Palm Villas at Red Bluff

Air Quality/Greenhouse Gas/Energy Impact Study

City of Red Bluff, CA

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GLOSSARY OF TERMS

AQMP	Air Quality Management Plan
CAAQS	California Ambient Air Quality Standards
CARB	California Air Resources Board
CEQA	California Environmental Quality Act
CFCs	Chlorofluorocarbons
CH_4	Methane
CNG	Compressed natural gas
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
DPM	Diesel particulate matter
GHG	Greenhouse gas
HFCs	Hydrofluorocarbons
LST	Localized Significant Thresholds
$MTCO_2e$	Metric tons of carbon dioxide equivalent
$MMTCO_2e$	Million metric tons of carbon dioxide equivalent
NAAQS	National Ambient Air Quality Standards
NOx	Nitrogen Oxides
NO_2	Nitrogen dioxide
N_2O	Nitrous oxide
NSVAB	Northern Sacramento Valley Air Basin
O_3	Ozone
PFCs	Perfluorocarbons
PM	Particle matter
PM10	Particles that are less than 10 micrometers in diameter
PM2.5	Particles that are less than 2.5 micrometers in diameter
PMI	Point of maximum impact
PPM	Parts per million
PPB	Parts per billion
RTIP	Regional Transportation Improvement Plan
RTP	Regional Transportation Plan
SCAQMD	South Coast Air Quality Management District
SF_6	Sulfur hexafluoride
SIP	State Implementation Plan
SOx	Sulfur Oxides
SRA	Source/Receptor Area
TAC	Toxic air contaminants
TCAPCD	Tehama County Air Pollution Control District
VOC	Volatile organic compounds
WRCC	Western Regional Climate Center

1.0 Introduction

1.1 Purpose of Analysis and Study Objectives

This air quality/greenhouse gas (GHG)/energy analysis was prepared to evaluate whether the estimated criteria pollutants and GHG emissions generated from the project would cause a significant impact to the air resources in the project area as well as evaluate whether the estimated energy usage by the project would cause a significant impact to the local energy resources. This assessment was conducted within the context of the California Environmental Quality Act (CEQA, California Public Resources Code Sections 21000, et seq.). The assessment is consistent with the methodology and emission factors endorsed by Tehama County Air Pollution Control District (TCAPCD), California Air Resource Board (CARB), and the United States Environmental Protection Agency (US EPA).

1.2 Project Summary

1.2.1 Site Location

The project site is located at 321 South Jackson Street in Red Bluff, California, within the County of Tehama, as shown in Exhibit A. The site has a current General Plan land use classification of R-1 Single Family Residence and R-3 Neighborhood Apartment. Existing land uses surrounding the site include a gasoline service station immediately adjacent to the site on the corner to the north, residential uses to the north and east, South Jackson Street to the west with residential uses across the street, and vacant land zoned for residential use to the south.

1.2.2 Project Description

The Project proposes the construction of a 61-unit affordable family apartment project on 2.75 acres. The project will be an infill project with three three-story apartment buildings, one two-story community building, and one one-story maintenance building as well as outdoor recreation areas and 89 parking spaces. Exhibit B demonstrates the site plan for the project.

Construction activities within the Project area will consist of demolition, grading, building, paving, and architectural coating. Table 1 summarizes the land use description for the Project Site.

Table 1: Land Use Summary

Land Use	Unit Amount	Size Metric
Apartments Mid Rise[1]	61	Units
Parking Lot	24	Space
Other Non-Asphalt Surfaces	0.51	Acre
[1] Units cover approx. 1.61 acres.		

1.2.3 Sensitive Receptors

Sensitive receptors are considered land uses or other types of population groups that are more sensitive to air pollution than others due to their exposure. Sensitive population groups include children, the elderly, the acutely and chronically ill, and those with cardio-respiratory diseases. For CEQA purposes, a sensitive receptor would be a location where a sensitive individual could remain for 24-hours or longer, such as residencies, hospitals, and schools (etc).

The closest existing sensitive receptors are the multi-family residential uses located 33 feet to the east 68 feet north of the project site.

1.3 Executive Summary of Findings and Mitigation Measures

The following is a summary of the analysis results:

Construction-Source Emissions
Project construction-source emissions would not exceed applicable regional thresholds of significance established by the TCAPCD.

Project construction-source emissions would not conflict with the Basin Air Quality Management Plan (AQMP). As discussed herein, the project will comply with all applicable TCAPCD construction-source emission reduction rules and guidelines. Project construction source emissions would not cause or substantively contribute to violation of the California Ambient Air Quality Standards (CAAQS) or National Ambient Air Quality Standards (NAAQS).

Established requirements addressing construction equipment operations, and construction material use, storage, and disposal requirements act to minimize odor impacts that may result from construction activities. Moreover, construction-source odor emissions would be temporary, short-term, and intermittent in nature and would not result in persistent impacts that would affect substantial numbers of people. Potential construction-source odor impacts are therefore considered less-than-significant.

Operational-Source Emissions
The project operational-sourced emissions would not exceed applicable regional thresholds of significance established by the TCAPCD. Additionally, project-related traffic will not cause or result in CO concentrations exceeding applicable state and/or federal standards (CO “hotspots). Project operational-source emissions would therefore not adversely affect sensitive receptors within the vicinity of the project.

Project operational-source emissions would not conflict with the Basin Air Quality Management Plan (AQMP). The project's emissions meet TCAPCD regional thresholds and will not result in a significant cumulative impact. The project does not propose any such uses or activities that would result in potentially significant operational-source odor impacts. Potential operational-source odor impacts are therefore considered less-than significant.

Project-related GHG emissions meet the TCAPCD threshold of 900 metric tons of carbon dioxide equivalents (MTCO2e) per year and are also considered to be less than significant. The project also complies with the goals of the CARB Scoping Plan, AB-32, and SB-32.

