significance of GHG emissions that can be considered by the lead agency in adopting its own threshold. The current interim thresholds consist of the following tiered approach:

- Tier 1 consists of evaluating whether or not the project qualifies for any applicable exemption under CEQA.

- Tier 2 consists of determining whether the project is consistent with a GHG reduction plan. If a project is consistent with a qualifying local GHG reduction plan, it does not have significant GHG emissions.
- Tier 3 consists of screening values, which the lead agency can choose, but must be consistent with all projects within its jurisdiction. A project's construction emissions are averaged over 30 years and are added to the project's operational emissions. If a project's emissions are below one of the following screening thresholds, then the project is less than significant:
  - Residential and commercial land use: 3,000 MTCO<sub>2</sub>e/yr
  - Industrial land use: 10,000 MTCO<sub>2</sub>e/yr
  - Based on land use type: residential: 3,500 MTCO<sub>2</sub>e/yr; commercial: 1,400 MTCO<sub>2</sub>e/yr; or mixed use: 3,000 MTCO<sub>2</sub>e/yr
- Tier 4 has the following options:
  - Option 1: Reduce Business-as-Usual (BAU) emissions by a certain percentage; this percentage is currently undefined.
  - Option 2: Early implementation of applicable AB 32 Scoping Plan measures
  - Option 3: 2020 target for service populations (SP), which includes residents and employees: 4.8 MTCO<sub>2</sub>e per SP per year for projects and 6.6 MTCO<sub>2</sub>e per SP per year for plans;
  - Option 3, 2035 target: 3.0 MTCO<sub>2</sub>e per SP per year for projects and 4.1 MTCO<sub>2</sub>e per SP per year for plans
- Tier 5 involves mitigation offsets to achieve target significance threshold.

The SCAQMD's interim thresholds used the Executive Order S-3-05-year 2050 goal as the basis for the Tier 3 screening level. Achieving the Executive Order's objective would contribute to worldwide efforts to cap CO<sub>2</sub> concentrations at 450 ppm, thus stabilizing global climate.

SCAQMD only has authority over GHG emissions from development projects that include air quality permits. At this time, it is unknown if the project would include stationary sources of emissions subject to SCAQMD permits. Notwithstanding, if the Project requires a stationary permit, it would be subject to the applicable SCAQMD regulations.

SCAQMD Regulation XXVII, adopted in 2009 includes the following rules:

- Rule 2700 defines terms and post global warming potentials.
- Rule 2701, SoCal Climate Solutions Exchange, establishes a voluntary program to encourage, quantify, and certify voluntary, high quality certified GHG emission reductions in the SCAQMD.
- Rule 2702, GHG Reduction Program created a program to produce GHG emission reductions within the SCAQMD. The SCAQMD would fund projects through contracts in response to requests for proposals or purchase reductions from other parties.

SCAQMD is the agency responsible for air quality planning and regulation in the SCAB. The SCAQMD addresses the impacts to climate change of projects subject to SCAQMD permit as a lead agency if they are the only agency having discretionary approval for the project and acts as

a responsible agency when a land use agency must also approve discretionary permits for the project. The SCAQMD acts as an expert commenting agency for impacts to air quality. This expertise carries over to GHG emissions, so the agency helps local land use agencies through the development of models and emission thresholds that can be used to address GHG emissions.

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## **3 PROJECT GHG IMPACT**

### **3.1 INTRODUCTION**

The Project has been evaluated to determine if it will result in a significant GHG impact. The significance of these potential impacts is described in the following sections.

### **3.2 STANDARDS OF SIGNIFICANCE**

The criteria used to determine the significance of potential Project-related GHG impacts are taken from the Initial Study Checklist in Appendix G of the State *CEQA Guidelines* (14 CCR of Regulations §§15000, et seq.). Based on these thresholds, a project would result in a significant impact related to GHG if it would (1):

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs?

### **3.3 MODELS EMPLOYED TO ANALYZE GHGS**

#### **3.3.1 CALIFORNIA EMISSIONS ESTIMATOR MODEL (CALEEMOD)**

In May 2021, the SCAQMD, in conjunction with the California Air Pollution Control Officers Association (CAPCOA) and other California air districts, released the latest version of the CalEEMod Version 2020.4.0. The purpose of this model is to calculate construction-source and operational-source criteria pollutants and GHG emissions from direct and indirect sources; and quantify applicable air quality and GHG reductions achieved from mitigation measures (44). Accordingly, the latest version of CalEEMod has been used for this Project to determine GHG emissions. Output from the model runs for construction and operational activity are provided in Appendices 3.1 through 3.2. CalEEMod includes GHG emissions from the following source categories: construction, area, energy, mobile, waste, water.

### **3.4 LIFE-CYCLE ANALYSIS NOT REQUIRED**

A full life-cycle analysis (LCA) for construction and operational activity is not included in this analysis due to the lack of consensus guidance on LCA methodology at this time (45). Life-cycle analysis (i.e., assessing economy-wide GHG emissions from the processes in manufacturing and transporting all raw materials used in the Project development, infrastructure, and on-going operations) depends on emission factors or econometric factors that are not well established for all processes. At this time, an LCA would be extremely speculative and thus has not been prepared.

Additionally, the SCAQMD recommends analyzing direct and indirect project GHG emissions generated within California and not life-cycle emissions because the life-cycle effects from a project could occur outside of California, might not be very well understood, or documented, and

would be challenging to mitigate (46). Additionally, the science to calculate life cycle emissions is not yet established or well defined; therefore, SCAQMD has not recommended, and is not requiring, life-cycle emissions analysis.

### 3.5 CONSTRUCTION EMISSIONS

Project construction activities would generate CO<sub>2</sub> and CH<sub>4</sub> emissions. The report *Pepper Avenue Specific Plan Amendment and Industrial Warehouse Project Air Quality Impact Analysis Report* (AQIA) contains detailed information regarding Project construction activities (47). As discussed in the AQIA, Construction related emissions are expected from the following construction activities:

- Site Preparation
- Grading
- Building Construction
- Paving
- Architectural Coating

#### 3.5.1 CONSTRUCTION DURATION

Construction is anticipated to begin in August 2022 and will last through December 2023. The construction schedule utilized in the analysis, shown in Table 3-2, represents a “worst-case” analysis scenario should construction occur any time after the respective dates since emission factors for construction decrease as time passes and the analysis year increases due to emission regulations becoming more stringent<sup>4</sup>. The duration of construction activity and associated equipment represents a reasonable approximation of the expected construction fleet as required per *CEQA Guidelines* (48).

**TABLE 3-2: CONSTRUCTION DURATION**

Construction Activity	Start Date	End Date	Days
Site Preparation	08/01/2022	08/12/2022	10
Grading	08/13/2022	10/14/2022	45
Building Construction	10/15/2022	12/08/2023	300
Paving	11/13/2023	12/08/2023	20
Architectural Coating	10/16/2023	12/08/2023	40

<sup>4</sup> As shown in the CalEEMod User's Guide Version 2020.4.0, Section 4.3 “OFFROAD Equipment” as the analysis year increases, emission factors for the same equipment pieces decrease due to the natural turnover of older equipment being replaced by newer less polluting equipment and new regulatory requirements.



### 3.5.2 CONSTRUCTION EQUIPMENT

Consistent with industry standards and typical construction practices, each piece of equipment listed in Table 3-3 will operate up to a total of eight (8) hours per day, or more than two-thirds of the period during which construction activities are allowed pursuant to the code.

**TABLE 3-3: CONSTRUCTION EQUIPMENT ASSUMPTIONS**

Construction Activity	Equipment	Amount	Hours Per Day
Site Preparation	Crawler Tractors	4	8
	Rubber Tired Dozers	3	8
Grading	Crawler Tractors	2	8
	Excavators	2	8
	Graders	1	8
	Rubber Tired Dozers	1	8
	Scrapers	2	8
Building Construction	Cranes	2	8
	Crawler Tractors	4	8
	Forklifts	4	8
	Generator Sets	2	8
	Welders	2	8
Paving	Pavers	2	8
	Paving Equipment	2	8
	Rollers	2	8
Architectural Coating	Air Compressors	1	8

### 3.5.3 CONSTRUCTION EMISSIONS SUMMARY

For construction phase Project emissions, GHGs are quantified and amortized over the life of the Project. To amortize the emissions over the life of the Project, the SCAQMD recommends calculating the total GHG emissions for the construction activities, dividing it by a 30-year Project life then adding that number to the annual operational phase GHG emissions (49). As such, construction emissions were amortized over a 30-year period and added to the annual operational phase GHG emissions. The amortized construction emissions are presented in Table 3-4.

**TABLE 3-4: AMORTIZED ANNUAL CONSTRUCTION EMISSIONS**

Year	Emissions (MT/yr)			
	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	Total CO <sub>2</sub> e <sup>5</sup>
2022	573.66	0.10	0.02	583.40
2023	1,519.50	0.21	0.06	1,542.09
Total GHG Emissions	2,093.16	0.31	0.08	2,125.49
<b>Amortized Construction Emissions (MTCO<sub>2</sub>e)</b>	<b>69.77</b>	<b>1.04E-02</b>	<b>2.75E-03</b>	<b>70.85</b>

Source CalEEMod annual construction-source emissions are presented in Appendices 3.1 and 3.2.

### 3.6 OPERATIONAL EMISSIONS

Operational activities associated with the Project will result in emissions of CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O from the following primary sources:

- Area Source Emissions
- Energy Source Emissions
- Mobile Source Emissions
- On-Site Cargo Handling Equipment Emissions
- Water Supply, Treatment, and Distribution
- Solid Waste

#### 3.6.1 AREA SOURCE EMISSIONS

##### LANDSCAPE MAINTENANCE EQUIPMENT

Landscape maintenance equipment would generate emissions from fuel combustion and evaporation of unburned fuel. Equipment in this category would include lawnmowers, shredders/grinders, blowers, trimmers, chain saws, and hedge trimmers used to maintain the landscaping of the Project. It should be noted that as October 9, 2021, Governor Gavin Newsom signed AB 1346. The bill aims to ban the sale of new gasoline-powered equipment under 25 gross horsepower (known as small off-road engines [SOREs]) by 2024. For purposes of analysis, the emissions associated with landscape maintenance equipment were calculated based on assumptions provided in CalEEMod.

#### 3.6.2 ENERGY SOURCE EMISSIONS

##### COMBUSTION EMISSIONS ASSOCIATED WITH NATURAL GAS AND ELECTRICITY

Electricity and natural gas are used by almost every project. Criteria pollutant emissions are emitted through the generation of electricity and consumption of natural gas. However, because electrical generating facilities for the Project area are located either outside the region (state) or offset through the use of pollution credits (RECLAIM) for generation within the SCAB, criteria

<sup>5</sup> CalEEMod reports the most common GHGs emitted which include CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O. These GHGs are then converted into the CO<sub>2</sub>e by multiplying the individual GHG by the GWP.

pollutant emissions from offsite generation of electricity are generally excluded from the evaluation of significance and only natural gas use is considered. Based on information provided by the Project Applicant, the Project would not utilize natural gas and therefore no air quality emissions from energy sources would occur.

### 3.6.3 MOBILE SOURCE EMISSIONS

The Project related operational emissions derive primarily from vehicle trips generated by the Project, including employee trips to and from the site and truck trips associated with the proposed uses. Trip characteristics available from the *Pepper Avenue Specific Plan Amendment and Industrial Warehouse Project Traffic Impact Analysis* were utilized in this analysis (50).

#### APPROACH FOR ANALYSIS OF THE PROJECT

To determine emissions from passenger car vehicles, the CalEEMod defaults were utilized for trip length and trip purpose for the proposed industrial land uses.

This analysis assumes that passenger cars include Light-Duty-Auto vehicles (LDA), Light-Duty-Trucks (LDT1<sup>6</sup> & LDT2<sup>7</sup>), Medium-Duty-Vehicles (MDV), and Motorcycles (MCY) vehicle types. To account for emissions generated by passenger cars, the following fleet mix was utilized in this analysis:

**TABLE 3-5: PASSENGER CAR FLEET MIX**

Land Use	% Vehicle Type				
	LDA	LDT1	LDT2	MDV	MCY
Warehouse	57.81	6.00	18.53	14.94	2.72

Note: The Project-specific passenger car fleet mix used in this analysis is based on a proportional split utilizing the default CalEEMod percentages assigned to LDA, LDT1, LDT2, and MDV vehicle types.

To determine emissions from trucks for the proposed industrial uses, the analysis incorporated the SCAQMD recommended truck trip length of 14.2 miles for 2-axle and 3-axle (LHDT1, LHDT2, and MHDT) trucks and 40 miles for 4+-axle (HHDT) trucks and weighting the average trip lengths using traffic trip percentages taken from the *Pepper Avenue Specific Plan Amendment and Industrial Warehouse Project Traffic Impact Analysis*. The trip length function for the warehouse has been revised 32.2 miles, with an assumption of 100% primary trips for the proposed industrial land uses.

Heavy trucks are broken down by truck type (or axle type) and are categorized as either Light-Heavy-Duty Trucks (LHDT1<sup>8</sup> & LHDT2<sup>9</sup>)/2-axle, Medium-Heavy-Duty Trucks (MHDT)/3-axle, and Heavy-Heavy-Duty Trucks (HHDT)/4+-axle. To account for emissions generated by trucks, the following fleet mix was utilized in this analysis:

<sup>6</sup> Vehicles under the LDT1 category have a gross vehicle weight rating (GVWR) of less than 6,000 lbs. and equivalent test weight (ETW) of less than or equal to 3,750 lbs.

<sup>7</sup> Vehicles under the LDT2 category have a GVWR of less than 6,000 lbs. and ETW between 3,751 lbs. and 5,750 lbs.

<sup>8</sup> Vehicles under the LHDT1 category have a GVWR of 8,501 to 10,000 lbs.

<sup>9</sup> Vehicles under the LHDT2 category have a GVWR of 10,001 to 14,000 lbs.

**TABLE 3-6: TRUCK FLEET MIX**

Land Use	% Vehicle Type			
	LHDT1	LHDT2	MHDT	HHDT
Warehouse	1.67	0.44	28.01	69.88

Note: Project-specific truck fleet mix is based on the number of trips generated by each truck type (LHDT1, LHDT2, MHDT, and HHDT) relative to the total number of truck trips.