Neither construction nor operation of the project would result in wasteful, inefficient, or unnecessary consumption of energy, or wasteful use of energy resources. The proposed project does not include any unusual project characteristics or construction processes that would require the use of equipment that would be more energy intensive than is used for comparable activities and is an industrial project that is not proposing any additional features that would require a larger energy demand than other industrial projects of similar scale and configuration

Mitigation Measures

A. Construction Measures

Adherence to TCAPCD Rules 4.04, 4.24, 4.39, and CARB's Idling Diesel Vehicle Trucks rule is required.

No construction mitigation required.

B. Operational Measures to Reduce Greenhouse Gas Emissions

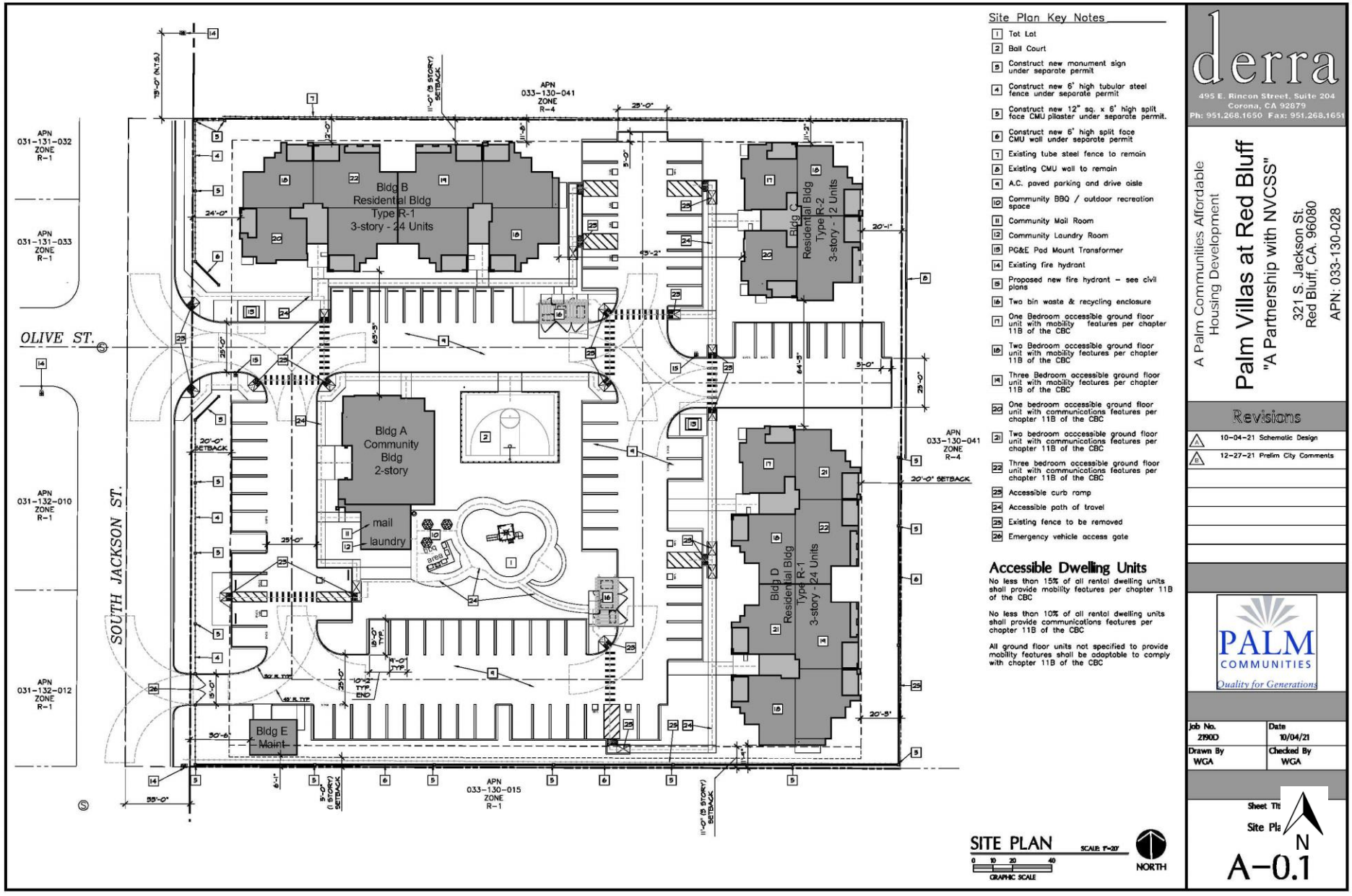
The measures listed below are either required through regulation (compliance with Title 24, CALGreen for example) and/or part of the project's sustainable design.

No operational mitigation required.

Exhibit A
Location Map

Exhibit B

Site Plan



2.0 Regulatory Framework and Background

2.1 Air Quality Regulatory Setting

Air pollutants are regulated at the national, state, and air basin level; each agency has a different level of regulatory responsibility. The United States Environmental Protection Agency (EPA) regulates at the national level. The California Air Resources Board (ARB) regulates at the state level. The Tehama County Air Pollution Control District (TCAPCD) regulates at the air basin level.

2.1.1 National and State

The EPA is responsible for global, international, and interstate air pollution issues and policies. The EPA sets national vehicle and stationary source emission standards, oversees approval of all State Implementation Plans, provides research and guidance for air pollution programs, and sets National Air Quality Standards, also known as federal standards. There are six common air pollutants, called criteria pollutants, which were identified from the provisions of the Clean Air Act of 1970.

- Ozone
- Nitrogen Dioxide
- Lead
- Particulate Matter (PM10 and PM2.5)
- Carbon Monoxide
- Particulate Matter
- Sulfur Dioxide

The federal standards were set to protect public health, including that of sensitive individuals; thus, the standards continue to change as more medical research is available regarding the health effects of the criteria pollutants. Primary federal standards are the levels of air quality necessary, with an adequate margin of safety, to project the public health.

A State Implementation Plan is a document prepared by each state describing existing air quality conditions and measures that will be followed to attain and maintain federal standards. The State Implementation Plan for the State of California is administered by the ARB, which has overall responsibility for statewide air quality maintenance and air pollution prevention. California's State Implementation Plan incorporates individual federal attainment plans for regional air districts—air district prepares their federal attainment plan, which sent to ARB to be approved and incorporated into the California State Implementation Plan. Federal attainment plans include the technical foundation for understanding air quality (e.g., emission inventories and air quality monitoring), control measures and strategies, and enforcement mechanisms. See http://www.arb.ca.gov/research/aaqs/aaqs.htm for additional information on criteria pollutants and air quality standards.

The federal and state ambient air quality standards are summarized in Table 2 and can also be found at http://www.arb.ca.gov/research/aaqs/aaqs2.pdf.

Table 2: Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]		National Standards[2]		
		Concentrations[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Ozone (O3)	1-Hour	0.09 ppm	Ultraviolet Photometry	- -	Same as Primary Standard	Ultraviolet Photometry
	8-Hour	0.070 ppm		0.070 ppm (147 µg/m³)		
Respirable Particulate Matter (PM10)[8]	24-Hour	50 µg/m³	Gravimetric or Beta Attenuation	150 µ/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m³		- -		
Fine Particulate Matter (PM2.5)[8]	24-Hour	- -	- -	35 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m³	Gravimetric or Beta Attenuation	12 µg/m³	15 µg/m³	
Carbon Monoxide (CO)	1-Hour	20 ppm (23 µg/m³)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 µg/m³)	- -	Non-Dispersive Infrared Photometry (NDIR)
	8-Hour	9.0 ppm (10 µg/m³)		9 ppm (10 µg/m³)	- -	
	8-Hour (Lake Tahoe)	6 ppm (7 µg/m³)		- -	- -	
Nitrogen Dioxide (NO_2)[9]	1-Hour	0.18 ppm (339 µg/m³)	Gas Phase Chemiluminescence	100 ppb (188 µg/m³)	- -	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (357 µg/m³)		0.053 ppm (100 µg/m³)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[10]	1-Hour	0.25 ppm (655 µg/m³)	Ultraviolet Fluorescence	75 ppb (196 µg/m³)	- -	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)
	3-Hour	- -		- -	0.5 ppm (1300 mg/m³)	
	24-Hour	0.04 ppm (105 µg/m³)		0.14 ppm (for certain areas)[10]	- -	
	Annual Arithmetic Mean	- -		0.130ppm (for certain areas)[10]	- -	
Lead[11,12]	30 Day Average	1.5 µg/m³	Atomic Absorption	- -		
	Calendar Qrtr	- -		1.5 µg/m³ (for certain areas)[12]	Same as Primary Standard	High Volume Sampler and Atomic Absorption
	Rolling 3-Month Average	- -		0.15 µg/m³		
Visibility Reducing Particles[13]	8-Hour	See footnote 13	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24-Hour	25 µg/m³	Ion Chromatography			
Hydrogen Sulfide	1-Hour	0.03 ppm (42 µg/m³)	Ultraviolet Fluorescence			
Vinyl Chloride[11]	24-Hour	0.01 ppm (26 µg/m³)	Gas Chromatography			

Notes:

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.

3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.

5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

7. Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.

8. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 µg/m^3 to 12.0 µg/m^3. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 µg/m^3, as was the annual secondary standard of 15 µg/m^3. The existing 24-hour PM10 standards (primary and secondary) of 150 µg/m^3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

9. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

10. On June 2, 2010, a new 1-hour SO2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

    Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

11. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

12. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 µg/m^3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

13. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Several pollutants listed in Table 2 are not addressed in this analysis. Analysis of lead is not included in this report because the project is not anticipated to emit lead. Visibility-reducing particles are not explicitly addressed in this analysis because particulate matter is addressed. The project is not expected to generate or be exposed to vinyl chloride because proposed project uses do not utilize the chemical processes that create this pollutant and there are no such uses in the project vicinity. The proposed project is not expected to cause exposure to hydrogen sulfide because it would not generate hydrogen sulfide in any substantial quantity.

2.1.2 Tehama County Air Pollution Control District

The agency for air pollution control for the Northern Sacramento Valley Air Basin (basin) is the Tehama County Air Pollution Control District (TCAPCD). TCAPCD is responsible for controlling emissions primarily from stationary sources. TCAPCD maintains air quality monitoring stations throughout the basin.

TCAPCD has the following EPA-approved rules which apply to the project.

TCAPCD Rule 4.04 prohibits a person from discharging from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

TCAPCD Rule 4.24 governs emissions of fugitive dust during construction and operation activities. Compliance with this rule is achieved through application of standard Best Management Practices, such as application of water or chemical stabilizers to disturbed soils, covering haul vehicles, restricting vehicle speeds on unpaved roads to 15 miles per hour, sweeping loose dirt from paved site access roadways, cessation of construction activity when winds exceed 25 mph, and establishing a permanent ground cover on finished sites.

Rule 4.24 requires that fugitive dust be controlled with best available control measures so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. In addition, Rule 4.24 requires implementation of dust suppression techniques to prevent fugitive dust from creating a nuisance off site. Applicable suppression techniques are indicated below and include but are not limited to the following:

- Apply nontoxic chemical soil stabilizers according to manufacturers' specifications to all inactive construction areas (previously graded areas in active for 10 days or more).
- Water active sites at least three times daily.
- Cover all trucks hauling dirt, sand, soil, or other loose materials, or maintain at least 2 feet of freeboard in accordance with the requirements of California Vehicle Code (CVC) section 23114.
- Pave construction access roads at least 100 feet onto the site from the main road.
- Reduce traffic speeds on all unpaved roads to 15 mph or less.
- Suspension of all grading activities when wind speeds (including instantaneous wind gusts) exceed 25 mph.
- Bumper strips or similar best management practices shall be provided where vehicles enter and exit the construction site onto paved roads or wash off trucks and any equipment leaving the site each trip.
- Replanting disturbed areas as soon as practical.
- During all construction activities, construction contractors shall sweep on-site and off-site streets if silt is carried to adjacent public thoroughfares, to reduce the amount of particulate matter on public streets.