### 3.6.4 ON-SITE CARGO HANDLING EQUIPMENT EMISSIONS

It is common for warehouse buildings to require the operation of exterior cargo handling equipment in the building's truck court areas. For this particular Project, on-site modeled operational equipment includes up to two (2) 200 horsepower (hp), compressed natural gas or gasoline-powered tractors/loaders/backhoes operating at 4 hours a day<sup>10</sup> for 365 days of the year.

### 3.6.5 WATER SUPPLY, TREATMENT AND DISTRIBUTION

Indirect GHG emissions result from the production of electricity used to convey, treat, and distribute 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. Unless otherwise noted, CalEEMod default parameters were used.

### 3.6.6 SOLID WASTE

Industrial land uses will result in the generation and disposal of solid waste. A percentage of this waste will be diverted from landfills by a variety of means, such as reducing the amount of waste generated, recycling, and/or composting. The remainder of the waste not diverted will be disposed of at a landfill. GHG emissions from landfills are associated with the anaerobic breakdown of material. GHG emissions associated with the disposal of solid waste associated with the proposed Project were calculated by CalEEMod using default parameters.

### 3.6.7 EMISSIONS SUMMARY

The annual GHG emissions associated with the Project are summarized in Table 3-7. As shown in Table 3-7, construction and operation of the Project would generate a total of 5,204.99 MTCO<sub>2</sub>e/yr.

<sup>10</sup> Based on Table II-3, Port and Rail Cargo Handling Equipment Demographics by Type, from CARB's Technology Assessment: Mobile Cargo Handling Equipment document, a single piece of equipment could operate up to 2 hours per day (Total Average Annual Activity divided by Total Number Pieces of Equipment). As such, the analysis conservatively assumes that the tractor/loader/backhoe would operate up to 4 hours per day.

**TABLE 3-7: PROJECT SCENARIO GHG EMISSIONS**

Emission Source	Emissions (MT/yr)			
	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	Total CO <sub>2</sub> e
Annual construction-related emissions amortized over 30 years	69.77	1.04E-02	2.75E-03	70.85
Area Source	0.04	0.00012	0.00	0.05
Energy Source	258.93	0.02	0.00307	260.31
Mobile Source	3,963.09	0.14	0.55	4,129.19
On-Site Equipment	101.50	0.03	0.00	102.32
Waste	92.54	5.47	0.00	229.27
Water Usage	294.58	3.68	0.09	412.99
<b>Total CO<sub>2</sub>e (All Sources)</b>	<b>5,204.99</b>			

Source: CalEEMod output, See Appendices 3.1 and 3.2 for detailed model outputs.

### 3.6.8 PROPOSED PEPPER AVENUE SPECIFIC PLAN AMENDMENT

The proposed Project includes a Specific Plan Amendment (referred to as the Pepper Avenue Specific Plan Amendment) would split Planning Area (PA) 1 into two separate PAs – PA 1, encompassing approximately 2.86 acres, and a new PA 10, encompassing approximately 11.56 acres. The reduced PA 1 would remain as Community Commercial, and no land use designation changes would occur. The proposed Pepper Avenue Specific Plan Amendment applies the new Light Industrial land use designation to PA 2, PA 3, and the new PA 10. In addition to the proposed light industrial development project proposed in PA 2 and PA 3, buildout of the proposed Specific Plan Amendment includes 250,185 sf of warehouse use in PA 10, a 4,600-sf convenience store/gas station, 2,400 sf of fast-food restaurant with drive-through window use, 2,400 sf of coffee shop with drive-through use, and a 3,600-sf strip retail plaza in PA 1.

It should be noted that construction-related emissions for the Pepper Avenue Specific Plan Amendment buildout of PA 1 and PA 10 are speculative and cannot be accurately determined at this stage of the planning process. Therefore, such impacts are too speculative to evaluate (see CEQA Guidelines Section 15145) and have not been quantified.

Table 3-8 summarizes the cumulative Project's GHG emissions from on-going operations of the Specific Plan Amendment and proposed light industrial project at buildout (buildout of PA 1, PA 2, PA 3, and PA 10). As shown, cumulative operation the Specific Plan Amendment at buildout would generate a total of 9,926.17 MTCO<sub>2</sub>e/yr.

**TABLE 3-8: CUMULATIVE SCENARIO GHG EMISSIONS**

Emission Source	Emissions (MT/yr)			
	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	Total CO <sub>2</sub> e
Area Source	0.02	6.00E-05	0.00	0.02
Energy Source	257.52	0.02	3.43E-03	258.93
Mobile Source	3,902.82	0.27	0.42	4,034.57
On-Site Equipment	50.75	0.02	0.00	51.16
Waste	62.54	3.70	0.00	154.93
Water Usage	158.30	1.96	0.05	221.57
<b>Total CO<sub>2</sub>e (All Sources)</b>	<b>4,721.19</b>			
<i>Proposed Project Emissions</i>	<i>5,204.99</i>			
<b>Total Cumulative Emissions</b>	<b>9,926.17</b>			

Source: CalEEMod output, See Appendices 3.1 and 3.3 for detailed model outputs.

### 3.8 GHG EMISSIONS FINDINGS AND RECOMMENDATIONS

#### 3.8.1 GHG IMPACT 1

***Potential to generate direct or indirect GHG emissions that would result in a significant impact on the environment.***

A numerical threshold for determining the significance of GHG emissions in the SCAB has not been established by the SCAQMD for Projects where it is not the lead agency. As an interim threshold based on guidance provided in the CAPCOA CEQA and Climate Change handbook, the City has opted to use a non-zero threshold approach based on Approach 2 of the handbook. Threshold 2.5 (Unit-Based Thresholds Based on Market Capture) establishes a numerical threshold based on capture of approximately 90% of emissions from future development. The latest threshold developed by SCAQMD using this method is 3,000 MTCO<sub>2</sub>e/yr for all projects (51).

The Project will result in approximately 5,204.99 MTCO<sub>2</sub>e/yr. The annual GHG emissions associated with the cumulative Project would be 9,926.17 MTCO<sub>2</sub>e/yr. As such, the Project would exceed the SCAQMD's numeric threshold of 3,000 MTCO<sub>2</sub>e/yr if it were applied. Thus, the Project would have the potential to result in a cumulatively considerable impact with respect to GHG emissions.

Project operational-source GHG emissions exceedances of applicable SCAQMD numeric threshold are therefore considered significant and unavoidable. Moreover, more than 79% of all operational-source emissions (by weight) would be generated by Project mobile sources (traffic). Neither the Project Applicant nor the Lead Agency (City of Rialto) can substantively or materially affect reductions in Project mobile-source emissions beyond the regulatory requirements. As such, although mitigation measures are required to reduce impacts to the maximum extent

feasible, Project operational-source GHG emissions exceedances of applicable SCAQMD numeric thresholds would be significant and unavoidable.

***The Project would have the potential to generate direct or indirect GHG emissions that would result in a significant impact on the environment.***

### 3.8.2 GHG IMPACT 2

***The Project would have the potential to conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.***

The Project's consistency with SB 32 (2017 Scoping Plan).

#### SB 32/2017 SCOPING PLAN CONSISTENCY

The *2017 Scoping Plan* Update reflects the 2030 target of a 40% reduction below 1990 levels, set by Executive Order B-30-15 and codified by SB 32. Table 3-9 summarizes the Project's consistency with the *2017 Scoping Plan*. As summarized, the project will not conflict with any of the provisions of the *Scoping Plan* and in fact supports seven of the action categories.

**TABLE 3-9: 2017 SCOPING PLAN CONSISTENCY SUMMARY<sup>11</sup>**

Action	Responsible Parties	Consistency
<b>Implement SB 350 by 2030</b>		
Increase the Renewables Portfolio Standard to 50% of retail sales by 2030 and ensure grid reliability.	CPUC, CEC, CARB	Consistent. The Project would use energy from Southern California Edison (SCE). SCE has committed to diversify the portfolio of energy sources by increasing energy from wind and solar sources. The Project would not interfere with or obstruct SCE energy source diversification efforts.
Establish annual targets for statewide energy efficiency savings and demand reduction that will achieve a cumulative doubling of statewide energy efficiency savings in electricity and natural gas end uses by 2030.		Consistent. The Project would be constructed in compliance with current California Building Code requirements. Specifically, new buildings must achieve compliance with 2019 Building and Energy Efficiency Standards and the 2019 California Green Building Standards requirements. The proposed Project includes energy efficient field lighting and fixtures that meet the current Title 24 Standards throughout the Project Site and would be a modern development with energy efficient boilers, heaters, and air conditioning systems.
Reduce GHG emissions in the electricity sector through the implementation of the above measures and other actions as modeled in Integrated Resource Planning (IRP) to meet GHG emissions reductions planning targets in the IRP process. Load-serving entities and publicly- owned		

<sup>11</sup> Source: California Air Resources Board, California's 2017 Climate Change Scoping Plan, November 2017 and CARB, Climate Change Scoping Plan, December 2008.

Action	Responsible Parties	Consistency
utilities meet GHG emissions reductions planning targets through a combination of measures as described in IRPs.		
<b>Implement Mobile Source Strategy (Cleaner Technology and Fuels)</b>		
At least 1.5 million zero emission and plug-in hybrid light-duty EVs by 2025.	CARB, California State Transportation Agency (CalSTA), Strategic Growth Council (SGC), California Department of Transportation (Caltrans), CEC, OPR, Local Agencies	Consistent. This is a CARB Mobile Source Strategy. The Project would not obstruct or interfere with CARB zero emission and plug-in hybrid light-duty EV 2025 targets. As this is a CARB enforced standard, vehicles that access the Project are required to comply with the standards and would therefore comply with the strategy.
At least 4.2 million zero emission and plug-in hybrid light-duty EVs by 2030.		Consistent. This is a CARB Mobile Source Strategy. The Project would not obstruct or interfere with CARB zero emission and plug-in hybrid light-duty EV 2030 targets. As this is a CARB enforced standard, vehicles that access the Project are required to comply with the standards and would therefore comply with the strategy.
Further increase GHG stringency on all light-duty vehicles beyond existing Advanced Clean cars regulations.		Consistent. This is a CARB Mobile Source Strategy. The Project would not obstruct or interfere with CARB efforts to further increase GHG stringency on all light-duty vehicles beyond existing Advanced Clean cars regulations. As this is a CARB enforced standard, vehicles that access the Project are required to comply with the standards and would therefore comply with the strategy.
Medium- and Heavy-Duty GHG Phase 2.		Consistent. This is a CARB Mobile Source Strategy. The Project would not obstruct or interfere with CARB efforts to implement Medium- and Heavy-Duty GHG Phase 2. As this is a CARB enforced standard, vehicles that access the Project are required to comply with the standards



Action	Responsible Parties	Consistency
		and would therefore comply with the strategy.
Innovative Clean Transit: Transition to a suite of to-be-determined innovative clean transit options. Assumed 20% of new urban buses purchased beginning in 2018 will be zero emission buses with the penetration of zero-emission technology ramped up to 100% of new sales in 2030. Also, new natural gas buses, starting in 2018, and diesel buses, starting in 2020, meet the optional heavy-duty low-NO <sub>x</sub> standard.		Not applicable. This measure is not within the purview of this Project.
Last Mile Delivery: New regulation that would result in the use of low NO <sub>x</sub> or cleaner engines and the deployment of increasing numbers of zero-emission trucks primarily for class 3-7 last mile delivery trucks in California. This measure assumes ZEVs comprise 2.5% of new Class 3–7 truck sales in local fleets starting in 2020, increasing to 10% in 2025 and remaining flat through 2030.		Consistent. This is a CARB Mobile Source Strategy. The Project would not obstruct or interfere with CARB efforts to improve last mile delivery emissions.
Further reduce VMT through continued implementation of SB 375 and regional Sustainable Communities Strategies; forthcoming statewide implementation of SB 743; and potential additional VMT reduction strategies not specified in the Mobile Source Strategy but included in the document “Potential VMT Reduction Strategies for Discussion.”		Consistent. This Project would not obstruct or interfere with implementation of SB 375 and would therefore not conflict with this measure.
Increase stringency of SB 375 Sustainable Communities Strategy (2035 targets).	CARB	Consistent. This is a CARB Mobile Source Strategy. The Project would not obstruct or interfere with CARB efforts to improve last mile delivery emissions.