TCAPCD Rule 4.39 governs the sale, use, and manufacturing of architectural coating and limits the VOC content in paints and paint solvents. This rule regulates the VOC content of paints available during construction. Therefore, all paints and solvents used during construction and operation of project must comply with Rule 4.39.

2.1.3 Local

Local jurisdictions, such as the City of Red Bluff, have the authority and responsibility to reduce air pollution through their police power and decision-making authority. Specifically, the City is responsible for the assessment and mitigation of air emissions resulting from its land use decisions. In accordance with CEQA requirements and the CEQA review process, the City assesses the air quality impacts of new development projects, requires mitigation of potentially significant air quality impacts by conditioning discretionary permits, and monitors and enforces implementation of such mitigation.

The City relies on the expertise of the TCAPCD and utilizes the TCAPCD CEQA Air Quality Handbook as the guidance document for the environmental review of plans and development proposals within its jurisdiction.

City of Red Bluff General Plan

The City of Red Bluff General Plan contains the following air quality-related goals and policies that are applicable to the proposed project:

Goals

- To achieve and maintain high standards of air quality within the City of Red Bluff Planning Area.
- Provide a healthy environment for all current and future inhabitants of the City of Red Bluff Planning Area.
- Increase use of alternative transportation modes (Circulation Element).

Objectives

- To achieve and maintain 'attainment area' status for all of the four criteria pollutants, as designated by the State of California Air Resources Board.
- Reduce Average Daily Traffic (ADT) trips (Circulation Element).
- Promote the safety of pedestrians and cyclists on streets and roadways (Circulation Element).

Policies

- Encourage activities that decrease vehicular emissions, including; the safe use of bicycles, carpooling and mass transit.
- Discourage the establishment of business and or other activities, which promote and or add to the degradation of air quality.
- Provide setbacks, landscaping, sound walls, and other barriers to protect adjacent land uses from noise, air pollution, and safety impacts from traffic where appropriate (Circulation Element).
- Promote use of bicycling and walking as an alternative to automobile use (Circulation Element)
- Promote the use of car and van-pooling (Circulation Element).
- Encourage employers to advocate employee use of fuel-efficient transportation (Circulation Element).
- Develop alternate through-routes in downtown area in order to decrease the high concentration of emission (Circulation Element).
- Separation of bicycle and pedestrian traffic from vehicular traffic should be encouraged, especially near schools (Circulation Element).
- Bicycle lanes should be included in construction or upgrade of roads, overpasses, and bridges (Circulation Element).
- New bicycle lanes should be connected with the existing bikeway system wherever feasible (Circulation Element).
- Existing bicycle facilities should be maintained and upgraded, and new ones added as needed (Circulation Element).

Implementation Measures

- Require all new businesses, which have a potential for air pollution to submit a report, which addresses anticipated emissions and alternatives.
- Implement the trail system introduced in the 1974 Parks and Recreation Plan.
- Implement all the guidelines that reduce soil erosion and exposure as provided in the Land Development Policies and the Grading, Drainage and Ground Cover Policies.
- Develop a Transportation System Management (TSM) ordinance to promote flextime, vanpools, bicycling, and other alternative transportation methods to employment destinations (Circulation Element).
- Develop and adopt a TSM ordinance with provision to promote bicycling and walking as methods of transportation (Circulation Element).
- Identify and develop new bicycle and pedestrian trails, especially in areas surrounding schools, shopping areas, and employment centers (Circulation Element).
- Require separate bicycle and pedestrian lanes in each direction on any new arterial street (Circulation Element).
- Require new development and redevelopment to include bicycle routes (Circulation Element).
- Identify and develop potential locations of park-and-ride lots, especially near Interstate 5, Highway 36E, and Highway 99 (Circulation Element).
- The City should update and adopt the existing bicycle route plan (Circulation Element).
- The City should develop and adopt standards for the provision of bicycle parking facilities for public and private development (Circulation Element).

2.2 Greenhouse Gas Regulatory Setting

2.2.1 International

Many countries around the globe have made an effort to reduce GHGs since climate change is a global issue.

Intergovernmental Panel on Climate Change. In 1988, the United Nations and the World Meteorological Organization established the Intergovernmental Panel on Climate Change to assess the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation.

United Nations. The United States participates in the United Nations Framework Convention on Climate Change (UNFCCC) (signed on March 21, 1994). Under the Convention, governments gather and share information on greenhouse gas emissions, national policies, and best practices; launch national strategies for addressing greenhouse gas 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.

The 2014 UN Climate Change Conference in Lima Peru provided a unique opportunity to engage all countries to assess how developed countries are implementing actions to reduce emissions.

Kyoto Protocol. The Kyoto Protocol is a treaty made under the UNFCCC and was the first international agreement to regulate GHG emissions. It has been estimated that if the commitments outlined in the Kyoto Protocol are met, global GHG emissions could be reduced by an estimated 5 percent from 1990 levels during the first commitment period of 2008 – 2012 (UNFCCC 1997). On December 8, 2012, the Doha Amendment to the Kyoto Protocol was adopted. The amendment includes: New commitments for Annex I Parties to the Kyoto Protocol who agreed to take on commitments in a second commitment period from 2013 – 2020; a revised list of greenhouse gases (GHG) to be reported on by Parties in the second commitment period; and Amendments to several articles of the Kyoto Protocol which specifically referenced issues pertaining to the first commitment period and which needed to be updated for the second commitment period.

2.2.2 National

Greenhouse Gas Endangerment. On December 2, 2009, the EPA announced that GHGs threaten the public health and welfare of the American people. The EPA also states that GHG emissions from on-road vehicles contribute to that threat. The decision was based on *Massachusetts v. EPA* (Supreme Court Case 05-1120) which argued that GHGs are air pollutants covered by the Clean Air Act and that the EPA has authority to regulate those emissions.

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 United States. On April 1, 2010, the EPA and the Department of Transportation's National Highway Safety Administration announced a joint final rule establishing a national program that would reduce greenhouse gas emissions and improve fuel economy for new cars and trucks sold in the United States.

The first phase of the national program would apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. They require these vehicles to meet an estimated combined average emissions level of 250 grams of carbon dioxide per mile, equivalent to 35.5 miles per gallon if the automobile industry were to meet this carbon dioxide level solely through fuel economy improvements. Together, these standards would cut carbon dioxide 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 second phase of the national program would involve proposing new fuel economy and greenhouse gas standards for model years 2017 – 2025 by September 1, 2011.

On October 25, 2010, the EPA and the U.S. Department of Transportation proposed the first national standards to reduce greenhouse gas emissions and improve fuel efficiency of heavy-duty trucks and buses. For combination tractors, the agencies are proposing engine and vehicle standards that begin in the 2014 model year and achieve up to a 20 percent reduction in carbon dioxide emissions and fuel consumption by the 2018 model year. For heavy-duty pickup trucks 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 percent reduction for gasoline vehicles and 15 percent reduction for diesel vehicles by 2018

model year (12 and 17 percent respectively if accounting for air conditioning leakage). Lastly, for vocational vehicles, the agencies are proposing engine and vehicle standards starting in the 2014 model year which would achieve up to a 10 percent reduction in fuel consumption and carbon dioxide emissions by 2018 model year.

Issued by NHTSA and EPA in March 2020 (published on April 30, 2020 and effective after June 29, 2020), the Safer Affordable Fuel-Efficient Vehicles Rule would maintain the CAFE and CO2 standards applicable in model year 2020 for model years 2021 through 2026. The estimated CAFE and CO2 standards for model year 2020 are 43.7 mpg and 204 grams of CO2 per mile for passenger cars and 31.3 mpg and 284 grams of CO2 per mile for light trucks, projecting an overall industry average of 37 mpg, as compared to 46.7 mpg under the standards issued in 2012. This Rule also excludes CO2- equivalent emission improvements associated with air conditioning refrigerants and leakage (and, optionally, offsets for nitrous oxide and methane emissions) after model year 2020.[1]

Mandatory Reporting of Greenhouse Gases. On January 1, 2010, the EPA started requiring large emitters of heat-trapping emissions to begin collecting GHG data under a new reporting system. Under the rule, suppliers of fossil fuels or industrial greenhouse gases, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of greenhouse gas emissions are required to submit annual reports to the EPA.

Climate Adaption Plan. The EPA Plan identifies priority actions the Agency will take to incorporate considerations of climate change into its programs, policies, rules and operations to ensure they are effective under future climatic conditions. The following link provides more information on the EPA Plan: https://www.epa.gov/arc-x/planning-climate-change-adaptation

2.2.3 California

California Code of Regulations (CCR) Title 24, Part 6. CCR Title 24, Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24) were first established 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 efficiency technologies and methods. Although it was not originally intended to reduce GHG emissions, electricity production by fossil fuels results in GHG emissions and energy efficient buildings require less electricity. Therefore, increased energy efficiency results in decreased GHG emissions.

The Energy Commission adopted 2008 Standards on April 23, 2008 and Building Standards Commission approved them for publication on September 11, 2008. These updates became effective on August 1, 2009. 2013, 2016, and 2019 standards have been approved and became effective July 1, 2014, January 1, 2016, and January 1, 2020, respectively.

[1] National Highway Traffic Safety Administration (NHTSA) and U.S. Environmental Protection Agency (USEPA), 2018. Federal Register / Vol. 83, No. 165 / Friday, August 24, 2018 / Proposed Rules, The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks 2018. Available at: https://www.gpo.gov/fdsys/pkg/FR-2018-08-24/pdf/2018-16820.pdf.

California Code of Regulations (CCR) Title 24, Part 11. All buildings for which an application for a building permit is submitted on or after January 1, 2020 must follow the 2019 standards. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas emissions. The following links provide more information on Title 24, Part 11:
https://www.dgs.ca.gov/BSC/Codes
https://www.energy.ca.gov/sites/default/files/2020-03/Title_24_2019_Building_Standards_FAQ_ada.pdf

California Green Building Standards On January 12, 2010, the State Building Standards Commission unanimously adopted updates to the California Green Building Standards Code, which went into effect on January 1, 2011. The Housing and Community Development (HCD) updated CALGreen through the 2015 Triennial Code Adoption Cycle, during the 2016 to 2017 fiscal year. During the 2019-2020 fiscal year, the Department of Housing and Community Development (HCD) updated CALGreen through the 2019 Triennial Code Adoption Cycle.

The Code is a comprehensive and uniform regulatory code for all residential, commercial and school buildings. CCR Title 24, Part 11: California Green Building Standards (Title 24) became effective in 2001 in response to continued efforts to reduce GHG emissions associated with energy consumption. CCR Title 24, Part 11 now require that new buildings reduce water consumption, employ building commissioning to increase building system efficiencies, divert construction waste from landfills, and install low pollutant-emitting finish materials. One focus of CCR Title 24, Part 11 is water conservation measures, which reduce GHG emissions by reducing electrical consumption associated with pumping and treating water. CCR Title 24, Part 11 has approximately 52 nonresidential mandatory measures and an additional 130 provisions for optional use. Some key mandatory measures for commercial occupancies include specified parking for clean air vehicles, a 20 percent reduction of potable water use within buildings, a 50 percent construction waste diversion from landfills, use of building finish materials that emit low levels of volatile organic compounds, and commissioning for new, nonresidential buildings over 10,000 square feet.

The 2019 CalGreen Code includes the following changes and/or additional regulations:

Single-family homes built with the 2019 standards will use about 7 percent less energy due to energy efficiency measures versus those built under the 2016 standards. Once rooftop solar electricity generation is factored in, homes built under the 2019 standards will use about 53 percent less energy than those under the 2016 standards. Nonresidential buildings will use about 30 percent less energy due mainly to lighting upgrades[2].