Action	Responsible Parties	Consistency
Harmonize project performance with emissions reductions and increase competitiveness of transit and active transportation modes (e.g., via guideline documents, funding programs, project selection, etc.).	CalSTA, SGC, OPR, CARB, Governor's Office of Business and Economic Development (GO- Biz), California Infrastructure and Economic Development Bank (IBank), Department of Finance (DOF), California Transportation Commission (CTC), Caltrans	Consistent. Although this is directed towards CARB and Caltrans, the proposed Project would be designed to promote and support pedestrian activity on-site and in the Project Site area.
By 2019, develop pricing policies to support low-GHG transportation (e.g., low-emission vehicle zones for heavy duty, road user, parking pricing, transit discounts).	CalSTA, Caltrans, CTC, OPR, SGC, CARB	Not applicable. This measure is not within the purview of this Project.
<b>Implement California Sustainable Freight Action Plan</b>		
Improve freight system efficiency.	CalSTA, CalEPA, CNRA, CARB, Caltrans, CEC, GO-Biz	Consistent. This measure would apply to all trucks accessing the Project site, this may include existing trucks or new trucks that are part of the statewide goods movement sector.
Deploy over 100,000 freight vehicles and equipment capable of zero emission operation and maximize both zero and near-zero emission freight vehicles and equipment powered by renewable energy by 2030.		Not applicable. This measure is not within the purview of this Project.
Adopt a Low Carbon Fuel Standard with a Carbon Intensity reduction of 18%.	CARB	Consistent. When adopted, this measure would apply to all fuel purchased and used by the Project in the state. The Project would not obstruct or interfere with agency efforts to adopt a Low Carbon

Action	Responsible Parties	Consistency
		Fuel Standard with a Carbon Intensity reduction of 18%.
<b>Implement the Short-Lived Climate Pollutant Strategy (SLPS) by 2030</b>		
40% reduction in methane and hydrofluorocarbon emissions below 2013 levels.	CARB, CalRecycle, CDFA, California State Water Resource Control Board (SWRCB), Local Air Districts	Consistent. The Project would be required to comply with this measure and reduce any Project-source SLPS emissions accordingly. The Project would not obstruct or interfere agency efforts to reduce SLPS emissions.
50% reduction in black carbon emissions below 2013 levels.		Not applicable. This measure is not within the purview of this Project.
By 2019, develop regulations and programs to support organic waste landfill reduction goals in the SLCP and SB 1383.	CARB, CalRecycle, CDFA, SWRCB, Local Air Districts	Not applicable. This measure is not within the purview of this Project.
Implement the post-2020 Cap-and-Trade Program with declining annual caps.	CARB	Consistent. The Project would be required to comply with any applicable Cap-and-Trade Program provisions. The Project would not obstruct or interfere agency efforts to implement the post-2020 Cap-and-Trade Program.
<b>By 2018, develop Integrated Natural and Working Lands Implementation Plan to secure California's land base as a net carbon sink</b>		
Protect land from conversion through conservation easements and other incentives.	CNRA, Departments Within CDFA, CalEPA, CARB	Not applicable. This measure is not within the purview of this Project. However, the Project site is not an identified property that needs to be conserved.
Increase the long-term resilience of carbon storage in the land base and enhance sequestration capacity.		Consistent. The Project site is vacant disturbed property and does not comprise an area that would effectively provide for carbon sequestration. The Project would not obstruct or interfere agency efforts to increase the long-term resilience of carbon storage in the land base and enhance sequestration capacity.

Action	Responsible Parties	Consistency
Utilize wood and agricultural products to increase the amount of carbon stored in the natural and built environments.		Consistent. To the extent appropriate for the proposed industrial buildings, wood products would be used in construction, including for the roof structure. Additionally, the proposed Project includes landscaping.
Establish scenario projections to serve as the foundation for the Implementation Plan.		Not applicable. This measure is not within the purview of this Project.
Implement Forest Carbon Plan	CNRA, California Department of Forestry and Fire Protection (CAL FIRE), CalEPA and Departments Within	Not applicable. This measure is not within the purview of this Project.
Identify and expand funding and financing mechanisms to support GHG reductions across all sectors.	State Agencies & Local Agencies	Not applicable. This measure is not within the purview of this Project.

As shown above, the Project would not conflict with any of the *2017 Scoping Plan* elements as any regulations adopted would apply directly or indirectly to the Project. Further, recent studies show that the State's existing and proposed regulatory framework will allow the State to reduce its GHG emissions level to 40% below 1990 levels by 2030 (38).

***The Project would not have the potential to conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.***

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## 4 REFERENCES

1. **State of California.** 2020 CEQA California Environmental Quality Act. 2020.
2. **Air Resources Board.** Assembly Bill 32: Global Warming Solutions Act. [Online] 2006.  
<http://www.arb.ca.gov/cc/ab32/ab32.htm>.
3. —. Sustainable Communities. [Online] 2008. <http://www.arb.ca.gov/cc/sb375/sb375.htm>.
4. —. Clean Car Standards - Pavley, Assembly Bill 1493. [Online] September 24, 2009.  
<http://www.arb.ca.gov/cc/ccms/ccms.htm>.
5. **Building Standards Commission.** California Building Standards Code (Title 24, California Code of Regulations). [Online] <http://www.bsc.ca.gov/codes.aspx>.
6. **California Energy Commission.** California Code of Regulations, TITLE 20, Division 2. [Online] September 3, 2013. <http://www.energy.ca.gov/reports/title20/index.html>.
7. **Air Resources Board.** Title 17 - California Code of Regulation. [Online] 2010.  
<http://www.arb.ca.gov/regs/regs-17.htm>.
8. **Department of Water Resources.** Updated Model Water Efficient Landscape Ordinance AB 1881. [Online] 2006. [Cited: November 13, 2013.]  
[http://www.water.ca.gov/wateruseefficiency/landscapeordinance/updatedOrd\\_history.cfm](http://www.water.ca.gov/wateruseefficiency/landscapeordinance/updatedOrd_history.cfm).
9. **California Energy Commission.** SB 1368 Emission Performance Standards. [Online] September 29, 2006. [http://www.energy.ca.gov/emission\\_standards/](http://www.energy.ca.gov/emission_standards/).
10. —. Renewables Portfolio Standard (RPS). [Online] 2002. <http://www.energy.ca.gov/portfolio/>.
11. **California Legislative Information.** Senate Bill No. 32. [Online] September 8, 2016.  
[https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill\\_id=201520160SB32](https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB32).
12. **California Air Resources Board.** EMFAC2017 An Update to California On-Road Mobile Source Emissions Inventory. [Online] November 9, 2017. [Cited: June 12, 2019.]  
[https://ww3.arb.ca.gov/msei/downloads/emfac2017\\_workshop\\_11\\_09\\_2017\\_final.pdf](https://ww3.arb.ca.gov/msei/downloads/emfac2017_workshop_11_09_2017_final.pdf).
13. **City of Rialto.** *City of Rialto General Plan*. 2010.
14. **National Oceanic and Atmospheric Administration.** Greenhouse Gases - Water Vapor. *NOAA National Centers For Environmental Information*. [Online] <https://www.ncdc.noaa.gov/monitoring-references/faq/greenhouse-gases.php?section=watervapor>.
15. *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report. International Panel on Climate Change.* 4, 2007.
16. *The Carbon Cycle and Climate Change.* **Bennington, Bret J.** 1, s.l. : Brooks/Cole. ISBN 1 3: 978-0-495-73855-8.
17. **The National Institute for Occupational Safety and Health.** Carbon Dioxide. *Centers for Disease Control and Prevention*. [Online] <https://www.cdc.gov/niosh/npg/npgd0103.html>.
18. **National Oceanic and Atmospheric Administration.** Greenhouse Gases - Methane. *NOAA National Centers for Environmental Information*. [Online] <https://www.ncdc.noaa.gov/monitoring-references/faq/greenhouse-gases.php?section=methane>.
19. **World Resources Institute.** Climate Analysis Indicator Tool (CAIT). [Online] <http://cait.wri.org>.

20. **National Oceanic and Atmospheric Administration.** Greenhouse Gases - Chlorofluorocarbons. *NOAA National Centers For Environmental Information*. [Online] <https://www.ncdc.noaa.gov/monitoring-references/faq/greenhouse-gases.php?section=chlorofluorocarbons>.
21. **United States Environmental Protection Agency.** Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear. *Environmental Protection Agency*. [Online] May 7, 2014. <https://www.epa.gov/sites/production/files/2016-02/documents/mehl-arb-presentation-2014-wkshp.pdf>.
22. **World Resources Institute.** Nitrogen Trifluoride Now Required in GHG Protocol Greenhouse Gas Emissions Inventory. [Online] May 22, 2013. <https://www.wri.org/blog/2013/05/nitrogen-trifluoride-now-required-ghg-protocol-greenhouse-gas-emissions-inventories>.
23. **National Center for Biotechnology Information.** Nitrogen Trifluoride. *PubChem Compound Database*. [Online] <https://pubchem.ncbi.nlm.nih.gov/compound/24553>.
24. **American Lung Association.** Climate Change. [Online] <http://www.lung.org/our-initiatives/healthy-air/outdoor/climate-change/>.
25. **Barbara H. Allen-Diaz.** Climate change affects us all. *University of California Agriculture and Natural Resources*. [Online] April 1, 2009. <http://calag.ucanr.edu/Archive/?article=ca.v063n02p51>.
26. **Intergovernmental Panel on Climate Change.** Climate Change 2013 The Physical Science Basis - Working Group I Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. *AR5 Climate Change 2013: The Physical Science Basis*. [Online] September 2013. [https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5\\_all\\_final.pdf](https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_all_final.pdf).
27. **United Nations.** GHG Profiles - Annex I. [Online] [http://di.unfccc.int/ghg\\_profile\\_annex1](http://di.unfccc.int/ghg_profile_annex1).
28. —. GHG Profiles - Non-Annex I. [Online] [http://di.unfccc.int/ghg\\_profile\\_non\\_annex1](http://di.unfccc.int/ghg_profile_non_annex1).
29. **World Resources Institute.** Climate Analysis Indicator Tool (CAIT). [Online] <http://cait.wri.org>.
30. **Air Resources Board.** 2020 GHG Inventory. *California Greenhouse Gas Emission Inventory 2000-2019 Edition*. [Online] [https://ww3.arb.ca.gov/cc/inventory/pubs/reports/2000\\_2019/ghg\\_inventory\\_trends\\_00-19.pdf](https://ww3.arb.ca.gov/cc/inventory/pubs/reports/2000_2019/ghg_inventory_trends_00-19.pdf).
31. **California Energy Commission.** *Our Changing Climate Assessing the Risks to California*. 2006.
32. **Center for Climate and Energy Solutions (C2ES).** Outcomes of the U.N. Climate Change Conference. *Center for Climate and Energy Solutions (C2ES)*. [Online] 2015. <http://www.c2es.org/international/negotiations/cop21-paris/summary>.
33. **Agency, United States Environmental Protection.** Endangerment and Cause or Contribute Findings for Greenhouse Gases under the Section 202(a) of the Clean Air Act. *United States Environmental Protection Agency*. [Online] 2020. <https://www.epa.gov/ghgemissions/endangerment-and-cause-or-contribute-findings-greenhouse-gases-under-section-202a-clean>.
34. **Federal Register.** Mid-Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light-Duty Vehicles. [Online] 2018. <https://www.federalregister.gov/documents/2018/04/13/2018-07364/mid-term-evaluation-of-greenhouse-gas-emissions-standards-for-model-year-2022-2025-light-duty>.
35. **Administration, National Highway Traffic Safety.** SAFE: The Safer Affordable Fuel-Efficient 'SAFE' Vehicle Rule. *National Highway Traffic Safety Administration*. [Online] 2020. <https://www.nhtsa.gov/corporate-average-fuel-economy/safe>.
36. **United States Environmental Protection Agency.** SmartWay. [Online] 2017. <https://www.epa.gov/smartway/learn-about-smartway>.

37. **California Air Resources Board.** California's 2017 Climate Change Scoping Plan . [Online] 2017. [https://ww3.arb.ca.gov/cc/scopingplan/scoping\\_plan\\_2017\\_es.pdf](https://ww3.arb.ca.gov/cc/scopingplan/scoping_plan_2017_es.pdf).
38. **Lawrence Berkeley National Laboratory.** California's Policies Can Significantly Cut Greenhouse Gas Emissions through 2030. *Lawrence Berkeley National Laboratory*. [Online] January 22, 2015. <http://newscenter.lbl.gov/2015/01/22/californias-policies-can-significantly-cut-greenhouse-gas-emissions-2030/>.
39. **Ernest Orlando Lawrence Berkeley National Laboratory.** Modeling California policy impacts on greenhouse gas emissions. [Online] 2015. <https://eaei.lbl.gov/sites/all/files/lbnl-7008e.pdf>.
40. **California Air Resources Board.** Legal Disclaimer & User's Notice. [Online] April 2019. [https://ww3.arb.ca.gov/cc/capandtrade/capandtrade/ct\\_reg\\_unofficial.pdf](https://ww3.arb.ca.gov/cc/capandtrade/capandtrade/ct_reg_unofficial.pdf).
41. —. Climate Change Scoping Plan. [Online] 2014. [https://ww3.arb.ca.gov/cc/scopingplan/2013\\_update/first\\_update\\_climate\\_change\\_scoping\\_plan.pdf](https://ww3.arb.ca.gov/cc/scopingplan/2013_update/first_update_climate_change_scoping_plan.pdf).
42. —. Low Carbon Fuel Standard. [Online] December 2019. <https://ww3.arb.ca.gov/fuels/lcfs/lcfs.htm>.
43. **Association of Environmental Professionals.** 2018 CEQA California Environmental Quality Act. 2018.
44. **California Air Pollution Control Officers Association (CAPCOA).** California Emissions Estimator Model (CalEEMod). [Online] September 2016. [www.caleemod.com](http://www.caleemod.com).
45. **California Natural Resources Agency.** Final Statement of Reasons for Regulatory Action, Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB97. [Online] December 2009.
46. *Minutes for the GHG CEQA Significance.* **South Coast Air Quality Management District.** 2008.
47. **Urban Crossroads, Inc.** *Pepper Avenue Industrial Warehouse Air Quality Impact Analysis.* 2022.
48. **State of California.** 2019 CEQA California Environmental Quality Act. 2019.
49. **South Coast Air Quality Management District.** *Greenhouse Gas CEQA Significance Threshold Stakeholder Working Group #13.* [Powerpoint] Diamond Bar : s.n., 2009.
50. **EPD Solutions, Inc.** *Pepper Avenue Industrial Warehouse Traffic Impact Analysis.* 2022.
51. **South Coast Air Quality Management District.** BOARD MEETING DATE: December 5, 2008 Agenda No. 31. *South Coast Air Quality Management District.* [Online] December 5, 2008. <http://www.aqmd.gov/hb/2008/December/081231a.htm>.
52. **Air Resources Board.** 2019 GHG Inventory. *California Greenhouse Gas Emission Inventory 2000-2017 Edition.* [Online] [Cited: September 19, 2019.] <http://www.arb.ca.gov/cc/inventory/data/data.htm>.



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## 5 CERTIFICATIONS

The contents of this GHG study report represent an accurate depiction of the GHG impacts associated with the proposed Pepper Avenue Specific Plan Amendment and Industrial Warehouse Project Project. The information contained in this GHG report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at [hqureshi@urbanxroads.com](mailto:hqureshi@urbanxroads.com).