[2] https://ww2.energy.ca.gov/title24/2019standards/documents/2018_Title_24_2019_Building_Standards_FAQ.pdf

HCD modified the best management practices for stormwater pollution prevention adding Section 5.106.2 for projects that disturb one or more acres of land. This section requires projects that disturb one acre or more of land or less than one acre of land but are part of a larger common plan of development or sale must comply with the post-construction requirement detailed in the applicable National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities issued by the State Water Resources Control Board. The NPDES permits require post-construction runoff (post-project hydrology) to match the preconstruction runoff pre-project hydrology) with installation of post-construction stormwater management measures.

HCD added sections 5.106.4.1.3 and 5.106.4.1.5 in regards to bicycle parking. Section 5.106.4.1.3 requires new buildings with tenant spaces that have 10 or more tenant-occupants, provide secure bicycle parking for 5 percent of the tenant-occupant vehicular parking spaces with a minimum of one bicycle parking facility. In addition, Section 5.106.4.1.5 states that acceptable bicycle parking facility for Sections 5.106.4.1.2 through 5.106.4.1.4 shall be convenient from the street and shall meeting one of the following: (1) covered, lockable enclosures with permanently anchored racks for bicycles; (2) lockable bicycle rooms with permanently anchored racks; or (3) lockable, permanently anchored bicycle lockers.

HCD amended section 5.106.5.3.5 allowing future charging spaces to qualify as designated parking for clean air vehicles.

HCD updated section 5.303.3.3 in regards to showerhead flow rates. This update reduced the flow rate to 1.8 GPM.

HCD amended section 5.304.1 for outdoor potable water use in landscape areas and repealed sections 5.304.2 and 5.304.3. The update requires nonresidential developments to comply with a local water efficient landscape ordinance or the current California Department of Water Resource's' Model Water Efficient Landscape Ordinance (MWELO), whichever is more stringent. Some updates were also made in regards to the outdoor potable water use in landscape areas for public schools and community colleges.

HCD updated Section 5.504.5.3 in regards to the use of MERV filters in mechanically ventilated buildings. This update changed the filter use from MERV 8 to MERV 13.

The California Green Building Standards Code does not prevent a local jurisdiction from adopting a more stringent code as state law provides methods for local enhancements. The Code recognizes that many jurisdictions have developed existing construction and demolition ordinances, and defers to them as the ruling guidance provided they provide a minimum 50-percent diversion requirement. The code also provides exemptions for areas not served by construction and demolition recycling infrastructure. State building code provides the minimum standard that buildings need to meet in order to be certified for occupancy. Enforcement is generally through the local building official. The following link provides more on CalGreen Building Standards:
http://www.bsc.ca.gov/Home/CALGreen.aspx

Executive Order S-3-05. California Governor issued Executive Order S-3-05, GHG Emission, in June 2005, which established the following targets:

- By 2010, California shall reduce greenhouse gas emissions to 2000 levels;
- By 2020, California shall reduce greenhouse gas emissions to 1990 levels.
- By 2050, California shall reduce greenhouse gas emissions to 80 percent below 1990 levels.

The executive order directed the secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. To comply with the Executive Order, the secretary of CalEPA created the California Climate Action Team (CAT), made up of members from various state agencies and commissions. The team released its first report in March 2006. The report proposed to achieve the targets by building on the voluntary actions of businesses, local governments, and communities and through State incentive and regulatory programs.

Executive Order S-01-07. Executive Order S-1-07 was issued in 2007 and proclaims that the transportation sector is the main source of GHG emissions in the State, since it generates more than 40 percent of the State's GHG emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in the State by at least ten percent by 2020. This Order also directs CARB to determine whether this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

On April 23, 2009 CARB approved the proposed regulation to implement the low carbon fuel standard and began implementation on January 1, 2011. The low carbon fuel standard is anticipated to reduce GHG emissions by about 16 MMT per year by 2020. CARB approved some amendments to the LCFS in December 2011, which were implemented on January 1, 2013. In September 2015, the Board approved the re-adoption of the LCFS, which became effective on January 1, 2016, to address procedural deficiencies in the way the original regulation was adopted. In 2018, the Board approved amendments to the regulation, which included strengthening and smoothing the carbon intensity benchmarks through 2030 in-line with California's 2030 GHG emission reduction target enacted through SB 32, adding new 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.

The LCFS is designed to encourage the use of cleaner low-carbon transportation fuels in California, encourage the production of those fuels, and therefore, reduce GHG emissions and decrease petroleum dependence in the transportation sector. Separate standards are established for gasoline and diesel fuels and the alternative fuels that can replace each. The standards are "back-loaded", with more reductions required in the last five years, than the first five years. This schedule allows for the development of advanced fuels that are lower in carbon than today's fuels and the market penetration of plug-in hybrid electric vehicles, battery electric vehicles, fuel cell vehicles, and flexible fuel vehicles. It is anticipated that compliance with the low carbon fuel standard will be based on a combination of both lower carbon fuels and more efficient vehicles.

Reformulated gasoline mixed with corn-derived ethanol at ten percent by volume and low sulfur diesel fuel represent the baseline fuels. Lower carbon fuels may be ethanol, biodiesel, renewable diesel, or blends of these fuels with gasoline or diesel as appropriate. Compressed natural gas and liquefied natural gas also may be low carbon fuels. Hydrogen and electricity, when used in fuel cells or electric vehicles are also considered as low carbon fuels for the low carbon fuel standard.

SB 97. Senate Bill 97 (SB 97) was adopted August 2007 and acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. SB 97 directed the Governor's Office of Planning and Research (OPR), which is part of the State Resource Agency, to prepare, develop, and transmit to CARB guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, by July 1, 2009. The Resources Agency was required to certify and adopt those guidelines by January 1, 2010.