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### EDUCATION

Master of Science in Environmental Studies  
California State University, Fullerton • May 2010

Bachelor of Arts in Environmental Analysis and Design  
University of California, Irvine • June, 2006

### PROFESSIONAL AFFILIATIONS

AEP – Association of Environmental Planners  
AWMA – Air and Waste Management Association  
ASTM – American Society for Testing and Materials

### PROFESSIONAL CERTIFICATIONS

Planned Communities and Urban Infill – Urban Land Institute • June 2011  
Indoor Air Quality and Industrial Hygiene – EMSL Analytical • April 2008  
Principles of Ambient Air Monitoring – California Air Resources Board • August 2007  
AB2588 Regulatory Standards – Trinity Consultants • November 2006  
Air Dispersion Modeling – Lakes Environmental • June 2006

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## **APPENDIX 3.1:**

### **CALEEMOD CONSTRUCTION EMISSIONS MODEL OUTPUTS**

## Pepper Avenue Industrial (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****Pepper Avenue Industrial (Construction - Unmitigated)****San Bernardino-South Coast County, Annual****1.0 Project Characteristics****1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	485.00	1000sqft	11.13	485,000.00	0
Other Asphalt Surfaces	434.42	1000sqft	9.97	434,415.00	0
Parking Lot	392.00	Space	2.73	118,620.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	32
<b>Climate Zone</b>	10			<b>Operational Year</b>	2023
<b>Utility Company</b>	Southern California Edison				
<b>CO2 Intensity (lb/MWhr)</b>	390.98	<b>CH4 Intensity (lb/MWhr)</b>	0.033	<b>N2O Intensity (lb/MWhr)</b>	0.004

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics -

Land Use - Total Project area is 23.83 acres

Construction Phase - Construction schedule adjusted to reflect the 2023 Opening Year

Off-road Equipment - Hours are based on an 8-hour workday

Off-road Equipment - Crawler Tractors used in lieu of Tractors/Loaders/Backhoes

Off-road Equipment - Crawler Tractors used in lieu of Tractors/Loaders/Backhoes

Off-road Equipment -

Off-road Equipment - Crawler Tractors used in lieu of Tractors/Loaders/Backhoes

Trips and VMT - Vendor Trips adjusted based on CalEEMod defaults for Building Construction and number of days for Site Preparation, Grading, and Building Construction

## Pepper Avenue Industrial (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

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

Grading -

Architectural Coating - Rule 1113

Vehicle Trips - Construction run only

Energy Use - Construction run only

Water And Wastewater - Construction run only

Solid Waste - Construction run only

Construction Off-road Equipment Mitigation - Rule 403

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblConstructionPhase	NumDays	35.00	45.00
tblConstructionPhase	NumDays	370.00	300.00
tblConstructionPhase	NumDays	20.00	40.00
tblEnergyUse	LightingElect	0.35	0.00
tblEnergyUse	LightingElect	1.17	0.00
tblEnergyUse	NT24E	0.82	0.00
tblEnergyUse	NT24NG	0.03	0.00
tblEnergyUse	T24E	0.33	0.00
tblEnergyUse	T24NG	1.98	0.00
tblGrading	MaterialExported	0.00	12,490.00
tblLandUse	LandUseSquareFeet	156,800.00	118,620.00
tblLandUse	LotAcreage	3.53	2.73
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00

## Pepper Avenue Industrial (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

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

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblSolidWaste	SolidWasteGenerationRate	455.90	0.00
tblTripsAndVMT	HaulingTripNumber	1,561.00	1,922.00
tblTripsAndVMT	VendorTripNumber	0.00	5.00
tblTripsAndVMT	VendorTripNumber	0.00	22.00
tblTripsAndVMT	VendorTripNumber	170.00	144.00
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CNW_TTP	41.00	0.00
tblVehicleTrips	CW_TL	16.60	0.00
tblVehicleTrips	CW_TL	16.60	0.00
tblVehicleTrips	CW_TL	16.60	0.00
tblVehicleTrips	CW_TTP	59.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	0.00
tblVehicleTrips	ST_TR	1.74	0.00
tblVehicleTrips	SU_TR	1.74	0.00
tblVehicleTrips	WD_TR	1.74	0.00
tblWater	IndoorWaterUseRate	112,156,250.00	0.00

**2.0 Emissions Summary**

## Pepper Avenue Industrial (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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					
2022	0.2976	2.9514	2.0903	6.3400e-003	0.5227	0.1120	0.6347	0.1857	0.1041	0.2898	0.0000	573.6630	573.6630	0.1026	0.0241	583.3983
2023	1.9368	5.8607	5.6768	0.0168	0.7176	0.2251	0.9427	0.1932	0.2110	0.4042	0.0000	1,519.5004	1,519.5004	0.2089	0.0583	1,542.0911
Maximum	1.9368	5.8607	5.6768	0.0168	0.7176	0.2251	0.9427	0.1932	0.2110	0.4042	0.0000	1,519.5004	1,519.5004	0.2089	0.0583	1,542.0911

**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					
2022	0.2976	2.9514	2.0903	6.3400e-003	0.3150	0.1120	0.4270	0.1024	0.1041	0.2065	0.0000	573.6626	573.6626	0.1026	0.0241	583.3979
2023	1.9368	5.8607	5.6768	0.0168	0.7176	0.2251	0.9427	0.1932	0.2110	0.4042	0.0000	1,519.4995	1,519.4995	0.2089	0.0583	1,542.0903
Maximum	1.9368	5.8607	5.6768	0.0168	0.7176	0.2251	0.9427	0.1932	0.2110	0.4042	0.0000	1,519.4995	1,519.4995	0.2089	0.0583	1,542.0903



## Pepper Avenue Industrial (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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
Percent Reduction	0.00	0.00	0.00	0.00	16.75	0.00	13.17	21.99	0.00	12.00	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)
1	8-1-2022	10-31-2022	1.9260	1.9260
2	11-1-2022	1-31-2023	1.8804	1.8804
3	2-1-2023	4-30-2023	1.6649	1.6649
4	5-1-2023	7-31-2023	1.7153	1.7153
5	8-1-2023	9-30-2023	1.1373	1.1373
		Highest	1.9260	1.9260

**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	2.0223	1.5000e-004	0.0167	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0326	0.0326	9.0000e-005	0.0000	0.0347
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	2.0223	1.5000e-004	0.0167	0.0000	0.0000	6.0000e-005	6.0000e-005	0.0000	6.0000e-005	6.0000e-005	0.0000	0.0326	0.0326	9.0000e-005	0.0000	0.0347

## Pepper Avenue Industrial (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

**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	2.0223	1.5000e-004	0.0167	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0326	0.0326	9.0000e-005	0.0000	0.0347
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
<b>Total</b>	<b>2.0223</b>	<b>1.5000e-004</b>	<b>0.0167</b>	<b>0.0000</b>	<b>0.0000</b>	<b>6.0000e-005</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>6.0000e-005</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>0.0326</b>	<b>0.0326</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>0.0347</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
<b>Percent Reduction</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

**3.0 Construction Detail****Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	8/1/2022	8/12/2022	5	10	
2	Grading	Grading	8/13/2022	10/14/2022	5	45	
3	Building Construction	Building Construction	10/15/2022	12/8/2023	5	300	

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

4	Paving	Paving	11/13/2023	12/8/2023	5	20
5	Architectural Coating	Architectural Coating	10/16/2023	12/8/2023	5	40

**Acres of Grading (Site Preparation Phase): 35****Acres of Grading (Grading Phase): 180****Acres of Paving: 12.7****Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 727,500; Non-Residential Outdoor: 242,500; Striped Parking Area: 33,182 (Architectural Coating – sqft)****OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Crawler Tractors	4	8.00	212	0.43
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading	Crawler Tractors	2	8.00	212	0.43
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Building Construction	Cranes	2	8.00	231	0.29
Building Construction	Crawler Tractors	4	8.00	212	0.43
Building Construction	Forklifts	4	8.00	89	0.20
Building Construction	Generator Sets	2	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Building Construction	Welders	2	8.00	46	0.45
Architectural Coating	Air Compressors	1	8.00	78	0.48
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36

## Pepper Avenue Industrial (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

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

Paving	Rollers	2	8.00	80	0.38
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**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
Site Preparation	7	18.00	5.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	22.00	1,922.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	14	436.00	144.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	87.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

Water Exposed Area

**3.2 Site Preparation - 2022****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					0.1089	0.0000	0.1089	0.0517	0.0000	0.0517	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0224	0.2521	0.1000	2.8000e-004		0.0108	0.0108		9.9300e-003	9.9300e-003	0.0000	25.0258	25.0258	8.0900e-003	0.0000	25.2281
<b>Total</b>	<b>0.0224</b>	<b>0.2521</b>	<b>0.1000</b>	<b>2.8000e-004</b>	<b>0.1089</b>	<b>0.0108</b>	<b>0.1197</b>	<b>0.0517</b>	<b>9.9300e-003</b>	<b>0.0616</b>	<b>0.0000</b>	<b>25.0258</b>	<b>25.0258</b>	<b>8.0900e-003</b>	<b>0.0000</b>	<b>25.2281</b>

## Pepper Avenue Industrial (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****3.2 Site Preparation - 2022****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	4.0000e-005	1.1500e-003	4.1000e-004	0.0000	1.6000e-004	1.0000e-005	1.7000e-004	5.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.4540	0.4540	1.0000e-005	7.0000e-005	0.4743
Worker	3.4000e-004	2.7000e-004	3.1900e-003	1.0000e-005	9.9000e-004	1.0000e-005	9.9000e-004	2.6000e-004	0.0000	2.7000e-004	0.0000	0.7916	0.7916	2.0000e-005	2.0000e-005	0.7989
<b>Total</b>	<b>3.8000e-004</b>	<b>1.4200e-003</b>	<b>3.6000e-003</b>	<b>1.0000e-005</b>	<b>1.1500e-003</b>	<b>2.0000e-005</b>	<b>1.1600e-003</b>	<b>3.1000e-004</b>	<b>1.0000e-005</b>	<b>3.3000e-004</b>	<b>0.0000</b>	<b>1.2455</b>	<b>1.2455</b>	<b>3.0000e-005</b>	<b>9.0000e-005</b>	<b>1.2732</b>

**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					0.0425	0.0000	0.0425	0.0202	0.0000	0.0202	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0224	0.2521	0.1000	2.8000e-004		0.0108	0.0108		9.9300e-003	9.9300e-003	0.0000	25.0257	25.0257	8.0900e-003	0.0000	25.2281
<b>Total</b>	<b>0.0224</b>	<b>0.2521</b>	<b>0.1000</b>	<b>2.8000e-004</b>	<b>0.0425</b>	<b>0.0108</b>	<b>0.0533</b>	<b>0.0202</b>	<b>9.9300e-003</b>	<b>0.0301</b>	<b>0.0000</b>	<b>25.0257</b>	<b>25.0257</b>	<b>8.0900e-003</b>	<b>0.0000</b>	<b>25.2281</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****3.2 Site Preparation - 2022****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	4.0000e-005	1.1500e-003	4.1000e-004	0.0000	1.6000e-004	1.0000e-005	1.7000e-004	5.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.4540	0.4540	1.0000e-005	7.0000e-005	0.4743
Worker	3.4000e-004	2.7000e-004	3.1900e-003	1.0000e-005	9.9000e-004	1.0000e-005	9.9000e-004	2.6000e-004	0.0000	2.7000e-004	0.0000	0.7916	0.7916	2.0000e-005	2.0000e-005	0.7989
<b>Total</b>	<b>3.8000e-004</b>	<b>1.4200e-003</b>	<b>3.6000e-003</b>	<b>1.0000e-005</b>	<b>1.1500e-003</b>	<b>2.0000e-005</b>	<b>1.1600e-003</b>	<b>3.1000e-004</b>	<b>1.0000e-005</b>	<b>3.3000e-004</b>	<b>0.0000</b>	<b>1.2455</b>	<b>1.2455</b>	<b>3.0000e-005</b>	<b>9.0000e-005</b>	<b>1.2732</b>

**3.3 Grading - 2022****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					0.2317	0.0000	0.2317	0.0849	0.0000	0.0849	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0963	1.0689	0.6569	1.6100e-003		0.0429	0.0429		0.0395	0.0395	0.0000	141.3915	141.3915	0.0457	0.0000	142.5347
<b>Total</b>	<b>0.0963</b>	<b>1.0689</b>	<b>0.6569</b>	<b>1.6100e-003</b>	<b>0.2317</b>	<b>0.0429</b>	<b>0.2746</b>	<b>0.0849</b>	<b>0.0395</b>	<b>0.1244</b>	<b>0.0000</b>	<b>141.3915</b>	<b>141.3915</b>	<b>0.0457</b>	<b>0.0000</b>	<b>142.5347</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****3.3 Grading - 2022****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	3.5700e-003	0.1384	0.0345	5.7000e-004	0.0166	1.3800e-003	0.0179	4.5500e-003	1.3200e-003	5.8600e-003	0.0000	55.8535	55.8535	2.3900e-003	8.8500e-003	58.5509
Vendor	8.4000e-004	0.0228	8.0800e-003	9.0000e-005	3.1200e-003	2.6000e-004	3.3800e-003	9.0000e-004	2.5000e-004	1.1500e-003	0.0000	8.9884	8.9884	2.4000e-004	1.3300e-003	9.3911
Worker	1.7000e-003	1.3300e-003	0.0160	4.0000e-005	4.9300e-003	3.0000e-005	4.9600e-003	1.3100e-003	2.0000e-005	1.3300e-003	0.0000	3.9579	3.9579	1.1000e-004	1.1000e-004	3.9946
<b>Total</b>	<b>6.1100e-003</b>	<b>0.1626</b>	<b>0.0585</b>	<b>7.0000e-004</b>	<b>0.0246</b>	<b>1.6700e-003</b>	<b>0.0263</b>	<b>6.7600e-003</b>	<b>1.5900e-003</b>	<b>8.3400e-003</b>	<b>0.0000</b>	<b>68.7998</b>	<b>68.7998</b>	<b>2.7400e-003</b>	<b>0.0103</b>	<b>71.9366</b>

**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					0.0903	0.0000	0.0903	0.0331	0.0000	0.0331	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0963	1.0689	0.6569	1.6100e-003		0.0429	0.0429		0.0395	0.0395	0.0000	141.3913	141.3913	0.0457	0.0000	142.5345
<b>Total</b>	<b>0.0963</b>	<b>1.0689</b>	<b>0.6569</b>	<b>1.6100e-003</b>	<b>0.0903</b>	<b>0.0429</b>	<b>0.1333</b>	<b>0.0331</b>	<b>0.0395</b>	<b>0.0726</b>	<b>0.0000</b>	<b>141.3913</b>	<b>141.3913</b>	<b>0.0457</b>	<b>0.0000</b>	<b>142.5345</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****3.3 Grading - 2022****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	3.5700e-003	0.1384	0.0345	5.7000e-004	0.0166	1.3800e-003	0.0179	4.5500e-003	1.3200e-003	5.8600e-003	0.0000	55.8535	55.8535	2.3900e-003	8.8500e-003	58.5509
Vendor	8.4000e-004	0.0228	8.0800e-003	9.0000e-005	3.1200e-003	2.6000e-004	3.3800e-003	9.0000e-004	2.5000e-004	1.1500e-003	0.0000	8.9884	8.9884	2.4000e-004	1.3300e-003	9.3911
Worker	1.7000e-003	1.3300e-003	0.0160	4.0000e-005	4.9300e-003	3.0000e-005	4.9600e-003	1.3100e-003	2.0000e-005	1.3300e-003	0.0000	3.9579	3.9579	1.1000e-004	1.1000e-004	3.9946
<b>Total</b>	<b>6.1100e-003</b>	<b>0.1626</b>	<b>0.0585</b>	<b>7.0000e-004</b>	<b>0.0246</b>	<b>1.6700e-003</b>	<b>0.0263</b>	<b>6.7600e-003</b>	<b>1.5900e-003</b>	<b>8.3400e-003</b>	<b>0.0000</b>	<b>68.7998</b>	<b>68.7998</b>	<b>2.7400e-003</b>	<b>0.0103</b>	<b>71.9366</b>

**3.4 Building Construction - 2022****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	0.1205	1.2486	0.7811	1.8500e-003		0.0538	0.0538		0.0504	0.0504	0.0000	159.8376	159.8376	0.0410	0.0000	160.8628
<b>Total</b>	<b>0.1205</b>	<b>1.2486</b>	<b>0.7811</b>	<b>1.8500e-003</b>		<b>0.0538</b>	<b>0.0538</b>		<b>0.0504</b>	<b>0.0504</b>	<b>0.0000</b>	<b>159.8376</b>	<b>159.8376</b>	<b>0.0410</b>	<b>0.0000</b>	<b>160.8628</b>



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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****3.4 Building Construction - 2022****Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.7500e-003	0.1824	0.0647	7.4000e-004	0.0250	2.0700e-003	0.0270	7.2100e-003	1.9800e-003	9.1800e-003	0.0000	71.9072	71.9072	1.9400e-003	0.0107	75.1291
Worker	0.0452	0.0355	0.4255	1.1400e-003	0.1315	7.0000e-004	0.1322	0.0349	6.5000e-004	0.0356	0.0000	105.4556	105.4556	3.0000e-003	3.0300e-003	106.4338
<b>Total</b>	<b>0.0520</b>	<b>0.2179</b>	<b>0.4901</b>	<b>1.8800e-003</b>	<b>0.1565</b>	<b>2.7700e-003</b>	<b>0.1592</b>	<b>0.0421</b>	<b>2.6300e-003</b>	<b>0.0447</b>	<b>0.0000</b>	<b>177.3628</b>	<b>177.3628</b>	<b>4.9400e-003</b>	<b>0.0137</b>	<b>181.5629</b>

**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	0.1205	1.2486	0.7811	1.8500e-003		0.0538	0.0538		0.0504	0.0504	0.0000	159.8374	159.8374	0.0410	0.0000	160.8626
<b>Total</b>	<b>0.1205</b>	<b>1.2486</b>	<b>0.7811</b>	<b>1.8500e-003</b>		<b>0.0538</b>	<b>0.0538</b>		<b>0.0504</b>	<b>0.0504</b>	<b>0.0000</b>	<b>159.8374</b>	<b>159.8374</b>	<b>0.0410</b>	<b>0.0000</b>	<b>160.8626</b>

## Pepper Avenue Industrial (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****3.4 Building Construction - 2022****Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.7500e-003	0.1824	0.0647	7.4000e-004	0.0250	2.0700e-003	0.0270	7.2100e-003	1.9800e-003	9.1800e-003	0.0000	71.9072	71.9072	1.9400e-003	0.0107	75.1291
Worker	0.0452	0.0355	0.4255	1.1400e-003	0.1315	7.0000e-004	0.1322	0.0349	6.5000e-004	0.0356	0.0000	105.4556	105.4556	3.0000e-003	3.0300e-003	106.4338
<b>Total</b>	<b>0.0520</b>	<b>0.2179</b>	<b>0.4901</b>	<b>1.8800e-003</b>	<b>0.1565</b>	<b>2.7700e-003</b>	<b>0.1592</b>	<b>0.0421</b>	<b>2.6300e-003</b>	<b>0.0447</b>	<b>0.0000</b>	<b>177.3628</b>	<b>177.3628</b>	<b>4.9400e-003</b>	<b>0.0137</b>	<b>181.5629</b>

**3.4 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	0.4913	4.9294	3.4199	8.2400e-003		0.2104	0.2104		0.1972	0.1972	0.0000	711.6633	711.6633	0.1816	0.0000	716.2030
<b>Total</b>	<b>0.4913</b>	<b>4.9294</b>	<b>3.4199</b>	<b>8.2400e-003</b>		<b>0.2104</b>	<b>0.2104</b>		<b>0.1972</b>	<b>0.1972</b>	<b>0.0000</b>	<b>711.6633</b>	<b>711.6633</b>	<b>0.1816</b>	<b>0.0000</b>	<b>716.2030</b>

## Pepper Avenue Industrial (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****3.4 Building Construction - 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	0.0199	0.6508	0.2635	3.1600e-003	0.1113	4.6600e-003	0.1159	0.0321	4.4600e-003	0.0366	0.0000	307.4352	307.4352	8.0000e-003	0.0454	321.1744
Worker	0.1861	0.1389	1.7379	4.9300e-003	0.5856	2.9500e-003	0.5886	0.1555	2.7100e-003	0.1583	0.0000	457.3811	457.3811	0.0120	0.0124	461.3794
<b>Total</b>	<b>0.2060</b>	<b>0.7897</b>	<b>2.0013</b>	<b>8.0900e-003</b>	<b>0.6969</b>	<b>7.6100e-003</b>	<b>0.7045</b>	<b>0.1876</b>	<b>7.1700e-003</b>	<b>0.1948</b>	<b>0.0000</b>	<b>764.8164</b>	<b>764.8164</b>	<b>0.0200</b>	<b>0.0578</b>	<b>782.5538</b>

**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	0.4913	4.9294	3.4199	8.2400e-003		0.2104	0.2104		0.1972	0.1972	0.0000	711.6624	711.6624	0.1816	0.0000	716.2022
<b>Total</b>	<b>0.4913</b>	<b>4.9294</b>	<b>3.4199</b>	<b>8.2400e-003</b>		<b>0.2104</b>	<b>0.2104</b>		<b>0.1972</b>	<b>0.1972</b>	<b>0.0000</b>	<b>711.6624</b>	<b>711.6624</b>	<b>0.1816</b>	<b>0.0000</b>	<b>716.2022</b>

## Pepper Avenue Industrial (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****3.4 Building Construction - 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	0.0199	0.6508	0.2635	3.1600e-003	0.1113	4.6600e-003	0.1159	0.0321	4.4600e-003	0.0366	0.0000	307.4352	307.4352	8.0000e-003	0.0454	321.1744
Worker	0.1861	0.1389	1.7379	4.9300e-003	0.5856	2.9500e-003	0.5886	0.1555	2.7100e-003	0.1583	0.0000	457.3811	457.3811	0.0120	0.0124	461.3794
<b>Total</b>	<b>0.2060</b>	<b>0.7897</b>	<b>2.0013</b>	<b>8.0900e-003</b>	<b>0.6969</b>	<b>7.6100e-003</b>	<b>0.7045</b>	<b>0.1876</b>	<b>7.1700e-003</b>	<b>0.1948</b>	<b>0.0000</b>	<b>764.8164</b>	<b>764.8164</b>	<b>0.0200</b>	<b>0.0578</b>	<b>782.5538</b>

**3.5 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	0.0103	0.1019	0.1458	2.3000e-004		5.1000e-003	5.1000e-003		4.6900e-003	4.6900e-003	0.0000	20.0269	20.0269	6.4800e-003	0.0000	20.1888
Paving	0.0166					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0270</b>	<b>0.1019</b>	<b>0.1458</b>	<b>2.3000e-004</b>		<b>5.1000e-003</b>	<b>5.1000e-003</b>		<b>4.6900e-003</b>	<b>4.6900e-003</b>	<b>0.0000</b>	<b>20.0269</b>	<b>20.0269</b>	<b>6.4800e-003</b>	<b>0.0000</b>	<b>20.1888</b>

## Pepper Avenue Industrial (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****3.5 Paving - 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	5.2000e-004	3.9000e-004	4.8800e-003	1.0000e-005	1.6400e-003	1.0000e-005	1.6500e-003	4.4000e-004	1.0000e-005	4.4000e-004	0.0000	1.2845	1.2845	3.0000e-005	3.0000e-005	1.2958
<b>Total</b>	<b>5.2000e-004</b>	<b>3.9000e-004</b>	<b>4.8800e-003</b>	<b>1.0000e-005</b>	<b>1.6400e-003</b>	<b>1.0000e-005</b>	<b>1.6500e-003</b>	<b>4.4000e-004</b>	<b>1.0000e-005</b>	<b>4.4000e-004</b>	<b>0.0000</b>	<b>1.2845</b>	<b>1.2845</b>	<b>3.0000e-005</b>	<b>3.0000e-005</b>	<b>1.2958</b>

**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	0.0103	0.1019	0.1458	2.3000e-004		5.1000e-003	5.1000e-003		4.6900e-003	4.6900e-003	0.0000	20.0268	20.0268	6.4800e-003	0.0000	20.1888
Paving	0.0166					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0270</b>	<b>0.1019</b>	<b>0.1458</b>	<b>2.3000e-004</b>		<b>5.1000e-003</b>	<b>5.1000e-003</b>		<b>4.6900e-003</b>	<b>4.6900e-003</b>	<b>0.0000</b>	<b>20.0268</b>	<b>20.0268</b>	<b>6.4800e-003</b>	<b>0.0000</b>	<b>20.1888</b>

## Pepper Avenue Industrial (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****3.5 Paving - 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	5.2000e-004	3.9000e-004	4.8800e-003	1.0000e-005	1.6400e-003	1.0000e-005	1.6500e-003	4.4000e-004	1.0000e-005	4.4000e-004	0.0000	1.2845	1.2845	3.0000e-005	3.0000e-005	1.2958
<b>Total</b>	<b>5.2000e-004</b>	<b>3.9000e-004</b>	<b>4.8800e-003</b>	<b>1.0000e-005</b>	<b>1.6400e-003</b>	<b>1.0000e-005</b>	<b>1.6500e-003</b>	<b>4.4000e-004</b>	<b>1.0000e-005</b>	<b>4.4000e-004</b>	<b>0.0000</b>	<b>1.2845</b>	<b>1.2845</b>	<b>3.0000e-005</b>	<b>3.0000e-005</b>	<b>1.2958</b>

**3.6 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	1.2009					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.1100e-003	0.0348	0.0483	8.0000e-005		1.8900e-003	1.8900e-003		1.8900e-003	1.8900e-003	0.0000	6.8087	6.8087	4.1000e-004	0.0000	6.8189
<b>Total</b>	<b>1.2060</b>	<b>0.0348</b>	<b>0.0483</b>	<b>8.0000e-005</b>		<b>1.8900e-003</b>	<b>1.8900e-003</b>		<b>1.8900e-003</b>	<b>1.8900e-003</b>	<b>0.0000</b>	<b>6.8087</b>	<b>6.8087</b>	<b>4.1000e-004</b>	<b>0.0000</b>	<b>6.8189</b>

## Pepper Avenue Industrial (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****3.6 Architectural Coating - 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	6.0600e-003	4.5300e-003	0.0566	1.6000e-004	0.0191	1.0000e-004	0.0192	5.0700e-003	9.0000e-005	5.1600e-003	0.0000	14.9006	14.9006	3.9000e-004	4.0000e-004	15.0309
<b>Total</b>	<b>6.0600e-003</b>	<b>4.5300e-003</b>	<b>0.0566</b>	<b>1.6000e-004</b>	<b>0.0191</b>	<b>1.0000e-004</b>	<b>0.0192</b>	<b>5.0700e-003</b>	<b>9.0000e-005</b>	<b>5.1600e-003</b>	<b>0.0000</b>	<b>14.9006</b>	<b>14.9006</b>	<b>3.9000e-004</b>	<b>4.0000e-004</b>	<b>15.0309</b>

**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	1.2009					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.1100e-003	0.0348	0.0483	8.0000e-005		1.8900e-003	1.8900e-003		1.8900e-003	1.8900e-003	0.0000	6.8087	6.8087	4.1000e-004	0.0000	6.8189
<b>Total</b>	<b>1.2060</b>	<b>0.0348</b>	<b>0.0483</b>	<b>8.0000e-005</b>		<b>1.8900e-003</b>	<b>1.8900e-003</b>		<b>1.8900e-003</b>	<b>1.8900e-003</b>	<b>0.0000</b>	<b>6.8087</b>	<b>6.8087</b>	<b>4.1000e-004</b>	<b>0.0000</b>	<b>6.8189</b>

## Pepper Avenue Industrial (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****3.6 Architectural Coating - 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	6.0600e-003	4.5300e-003	0.0566	1.6000e-004	0.0191	1.0000e-004	0.0192	5.0700e-003	9.0000e-005	5.1600e-003	0.0000	14.9006	14.9006	3.9000e-004	4.0000e-004	15.0309
<b>Total</b>	<b>6.0600e-003</b>	<b>4.5300e-003</b>	<b>0.0566</b>	<b>1.6000e-004</b>	<b>0.0191</b>	<b>1.0000e-004</b>	<b>0.0192</b>	<b>5.0700e-003</b>	<b>9.0000e-005</b>	<b>5.1600e-003</b>	<b>0.0000</b>	<b>14.9006</b>	<b>14.9006</b>	<b>3.9000e-004</b>	<b>4.0000e-004</b>	<b>15.0309</b>