Pursuant to the requirements of SB 97 as stated above, on December 30, 2009 the Natural Resources Agency adopted amendments to the state CEQA guidelines that address GHG emissions. The CEQA Guidelines Amendments changed 14 sections of the CEQA Guidelines and incorporate GHG language throughout the Guidelines. However, no GHG emissions thresholds of significance are provided and no specific mitigation measures are identified. The GHG emission reduction amendments went into effect on March 18, 2010 and are summarized below:

- Climate action plans and other greenhouse gas reduction plans can be used to determine whether a project has significant impacts, based upon its compliance with the plan.
- Local governments are encouraged to quantify the greenhouse gas emissions of proposed projects, noting that they have the freedom to select the models and methodologies that best meet their needs and circumstances. The section also recommends consideration of several qualitative factors that may be used in the determination of significance, such as the extent to which the given project complies with state, regional, or local GHG reduction plans and policies. OPR does not set or dictate specific thresholds of significance. Consistent with existing CEQA Guidelines, OPR encourages local governments to develop and publish their own thresholds of significance for GHG impacts assessment.
- When creating their own thresholds of significance, local governments may consider the thresholds of significance adopted or recommended by other public agencies, or recommended by experts.
- New amendments include guidelines for determining methods to mitigate the effects of greenhouse gas emissions in Appendix F of the CEQA Guidelines.
- OPR is clear to state that "to qualify as mitigation, specific measures from an existing plan must be identified and incorporated into the project; general compliance with a plan, by itself, is not mitigation."
- OPR's emphasizes the advantages of analyzing GHG impacts on an institutional, programmatic level. OPR therefore approves tiering of environmental analyses and highlights some benefits of such an approach.
- Environmental impact reports (EIRs) must specifically consider a project's energy use and energy efficiency potential.

AB 32. The California State Legislature enacted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires that greenhouse gases emitted in California be reduced to 1990 levels by the year 2020. "Greenhouse gases" as defined under AB 32 include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. ARB is the state agency charged with monitoring and regulating sources of greenhouse gases. 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.

The ARB Board approved the 1990 greenhouse gas emissions level of 427 million metric tons of carbon dioxide equivalent (MMTCO2e) on December 6, 2007 (California Air Resources Board 2007). Therefore, emissions generated in California in 2020 are required to be equal to or less than 427 MMTCO2e. Emissions in 2020 in a "business as usual" scenario are estimated to be 596 MMTCO2e.

Under AB 32, the ARB published its Final Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California. Discrete early action measures are currently underway or are enforceable by January 1, 2010. The ARB has 44 early action measures that apply to the transportation, commercial, forestry, agriculture, cement, oil and gas, fire suppression, fuels, education, energy efficiency, electricity, and waste sectors. Of these early action measures, nine are considered discrete early action measures, as they are regulatory and enforceable by January 1, 2010. The ARB estimates that the 44 recommendations are expected to result in reductions of at least 42 MMTCO2e by 2020, representing approximately 25 percent of the 2020 target.

The ARB's Climate Change Scoping Plan (Scoping Plan) contains measures designed to reduce the State's emissions to 1990 levels by the year 2020 (California Air Resources Board 2008). The Scoping Plan identifies recommended measures for multiple greenhouse gas emission sectors and the associated emission reductions needed to achieve the year 2020 emissions target—each sector has a different emission reduction target. Most of the measures target the transportation and electricity sectors. As stated in the Scoping Plan, the key elements of the strategy for achieving the 2020 greenhouse gas target include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a statewide renewables energy mix of 33 percent;
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;
- Establishing targets for transportation-related greenhouse gas emissions for regions throughout California and pursuing policies and incentives to achieve those targets;

- Adopting and implementing measures pursuant to existing State laws and policies, Including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State's long-term commitment to AB 32 implementation.

In addition, the Scoping Plan differentiates between "capped" and "uncapped" strategies. "Capped" strategies are subject to the proposed cap-and-trade program. The Scoping Plan states that the inclusion of these emissions within the cap-and trade program will help ensure that the year 2020 emission targets are met despite some degree of uncertainty in the emission reduction estimates for any individual measure. Implementation of the capped strategies is calculated to achieve a sufficient amount of reductions by 2020 to achieve the emission target contained in AB 32. "Uncapped" strategies that will not be subject to the cap-and-trade emissions caps and requirements are provided as a margin of safety by accounting for additional greenhouse gas emission reductions.[4]

Senate Bill 100. Senate Bill 100 (SB 100) requires 100 percent of total retail sales of electricity in California to come from eligible renewable energy resources and zero-carbon resources by December 31, 2045. SB 100 was adopted September 2018.

The interim thresholds from prior Senate Bills and Executive Orders would also remain in effect. These include Senate Bill 1078 (SB 1078), which requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. Senate Bill 107 (SB 107) which changed the target date to 2010. Executive Order S-14-08, which was signed on November 2008 and expanded the State's Renewable Energy Standard to 33 percent renewable energy by 2020. Executive Order S-21-09 directed the CARB to adopt regulations by July 31, 2010 to enforce S-14-08. Senate Bill X1-2 codifies the 33 percent renewable energy requirement by 2020.

SB 375. Senate Bill 375 (SB 375) was adopted September 2008 and aligns regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPO) to adopt a sustainable communities strategy (SCS) or alternate planning strategy (APS) that will prescribe land use allocation in that MPOs Regional Transportation Plan (RTP). CARB, in consultation with each MPO, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. CARB is also charged with reviewing each MPO's sustainable communities strategy or alternate planning strategy for consistency with its assigned targets.

The proposed project is located within the Southern California Association of Governments (SCAG), which has authority to develop the SCS or APS. For the SCAG region, the targets set by CARB are at eight percent below 2005 per capita GHG emissions levels by 2020 and 13 percent below 2005 per capita GHG

emissions levels by 2035. On April 4, 2012, SCAG adopted the 2012-2035 Regional Transportation Plan / Sustainable Communities Strategy (RTP/SCS), which meets the CARB emission reduction requirements.