**4.0 Operational Detail - Mobile****4.1 Mitigation Measures Mobile**



## Pepper Avenue Industrial (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	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
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	0.00	0.00	0.00	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
Other Asphalt Surfaces	0.537785	0.055838	0.172353	0.139003	0.027005	0.007196	0.011392	0.017285	0.000559	0.000254	0.025303	0.000954	0.005071
Parking Lot	0.537785	0.055838	0.172353	0.139003	0.027005	0.007196	0.011392	0.017285	0.000559	0.000254	0.025303	0.000954	0.005071

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

## 5.0 Energy Detail

## 5.1 Mitigation Measures Energy

[illegible]

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

### Unmitigated

[illegible]

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

Mitigated

[illegible]

## Pepper Avenue Industrial (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

**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			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

## Pepper Avenue Industrial (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

**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****Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**6.0 Area Detail****6.1 Mitigation Measures Area**

## Pepper Avenue Industrial (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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	2.0223	1.5000e-004	0.0167	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0326	0.0326	9.0000e-005	0.0000	0.0347
Unmitigated	2.0223	1.5000e-004	0.0167	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0326	0.0326	9.0000e-005	0.0000	0.0347

**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	0.2325					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.7883					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.5500e-003	1.5000e-004	0.0167	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0326	0.0326	9.0000e-005	0.0000	0.0347
<b>Total</b>	<b>2.0223</b>	<b>1.5000e-004</b>	<b>0.0167</b>	<b>0.0000</b>		<b>6.0000e-005</b>	<b>6.0000e-005</b>		<b>6.0000e-005</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>0.0326</b>	<b>0.0326</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>0.0347</b>

## Pepper Avenue Industrial (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

**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	0.2325					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.7883					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.5500e-003	1.5000e-004	0.0167	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0326	0.0326	9.0000e-005	0.0000	0.0347
<b>Total</b>	<b>2.0223</b>	<b>1.5000e-004</b>	<b>0.0167</b>	<b>0.0000</b>		<b>6.0000e-005</b>	<b>6.0000e-005</b>		<b>6.0000e-005</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>0.0326</b>	<b>0.0326</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>0.0347</b>

**7.0 Water Detail****7.1 Mitigation Measures Water**



## Pepper Avenue Industrial (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

**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	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			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

## Pepper Avenue Industrial (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

**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			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**8.0 Waste Detail**

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**8.1 Mitigation Measures Waste**

## Pepper Avenue Industrial (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

**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	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			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

## Pepper Avenue Industrial (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

**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			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**9.0 Operational Offroad**

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

Equipment Type	Number
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Pepper Avenue Industrial (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

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

## **11.0 Vegetation**

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## **APPENDIX 3.2:**

### **CALEEMOD OPERATIONAL EMISSIONS MODEL OUTPUTS**

## Pepper Avenue Industrial (Operations) - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****Pepper Avenue Industrial (Operations)****San Bernardino-South Coast County, Annual****1.0 Project Characteristics****1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	485.00	1000sqft	11.13	485,000.00	0
User Defined Industrial	485.00	User Defined Unit	0.00	0.00	0
Other Asphalt Surfaces	434.42	1000sqft	9.97	434,415.00	0
Parking Lot	392.00	Space	2.73	118,620.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	32
<b>Climate Zone</b>	10			<b>Operational Year</b>	2023
<b>Utility Company</b>	Southern California Edison				
<b>CO2 Intensity (lb/MWhr)</b>	390.98	<b>CH4 Intensity (lb/MWhr)</b>	0.033	<b>N2O Intensity (lb/MWhr)</b>	0.004

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics -

Land Use - Total Project area is 23.83 acres

Construction Phase - Operations run only

Off-road Equipment - Operations run only

Vehicle Trips - Trip characteristics are based on information provided in the Traffic Impact Analysis

Operational Off-Road Equipment - Based on SCAQMD High Cube Warehouse Truck Trip Study White Paper Summary of Business Survey Results (2014)

Fleet Mix - Passenger Car Mix estimated based on the CalEEMod default fleet mix and the ratio of the vehicle classes (LDA, LDT1, LDT2, MDV, & MCY). Truck Mix based on information in the TIA



## Pepper Avenue Industrial (Operations) - San Bernardino-South Coast County, Annual

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

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	0.00
tblFleetMix	HHD	0.02	0.00
tblFleetMix	HHD	0.02	0.70
tblFleetMix	LDA	0.54	0.58
tblFleetMix	LDA	0.54	0.00
tblFleetMix	LDT1	0.06	0.06
tblFleetMix	LDT1	0.06	0.00
tblFleetMix	LDT2	0.17	0.19
tblFleetMix	LDT2	0.17	0.00
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD1	0.03	0.02
tblFleetMix	LHD2	7.1960e-003	0.00
tblFleetMix	LHD2	7.1960e-003	4.4000e-003
tblFleetMix	MCY	0.03	0.03
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MDV	0.14	0.15
tblFleetMix	MDV	0.14	0.00
tblFleetMix	MH	5.0710e-003	0.00
tblFleetMix	MH	5.0710e-003	0.00
tblFleetMix	MHD	0.01	0.00
tblFleetMix	MHD	0.01	0.28
tblFleetMix	OBUS	5.5900e-004	0.00
tblFleetMix	OBUS	5.5900e-004	0.00
tblFleetMix	SBUS	9.5400e-004	0.00
tblFleetMix	SBUS	9.5400e-004	0.00
tblFleetMix	UBUS	2.5400e-004	0.00
tblFleetMix	UBUS	2.5400e-004	0.00
tblLandUse	LandUseSquareFeet	156,800.00	118,620.00

## Pepper Avenue Industrial (Operations) - San Bernardino-South Coast County, Annual

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

tblLandUse	LotAcreage	3.53	2.73
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	365.00
tblOperationalOffRoadEquipment	OperFuelType	Diesel	CNG
tblOperationalOffRoadEquipment	OperHorsePower	97.00	200.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	4.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	2.00
tblVehicleTrips	CW_TL	16.60	32.16
tblVehicleTrips	CW_TTP	0.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	ST_TR	1.74	0.09
tblVehicleTrips	ST_TR	0.00	0.06
tblVehicleTrips	SU_TR	1.74	0.04
tblVehicleTrips	SU_TR	0.00	0.02
tblVehicleTrips	WD_TR	1.74	1.03
tblVehicleTrips	WD_TR	0.00	0.68

**2.0 Emissions Summary**

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## Pepper Avenue Industrial (Operations) - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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					
2022	0.0000	0.0000	0.0000	0.0000	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					
2022	0.0000	0.0000	0.0000	0.0000	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	N2O	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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## Pepper Avenue Industrial (Operations) - San Bernardino-South Coast County, Annual

**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	2.0229	2.1000e-004	0.0229	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0446	0.0446	1.2000e-004	0.0000	0.0475
Energy	5.2600e-003	0.0478	0.0401	2.9000e-004		3.6300e-003	3.6300e-003		3.6300e-003	3.6300e-003	0.0000	258.9338	258.9338	0.0185	3.0700e-003	260.3103
Mobile	0.3382	6.5495	4.1625	0.0407	1.8431	0.0674	1.9105	0.5107	0.0644	0.5751	0.0000	3,963.0865	3,963.0865	0.1445	0.5453	4,129.1926
Offroad	0.0403	0.3782	0.2735	1.1600e-003		0.0137	0.0137		0.0126	0.0126	0.0000	101.5038	101.5038	0.0328	0.0000	102.3246
Waste						0.0000	0.0000		0.0000	0.0000	92.5436	0.0000	92.5436	5.4692	0.0000	229.2728
Water						0.0000	0.0000		0.0000	0.0000	35.5820	258.9931	294.5751	3.6765	0.0889	412.9919
<b>Total</b>	<b>2.4066</b>	<b>6.9756</b>	<b>4.4991</b>	<b>0.0422</b>	<b>1.8431</b>	<b>0.0848</b>	<b>1.9279</b>	<b>0.5107</b>	<b>0.0807</b>	<b>0.5914</b>	<b>128.1256</b>	<b>4,582.5618</b>	<b>4,710.6873</b>	<b>9.3416</b>	<b>0.6373</b>	<b>5,134.1397</b>

## Pepper Avenue Industrial (Operations) - San Bernardino-South Coast County, Annual

## 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	2.0229	2.1000e-004	0.0229	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0446	0.0446	1.2000e-004	0.0000	0.0475
Energy	5.2600e-003	0.0478	0.0401	2.9000e-004		3.6300e-003	3.6300e-003		3.6300e-003	3.6300e-003	0.0000	258.9338	258.9338	0.0185	3.0700e-003	260.3103
Mobile	0.3382	6.5495	4.1625	0.0407	1.8431	0.0674	1.9105	0.5107	0.0644	0.5751	0.0000	3,963.0865	3,963.0865	0.1445	0.5453	4,129.1926
Offroad	0.0403	0.3782	0.2735	1.1600e-003		0.0137	0.0137		0.0126	0.0126	0.0000	101.5038	101.5038	0.0328	0.0000	102.3246
Waste						0.0000	0.0000		0.0000	0.0000	92.5436	0.0000	92.5436	5.4692	0.0000	229.2728
Water						0.0000	0.0000		0.0000	0.0000	35.5820	258.9931	294.5751	3.6765	0.0889	412.9919
<b>Total</b>	<b>2.4066</b>	<b>6.9756</b>	<b>4.4991</b>	<b>0.0422</b>	<b>1.8431</b>	<b>0.0848</b>	<b>1.9279</b>	<b>0.5107</b>	<b>0.0807</b>	<b>0.5914</b>	<b>128.1256</b>	<b>4,582.5618</b>	<b>4,710.6873</b>	<b>9.3416</b>	<b>0.6373</b>	<b>5,134.1397</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
<b>Percent Reduction</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## 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	8/1/2022	7/31/2022	5	0	

## Pepper Avenue Industrial (Operations) - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****Acres of Grading (Site Preparation Phase): 0****Acres of Grading (Grading Phase): 0****Acres of Paving: 12.7****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	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

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

### Unmitigated Construction On-Site

[illegible]

### Unmitigated Construction Off-Site

[illegible]

## Pepper Avenue Industrial (Operations) - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****3.2 Demolition - 2022****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	0.0000	0.0000
<b>Total</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**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
<b>Total</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**4.0 Operational Detail - Mobile**



## Pepper Avenue Industrial (Operations) - San Bernardino-South Coast County, Annual

**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	0.3382	6.5495	4.1625	0.0407	1.8431	0.0674	1.9105	0.5107	0.0644	0.5751	0.0000	3,963.0865	3,963.0865	0.1445	0.5453	4,129.1926
Unmitigated	0.3382	6.5495	4.1625	0.0407	1.8431	0.0674	1.9105	0.5107	0.0644	0.5751	0.0000	3,963.0865	3,963.0865	0.1445	0.5453	4,129.1926

**4.2 Trip Summary Information**

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	498.00	43.65	17.46	1,561,899	1,561,899
User Defined Industrial	331.98	29.10	11.64	2,844,035	2,844,035
Total	829.98	72.75	29.10	4,405,934	4,405,934

**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
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3
User Defined Industrial	32.16	8.40	6.90	100.00	0.00	0.00	100	0	0

## Pepper Avenue Industrial (Operations) - San Bernardino-South Coast County, Annual

**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
Other Asphalt Surfaces	0.537785	0.055838	0.172353	0.139003	0.027005	0.007196	0.011392	0.017285	0.000559	0.000254	0.025303	0.000954	0.005071
Parking Lot	0.537785	0.055838	0.172353	0.139003	0.027005	0.007196	0.011392	0.017285	0.000559	0.000254	0.025303	0.000954	0.005071
Unrefrigerated Warehouse-No Rail	0.578100	0.060000	0.185300	0.149400	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.027200	0.000000	0.000000
User Defined Industrial	0.000000	0.000000	0.000000	0.000000	0.016700	0.004400	0.280100	0.698800	0.000000	0.000000	0.000000	0.000000	0.000000

**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	206.9121	206.9121	0.0175	2.1200e-003	207.9795
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	206.9121	206.9121	0.0175	2.1200e-003	207.9795
NaturalGas Mitigated	5.2600e-003	0.0478	0.0401	2.9000e-004		3.6300e-003	3.6300e-003		3.6300e-003	3.6300e-003	0.0000	52.0217	52.0217	1.0000e-003	9.5000e-004	52.3309
NaturalGas Unmitigated	5.2600e-003	0.0478	0.0401	2.9000e-004		3.6300e-003	3.6300e-003		3.6300e-003	3.6300e-003	0.0000	52.0217	52.0217	1.0000e-003	9.5000e-004	52.3309

## Pepper Avenue Industrial (Operations) - San Bernardino-South Coast County, Annual

**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****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					
Other Asphalt Surfaces	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
Unrefrigerated Warehouse-No Rail	974850	5.2600e-003	0.0478	0.0401	2.9000e-004		3.6300e-003	3.6300e-003		3.6300e-003	3.6300e-003	0.0000	52.0217	52.0217	1.0000e-003	9.5000e-004	52.3309
User Defined Industrial	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
<b>Total</b>		<b>5.2600e-003</b>	<b>0.0478</b>	<b>0.0401</b>	<b>2.9000e-004</b>		<b>3.6300e-003</b>	<b>3.6300e-003</b>		<b>3.6300e-003</b>	<b>3.6300e-003</b>	<b>0.0000</b>	<b>52.0217</b>	<b>52.0217</b>	<b>1.0000e-003</b>	<b>9.5000e-004</b>	<b>52.3309</b>

## Pepper Avenue Industrial (Operations) - San Bernardino-South Coast County, Annual

**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					
Other Asphalt Surfaces	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
Unrefrigerated Warehouse-No Rail	974850	5.2600e-003	0.0478	0.0401	2.9000e-004		3.6300e-003	3.6300e-003		3.6300e-003	3.6300e-003	0.0000	52.0217	52.0217	1.0000e-003	9.5000e-004	52.3309
User Defined Industrial	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
<b>Total</b>		<b>5.2600e-003</b>	<b>0.0478</b>	<b>0.0401</b>	<b>2.9000e-004</b>		<b>3.6300e-003</b>	<b>3.6300e-003</b>		<b>3.6300e-003</b>	<b>3.6300e-003</b>	<b>0.0000</b>	<b>52.0217</b>	<b>52.0217</b>	<b>1.0000e-003</b>	<b>9.5000e-004</b>	<b>52.3309</b>

## Pepper Avenue Industrial (Operations) - San Bernardino-South Coast County, Annual

**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			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	41517	7.3629	6.2000e-004	8.0000e-005	7.4008
Unrefrigerated Warehouse-No Rail	1.1252e+006	199.5492	0.0168	2.0400e-003	200.5787
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>206.9121</b>	<b>0.0175</b>	<b>2.1200e-003</b>	<b>207.9795</b>

## Pepper Avenue Industrial (Operations) - San Bernardino-South Coast County, Annual

**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****Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	41517	7.3629	6.2000e-004	8.0000e-005	7.4008
Unrefrigerated Warehouse-No Rail	1.1252e+006	199.5492	0.0168	2.0400e-003	200.5787
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>206.9121</b>	<b>0.0175</b>	<b>2.1200e-003</b>	<b>207.9795</b>

**6.0 Area Detail****6.1 Mitigation Measures Area**

## Pepper Avenue Industrial (Operations) - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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	2.0229	2.1000e-004	0.0229	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0446	0.0446	1.2000e-004	0.0000	0.0475
Unmitigated	2.0229	2.1000e-004	0.0229	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0446	0.0446	1.2000e-004	0.0000	0.0475

**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	0.2325					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.7883					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.1200e-003	2.1000e-004	0.0229	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0446	0.0446	1.2000e-004	0.0000	0.0475
<b>Total</b>	<b>2.0229</b>	<b>2.1000e-004</b>	<b>0.0229</b>	<b>0.0000</b>		<b>8.0000e-005</b>	<b>8.0000e-005</b>		<b>8.0000e-005</b>	<b>8.0000e-005</b>	<b>0.0000</b>	<b>0.0446</b>	<b>0.0446</b>	<b>1.2000e-004</b>	<b>0.0000</b>	<b>0.0475</b>

## Pepper Avenue Industrial (Operations) - San Bernardino-South Coast County, Annual

**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	0.2325					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.7883					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.1200e-003	2.1000e-004	0.0229	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0446	0.0446	1.2000e-004	0.0000	0.0475
<b>Total</b>	<b>2.0229</b>	<b>2.1000e-004</b>	<b>0.0229</b>	<b>0.0000</b>		<b>8.0000e-005</b>	<b>8.0000e-005</b>		<b>8.0000e-005</b>	<b>8.0000e-005</b>	<b>0.0000</b>	<b>0.0446</b>	<b>0.0446</b>	<b>1.2000e-004</b>	<b>0.0000</b>	<b>0.0475</b>

**7.0 Water Detail****7.1 Mitigation Measures Water**



## Pepper Avenue Industrial (Operations) - San Bernardino-South Coast County, Annual

**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	294.5751	3.6765	0.0889	412.9919
Unmitigated	294.5751	3.6765	0.0889	412.9919

**7.2 Water by Land Use****Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	112.156 / 0	294.5751	3.6765	0.0889	412.9919
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>294.5751</b>	<b>3.6765</b>	<b>0.0889</b>	<b>412.9919</b>

## Pepper Avenue Industrial (Operations) - San Bernardino-South Coast County, Annual

**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			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	112.156 / 0	294.5751	3.6765	0.0889	412.9919
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>294.5751</b>	<b>3.6765</b>	<b>0.0889</b>	<b>412.9919</b>

**8.0 Waste Detail**

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**8.1 Mitigation Measures Waste**

## Pepper Avenue Industrial (Operations) - San Bernardino-South Coast County, Annual

**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	92.5436	5.4692	0.0000	229.2728
Unmitigated	92.5436	5.4692	0.0000	229.2728

**8.2 Waste by Land Use****Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	455.9	92.5436	5.4692	0.0000	229.2728
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>92.5436</b>	<b>5.4692</b>	<b>0.0000</b>	<b>229.2728</b>

## Pepper Avenue Industrial (Operations) - San Bernardino-South Coast County, Annual

**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			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	455.9	92.5436	5.4692	0.0000	229.2728
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>92.5436</b>	<b>5.4692</b>	<b>0.0000</b>	<b>229.2728</b>

**9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Tractors/Loaders/Backhoes	2	4.00	365	200	0.37	CNG

## Pepper Avenue Industrial (Operations) - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****UnMitigated/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
Equipment Type	tons/yr										MT/yr					
Tractors/Loaders/Backhoes	0.0403	0.3782	0.2735	1.1600e-003		0.0137	0.0137		0.0126	0.0126	0.0000	101.5038	101.5038	0.0328	0.0000	102.3246
<b>Total</b>	<b>0.0403</b>	<b>0.3782</b>	<b>0.2735</b>	<b>1.1600e-003</b>		<b>0.0137</b>	<b>0.0137</b>		<b>0.0126</b>	<b>0.0126</b>	<b>0.0000</b>	<b>101.5038</b>	<b>101.5038</b>	<b>0.0328</b>	<b>0.0000</b>	<b>102.3246</b>

**10.0 Stationary Equipment****Fire Pumps and Emergency Generators**

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

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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**User Defined Equipment**

Equipment Type	Number
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**11.0 Vegetation**

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## **APPENDIX 3.3:**

### **CALEEMOD CUMULATIVE OPERATIONAL EMISSIONS MODEL OUTPUTS**

## Pepper Avenue Industrial Project (PA 1 and PA 10 Operations) - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****Pepper Avenue Industrial Project (PA 1 and PA 10 Operations)****San Bernardino-South Coast County, Annual****1.0 Project Characteristics****1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	250.19	1000sqft	5.74	250,185.00	0
Convenience Market with Gas Pumps	4.60	1000sqft	0.11	4,600.00	0
Fast Food Restaurant with Drive Thru	4.80	1000sqft	0.11	4,800.00	0
Strip Mall	3.60	1000sqft	0.08	3,600.00	0
Other Asphalt Surfaces	364.95	1000sqft	8.38	364,951.00	0
User Defined Industrial	250.19	User Defined Unit	0.00	0.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	32
<b>Climate Zone</b>	10			<b>Operational Year</b>	2023
<b>Utility Company</b>	Southern California Edison				
<b>CO2 Intensity (lb/MWhr)</b>	390.98	<b>CH4 Intensity (lb/MWhr)</b>	0.033	<b>N2O Intensity (lb/MWhr)</b>	0.004

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics -

Land Use -

Construction Phase - Operations run only

Off-road Equipment - Operations run only

Vehicle Trips - Trip characteristics based on information provided in the Traffic analysis

Fleet Mix - Passenger Car Mix estimated based on the CalEEMod default fleet mix and the ratio of the vehicle classes (LDA, LDT1, LDT2, MDV, & MCY). Truck Mix based on information in the Traffic analysis



## Pepper Avenue Industrial Project (PA 1 and PA 10 Operations) - San Bernardino-South Coast County, Annual

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

Operational Off-Road Equipment - Based on SCAQMD High Cube Warehouse Truck Trip Study White Paper Summary of Busniess Survey Results (2014)

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	PhaseEndDate	4/25/2022	3/28/2022
tblFleetMix	HHD	0.02	0.00
tblFleetMix	HHD	0.02	0.70
tblFleetMix	LDA	0.54	0.58
tblFleetMix	LDA	0.54	0.00
tblFleetMix	LDT1	0.06	0.06
tblFleetMix	LDT1	0.06	0.00
tblFleetMix	LDT2	0.17	0.19
tblFleetMix	LDT2	0.17	0.00
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD1	0.03	0.01
tblFleetMix	LHD2	7.1960e-003	0.00
tblFleetMix	LHD2	7.1960e-003	3.7000e-003
tblFleetMix	MCY	0.03	0.03
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MDV	0.14	0.15
tblFleetMix	MDV	0.14	0.00
tblFleetMix	MH	5.0710e-003	0.00
tblFleetMix	MH	5.0710e-003	0.00
tblFleetMix	MHD	0.01	0.00
tblFleetMix	MHD	0.01	0.28
tblFleetMix	OBUS	5.5900e-004	0.00
tblFleetMix	OBUS	5.5900e-004	0.00
tblFleetMix	SBUS	9.5400e-004	0.00
tblFleetMix	SBUS	9.5400e-004	0.00
tblFleetMix	UBUS	2.5400e-004	0.00

## Pepper Avenue Industrial Project (PA 1 and PA 10 Operations) - San Bernardino-South Coast County, Annual

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

tblFleetMix	UBUS	2.5400e-004	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	365.00
tblOperationalOffRoadEquipment	OperFuelType	Diesel	CNG
tblOperationalOffRoadEquipment	OperHorsePower	97.00	200.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	4.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblVehicleTrips	CW_TL	16.60	32.24
tblVehicleTrips	CW_TTP	0.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	ST_TR	624.20	700.43
tblVehicleTrips	ST_TR	616.12	659.78
tblVehicleTrips	ST_TR	42.04	71.75
tblVehicleTrips	ST_TR	1.74	0.09
tblVehicleTrips	ST_TR	0.00	0.06
tblVehicleTrips	SU_TR	624.20	700.43
tblVehicleTrips	SU_TR	472.58	506.06
tblVehicleTrips	SU_TR	20.43	55.04
tblVehicleTrips	SU_TR	1.74	0.04
tblVehicleTrips	SU_TR	0.00	0.02
tblVehicleTrips	WD_TR	624.20	700.43
tblVehicleTrips	WD_TR	470.95	500.63
tblVehicleTrips	WD_TR	44.32	54.44
tblVehicleTrips	WD_TR	1.74	1.03
tblVehicleTrips	WD_TR	0.00	0.68

**2.0 Emissions Summary**

## Pepper Avenue Industrial Project (PA 1 and PA 10 Operations) - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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					
2022	0.0000	0.0000	0.0000	0.0000	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					
2022	0.0000	0.0000	0.0000	0.0000	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	N2O	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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## Pepper Avenue Industrial Project (PA 1 and PA 10 Operations) - San Bernardino-South Coast County, Annual

**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	1.1027	1.0000e-004	0.0112	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0218	0.0218	6.0000e-005	0.0000	0.0232
Energy	9.8700e-003	0.0897	0.0753	5.4000e-004		6.8200e-003	6.8200e-003		6.8200e-003	6.8200e-003	0.0000	257.5237	257.5237	0.0154	3.4300e-003	258.9288
Mobile	2.2222	5.4312	15.1884	0.0409	2.8224	0.0531	2.8755	0.7634	0.0503	0.8137	0.0000	3,902.8174	3,902.8174	0.2734	0.4192	4,034.5747
Offroad	0.0201	0.1891	0.1367	5.8000e-004		6.8600e-003	6.8600e-003		6.3100e-003	6.3100e-003	0.0000	50.7519	50.7519	0.0164	0.0000	51.1623
Waste						0.0000	0.0000		0.0000	0.0000	62.5354	0.0000	62.5354	3.6957	0.0000	154.9289
Water						0.0000	0.0000		0.0000	0.0000	19.0101	139.2868	158.2969	1.9643	0.0475	221.5672
<b>Total</b>	<b>3.3549</b>	<b>5.7101</b>	<b>15.4117</b>	<b>0.0420</b>	<b>2.8224</b>	<b>0.0668</b>	<b>2.8892</b>	<b>0.7634</b>	<b>0.0635</b>	<b>0.8269</b>	<b>81.5455</b>	<b>4,350.4016</b>	<b>4,431.9471</b>	<b>5.9653</b>	<b>0.4702</b>	<b>4,721.1851</b>

## Pepper Avenue Industrial Project (PA 1 and PA 10 Operations) - San Bernardino-South Coast County, Annual

**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	1.1027	1.0000e-004	0.0112	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0218	0.0218	6.0000e-005	0.0000	0.0232
Energy	9.8700e-003	0.0897	0.0753	5.4000e-004		6.8200e-003	6.8200e-003		6.8200e-003	6.8200e-003	0.0000	257.5237	257.5237	0.0154	3.4300e-003	258.9288
Mobile	2.2222	5.4312	15.1884	0.0409	2.8224	0.0531	2.8755	0.7634	0.0503	0.8137	0.0000	3,902.8174	3,902.8174	0.2734	0.4192	4,034.5747
Offroad	0.0201	0.1891	0.1367	5.8000e-004		6.8600e-003	6.8600e-003		6.3100e-003	6.3100e-003	0.0000	50.7519	50.7519	0.0164	0.0000	51.1623
Waste						0.0000	0.0000		0.0000	0.0000	62.5354	0.0000	62.5354	3.6957	0.0000	154.9289
Water						0.0000	0.0000		0.0000	0.0000	19.0101	139.2868	158.2969	1.9643	0.0475	221.5672
<b>Total</b>	<b>3.3549</b>	<b>5.7101</b>	<b>15.4117</b>	<b>0.0420</b>	<b>2.8224</b>	<b>0.0668</b>	<b>2.8892</b>	<b>0.7634</b>	<b>0.0635</b>	<b>0.8269</b>	<b>81.5455</b>	<b>4,350.4016</b>	<b>4,431.9471</b>	<b>5.9653</b>	<b>0.4702</b>	<b>4,721.1851</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
<b>Percent Reduction</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

**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	3/29/2022	3/28/2022	5	0	

## Pepper Avenue Industrial Project (PA 1 and PA 10 Operations) - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****Acres of Grading (Site Preparation Phase): 0****Acres of Grading (Grading Phase): 0****Acres of Paving: 8.38****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	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

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

### Unmitigated Construction On-Site

[illegible]

### Unmitigated Construction Off-Site

[illegible]

## Pepper Avenue Industrial Project (PA 1 and PA 10 Operations) - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****3.2 Demolition - 2022****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	0.0000	0.0000
<b>Total</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**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
<b>Total</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**4.0 Operational Detail - Mobile**



## Pepper Avenue Industrial Project (PA 1 and PA 10 Operations) - San Bernardino-South Coast County, Annual

**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	2.2222	5.4312	15.1884	0.0409	2.8224	0.0531	2.8755	0.7634	0.0503	0.8137	0.0000	3,902.817 4	3,902.817 4	0.2734	0.4192	4,034.574 7
Unmitigated	2.2222	5.4312	15.1884	0.0409	2.8224	0.0531	2.8755	0.7634	0.0503	0.8137	0.0000	3,902.817 4	3,902.817 4	0.2734	0.4192	4,034.574 7

**4.2 Trip Summary Information**

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market with Gas Pumps	3,222.00	3,222.00	3222.00	1,923,130	1,923,130
Fast Food Restaurant with Drive Thru	2,403.00	3,166.92	2429.11	2,647,662	2,647,662
Other Asphalt Surfaces	0.00	0.00	0.00		
Strip Mall	196.00	258.31	198.13	390,423	390,423
Unrefrigerated Warehouse-No Rail	256.99	22.54	9.01	806,020	806,020
User Defined Industrial	171.00	14.99	6.00	1,468,593	1,468,593
Total	6,248.99	6,684.76	5,864.25	7,235,828	7,235,828

**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
Convenience Market with Gas	16.60	8.40	6.90	0.80	80.20	19.00	14	21	65
Fast Food Restaurant with Drive	16.60	8.40	6.90	2.20	78.80	19.00	29	21	50
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

## Pepper Avenue Industrial Project (PA 1 and PA 10 Operations) - San Bernardino-South Coast County, Annual

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

Land Use	Miles			Trip %			Trip Purpose %		
	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
Strip Mall	16.60	8.40	6.90	16.60	64.40	19.00	45	40	15
Unrefrigerated Warehouse-No	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3
User Defined Industrial	32.24	8.40	6.90	100.00	0.00	0.00	100	0	0

**4.4 Fleet Mix**

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market with Gas Pumps	0.537785	0.055838	0.172353	0.139003	0.027005	0.007196	0.011392	0.017285	0.000559	0.000254	0.025303	0.000954	0.005071
Fast Food Restaurant with Drive Thru	0.537785	0.055838	0.172353	0.139003	0.027005	0.007196	0.011392	0.017285	0.000559	0.000254	0.025303	0.000954	0.005071
Other Asphalt Surfaces	0.537785	0.055838	0.172353	0.139003	0.027005	0.007196	0.011392	0.017285	0.000559	0.000254	0.025303	0.000954	0.005071
Strip Mall	0.537785	0.055838	0.172353	0.139003	0.027005	0.007196	0.011392	0.017285	0.000559	0.000254	0.025303	0.000954	0.005071
Unrefrigerated Warehouse-No Rail	0.578100	0.060000	0.185300	0.149400	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.027200	0.000000	0.000000
User Defined Industrial	0.000000	0.000000	0.000000	0.000000	0.013800	0.003700	0.280700	0.701800	0.000000	0.000000	0.000000	0.000000	0.000000

**5.0 Energy Detail**

Historical Energy Use: N

**5.1 Mitigation Measures Energy**

## Pepper Avenue Industrial Project (PA 1 and PA 10 Operations) - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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	159.8850	159.8850	0.0135	1.6400e-003	160.7098
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	159.8850	159.8850	0.0135	1.6400e-003	160.7098
NaturalGas Mitigated	9.8700e-003	0.0897	0.0753	5.4000e-004		6.8200e-003	6.8200e-003		6.8200e-003	6.8200e-003	0.0000	97.6387	97.6387	1.8700e-003	1.7900e-003	98.2189
NaturalGas Unmitigated	9.8700e-003	0.0897	0.0753	5.4000e-004		6.8200e-003	6.8200e-003		6.8200e-003	6.8200e-003	0.0000	97.6387	97.6387	1.8700e-003	1.7900e-003	98.2189

## Pepper Avenue Industrial Project (PA 1 and PA 10 Operations) - San Bernardino-South Coast County, Annual

**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****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					
Convenience Market with Gas Pumps	10120	5.0000e-005	5.0000e-004	4.2000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.5400	0.5400	1.0000e-005	1.0000e-005	0.5433
Fast Food Restaurant with Drive Thru	1.30877e+006	7.0600e-003	0.0642	0.0539	3.8000e-004		4.8800e-003	4.8800e-003		4.8800e-003	4.8800e-003	0.0000	69.8408	69.8408	1.3400e-003	1.2800e-003	70.2559
Other Asphalt Surfaces	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
Strip Mall	7920	4.0000e-005	3.9000e-004	3.3000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4226	0.4226	1.0000e-005	1.0000e-005	0.4252
Unrefrigerated Warehouse-No Rail	502872	2.7100e-003	0.0247	0.0207	1.5000e-004		1.8700e-003	1.8700e-003		1.8700e-003	1.8700e-003	0.0000	26.8352	26.8352	5.1000e-004	4.9000e-004	26.9946
User Defined Industrial	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
<b>Total</b>		<b>9.8600e-003</b>	<b>0.0897</b>	<b>0.0754</b>	<b>5.3000e-004</b>		<b>6.8200e-003</b>	<b>6.8200e-003</b>		<b>6.8200e-003</b>	<b>6.8200e-003</b>	<b>0.0000</b>	<b>97.6387</b>	<b>97.6387</b>	<b>1.8700e-003</b>	<b>1.7900e-003</b>	<b>98.2189</b>

## Pepper Avenue Industrial Project (PA 1 and PA 10 Operations) - San Bernardino-South Coast County, Annual

**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					
Convenience Market with Gas Pumps	10120	5.0000e-005	5.0000e-004	4.2000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.5400	0.5400	1.0000e-005	1.0000e-005	0.5433
Fast Food Restaurant with Drive Thru	1.30877e+006	7.0600e-003	0.0642	0.0539	3.8000e-004		4.8800e-003	4.8800e-003		4.8800e-003	4.8800e-003	0.0000	69.8408	69.8408	1.3400e-003	1.2800e-003	70.2559
Other Asphalt Surfaces	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
Strip Mall	7920	4.0000e-005	3.9000e-004	3.3000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4226	0.4226	1.0000e-005	1.0000e-005	0.4252
Unrefrigerated Warehouse-No Rail	502872	2.7100e-003	0.0247	0.0207	1.5000e-004		1.8700e-003	1.8700e-003		1.8700e-003	1.8700e-003	0.0000	26.8352	26.8352	5.1000e-004	4.9000e-004	26.9946
User Defined Industrial	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
<b>Total</b>		<b>9.8600e-003</b>	<b>0.0897</b>	<b>0.0754</b>	<b>5.3000e-004</b>		<b>6.8200e-003</b>	<b>6.8200e-003</b>		<b>6.8200e-003</b>	<b>6.8200e-003</b>	<b>0.0000</b>	<b>97.6387</b>	<b>97.6387</b>	<b>1.8700e-003</b>	<b>1.7900e-003</b>	<b>98.2189</b>

## Pepper Avenue Industrial Project (PA 1 and PA 10 Operations) - San Bernardino-South Coast County, Annual

**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			
Convenience Market with Gas Pumps	55844	9.9037	8.4000e-004	1.0000e-004	9.9548
Fast Food Restaurant with Drive Thru	221568	39.2941	3.3200e-003	4.0000e-004	39.4968
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	43704	7.7507	6.5000e-004	8.0000e-005	7.7907
Unrefrigerated Warehouse-No Rail	580429	102.9365	8.6900e-003	1.0500e-003	103.4676
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>159.8850</b>	<b>0.0135</b>	<b>1.6300e-003</b>	<b>160.7098</b>

## Pepper Avenue Industrial Project (PA 1 and PA 10 Operations) - San Bernardino-South Coast County, Annual

**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****Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market with Gas Pumps	55844	9.9037	8.4000e-004	1.0000e-004	9.9548
Fast Food Restaurant with Drive Thru	221568	39.2941	3.3200e-003	4.0000e-004	39.4968
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	43704	7.7507	6.5000e-004	8.0000e-005	7.7907
Unrefrigerated Warehouse-No Rail	580429	102.9365	8.6900e-003	1.0500e-003	103.4676
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>159.8850</b>	<b>0.0135</b>	<b>1.6300e-003</b>	<b>160.7098</b>

**6.0 Area Detail****6.1 Mitigation Measures Area**

## Pepper Avenue Industrial Project (PA 1 and PA 10 Operations) - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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	1.1027	1.0000e-004	0.0112	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0218	0.0218	6.0000e-005	0.0000	0.0232
Unmitigated	1.1027	1.0000e-004	0.0112	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0218	0.0218	6.0000e-005	0.0000	0.0232

**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	0.1271					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.9746					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0400e-003	1.0000e-004	0.0112	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0218	0.0218	6.0000e-005	0.0000	0.0232
<b>Total</b>	<b>1.1027</b>	<b>1.0000e-004</b>	<b>0.0112</b>	<b>0.0000</b>		<b>4.0000e-005</b>	<b>4.0000e-005</b>		<b>4.0000e-005</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>0.0218</b>	<b>0.0218</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>0.0232</b>



## Pepper Avenue Industrial Project (PA 1 and PA 10 Operations) - San Bernardino-South Coast County, Annual

**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	0.1271					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.9746					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0400e-003	1.0000e-004	0.0112	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0218	0.0218	6.0000e-005	0.0000	0.0232
<b>Total</b>	<b>1.1027</b>	<b>1.0000e-004</b>	<b>0.0112</b>	<b>0.0000</b>		<b>4.0000e-005</b>	<b>4.0000e-005</b>		<b>4.0000e-005</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>0.0218</b>	<b>0.0218</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>0.0232</b>

**7.0 Water Detail****7.1 Mitigation Measures Water**

## Pepper Avenue Industrial Project (PA 1 and PA 10 Operations) - San Bernardino-South Coast County, Annual

**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	158.2969	1.9643	0.0475	221.5672
Unmitigated	158.2969	1.9643	0.0475	221.5672

## Pepper Avenue Industrial Project (PA 1 and PA 10 Operations) - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****7.2 Water by Land Use****Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market with Gas Pumps	0.340734 / 0.208837	1.3064	0.0112	2.7000e-004	1.6683
Fast Food Restaurant with Drive Thru	1.45696 / 0.0929976	4.0099	0.0478	1.1600e-003	5.5491
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Strip Mall	0.266661 / 0.163437	1.0224	8.7700e-003	2.1000e-004	1.3056
Unrefrigerated Warehouse-No Rail	57.8564 / 0	151.9582	1.8965	0.0459	213.0442
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>158.2969</b>	<b>1.9643</b>	<b>0.0475</b>	<b>221.5672</b>

## Pepper Avenue Industrial Project (PA 1 and PA 10 Operations) - San Bernardino-South Coast County, Annual

**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			
Convenience Market with Gas Pumps	0.340734 / 0.208837	1.3064	0.0112	2.7000e-004	1.6683
Fast Food Restaurant with Drive Thru	1.45696 / 0.0929976	4.0099	0.0478	1.1600e-003	5.5491
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Strip Mall	0.266661 / 0.163437	1.0224	8.7700e-003	2.1000e-004	1.3056
Unrefrigerated Warehouse-No Rail	57.8564 / 0	151.9582	1.8965	0.0459	213.0442
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>158.2969</b>	<b>1.9643</b>	<b>0.0475</b>	<b>221.5672</b>

**8.0 Waste Detail****8.1 Mitigation Measures Waste**

## Pepper Avenue Industrial Project (PA 1 and PA 10 Operations) - San Bernardino-South Coast County, Annual

**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	62.5354	3.6957	0.0000	154.9289
Unmitigated	62.5354	3.6957	0.0000	154.9289

## Pepper Avenue Industrial Project (PA 1 and PA 10 Operations) - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****8.2 Waste by Land Use****Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Convenience Market with Gas Pumps	13.82	2.8053	0.1658	0.0000	6.9501
Fast Food Restaurant with Drive Thru	55.29	11.2234	0.6633	0.0000	27.8054
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	3.78	0.7673	0.0454	0.0000	1.9010
Unrefrigerated Warehouse-No Rail	235.18	47.7394	2.8213	0.0000	118.2724
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>62.5354</b>	<b>3.6957</b>	<b>0.0000</b>	<b>154.9289</b>

## Pepper Avenue Industrial Project (PA 1 and PA 10 Operations) - San Bernardino-South Coast County, Annual

**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			
Convenience Market with Gas Pumps	13.82	2.8053	0.1658	0.0000	6.9501
Fast Food Restaurant with Drive Thru	55.29	11.2234	0.6633	0.0000	27.8054
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	3.78	0.7673	0.0454	0.0000	1.9010
Unrefrigerated Warehouse-No Rail	235.18	47.7394	2.8213	0.0000	118.2724
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>62.5354</b>	<b>3.6957</b>	<b>0.0000</b>	<b>154.9289</b>

**9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Tractors/Loaders/Backhoes	1	4.00	365	200	0.37	CNG

## Pepper Avenue Industrial Project (PA 1 and PA 10 Operations) - San Bernardino-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied****UnMitigated/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
Equipment Type	tons/yr										MT/yr					
Tractors/Loaders/Backhoes	0.0201	0.1891	0.1367	5.8000e-004		6.8600e-003	6.8600e-003		6.3100e-003	6.3100e-003	0.0000	50.7519	50.7519	0.0164	0.0000	51.1623
<b>Total</b>	<b>0.0201</b>	<b>0.1891</b>	<b>0.1367</b>	<b>5.8000e-004</b>		<b>6.8600e-003</b>	<b>6.8600e-003</b>		<b>6.3100e-003</b>	<b>6.3100e-003</b>	<b>0.0000</b>	<b>50.7519</b>	<b>50.7519</b>	<b>0.0164</b>	<b>0.0000</b>	<b>51.1623</b>

**10.0 Stationary Equipment****Fire Pumps and Emergency Generators**

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

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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**User Defined Equipment**

Equipment Type	Number
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**11.0 Vegetation**



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