On September 3, 2020, SCAG's Regional Council approved and fully adopted the Connect SoCal (2020–2045 Regional Transportation Plan/Sustainable Communities Strategy), and the addendum to the Connect SoCal Program Environmental Impact Report. Connect SoCal is a long-range visioning plan that builds upon and expands land use and transportation strategies established over several planning cycles to increase mobility options and achieve a more sustainable growth pattern. Connect SoCal outlines more than $638 billion in transportation system investments through 2045. Connect SoCal is supported by a combination of transportation and land use strategies that help the region achieve state greenhouse gas emission reduction goals and federal Clean Air Act requirements, preserve open space areas, improve public health and roadway safety, support our vital goods movement industry and utilize resources more efficiently. By integrating the Forecasted Development Pattern with a suite of financially constrained transportation investments, Connect SoCal can reach the regional target of reducing greenhouse gases, or GHGs, from autos and light-duty trucks by 8 percent per capita by 2020, and 19 percent by 2035 (compared to 2005 levels).

City and County land use policies, including General Plans, are not required to be consistent with the RTP and associated SCS or APS. However, new provisions of CEQA would incentivize, through streamlining and other provisions, qualified projects that are consistent with an approved SCS or APS and categorized as "transit priority projects."

Assembly Bill 939, Assembly Bill 341, and Senate Bill 1374. Assembly Bill 939 (AB 939) requires that each jurisdiction in California to divert at least 50 percent of its waste away from landfills, whether through waste reduction, recycling or other means. AB 341 requires at least 75 percent of generated waste be source reduced, recycled, or composted by the year 2020. Senate Bill 1374 (SB 1374) requires the California Integrated Waste Management Board to adopt a model ordinance by March 1, 2004 suitable for adoption by any local agency to require 50 to 75 percent diversion of construction and demolition of waste materials from landfills.

Executive Order S-13-08. Executive Order S-13-08 indicates 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 (California Natural Resource Agency 2009) was adopted, which is the "… first statewide, multi-sector, region-specific, and information-based 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. Executive Order B-30-15, establishing a new interim statewide greenhouse gas emission reduction target to reduce greenhouse gas emissions to 40 percent below 1990 levels by 2030, was signed by Governor Brown in April 2015.

Executive Order B-29-15. Executive Order B-29-15, mandates a statewide 25% reduction in potable water usage and was signed into law on April 1, 2015.

Executive Order B-37-16. Executive Order B-37-16, continuing the State's adopted water reduction, was signed into law on May 9, 2016. The water reduction builds off the mandatory 25% reduction called for in EO B-29-15.

Executive Order N-79-20. Executive Order N-79-20 was signed into law on September 23, 2020 and mandates 100 percent of in-state sales of new passenger cars and trucks be zero-emission by 2035; 100 percent of medium- and heavy-duty vehicles in the state be zero-emission vehicles by 2045 for all operations where feasible and by 2035 for drayage trucks; and to transition to 100 percent zero-emission off-road vehicles and equipment by 2035 where feasible.

TCAPCD Threshold

Air districts have traditionally provided guidance to local lead agencies on evaluating and addressing air pollution impacts from projects subject to CEQA. Recognizing the need for a common platform of information and tools to support decision makers as they establish policies and programs for GHG and CEQA, the California Air Pollution Control Officers Association (CAPCOA) has prepared a white paper reviewing policy choices, analytical tools, and mitigation strategies. This paper is intended to serve as a resource for public agencies as they establish agency procedures for reviewing GHG emissions from projects under CEQA. The white paper, CEQA and Climate Change, can be downloaded at the following website: http://www.capcoa.org/. In order to provide a threshold for CO2 and CO2 equivalents for purposes of CEQA analysis, TCAPCD has established a threshold of 900 metric tons per year, in accordance with the CAPCOA document.

2.3 Energy Regulatory Setting

Federal and state agencies regulate energy use and consumption through various means and programs. On the federal level, the United States Department of Transportation, the United States Department of Energy, and the United States Environmental Protection Agency are three federal agencies with substantial influence over energy policies and programs. On the state level, the PUC and the California Energy Commissions (CEC) are two agencies with authority over different aspects of energy. Relevant federal and state energy-related laws and plans are summarized below.

2.3.1 Federal Regulations

Corporate Average Fuel Economy (CAFE) Standards

First established by the U.S. Congress in 1975, the Corporate Average Fuel Economy (CAFE) standards reduce energy consumption by increasing the fuel economy of cars and light trucks. The National Highway Traffic Safety Administration (NHTSA) and U.S. Environmental Protection Agency (USEPA) jointly administer the CAFE standards. The U.S. Congress has specified that CAFE standards must be set at the "maximum feasible level" with consideration given for: (1) technological feasibility; (2) economic

practicality; (3) effect of other standards on fuel economy; and (4) need for the nation to conserve energy.[3]

Issued by NHTSA and EPA in March 2020 (published on April 30, 2020 and effective after June 29, 2020), the Safer Affordable Fuel-Efficient Vehicles Rule would maintain the CAFE and CO2 standards applicable in model year 2020 for model years 2021 through 2026. The estimated CAFE and CO2 standards for model year 2020 are 43.7 mpg and 204 grams of CO2 per mile for passenger cars and 31.3 mpg and 284 grams of CO2 per mile for light trucks, projecting an overall industry average of 37 mpg, as compared to 46.7 mpg under the standards issued in 2012.[4]

Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA)

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) promoted the development of inter-modal transportation systems to maximize mobility as well as address national and local interests in air quality and energy. ISTEA contained factors that Metropolitan Planning Organizations (MPOs) were to address in developing transportation plans and programs, including some energy-related factors. To meet the new ISTEA requirements, MPOs adopted explicit policies defining the social, economic, energy, and environmental values guiding transportation decisions.

The Transportation Equity Act of the 21st Century (TEA-21)

The Transportation Equity Act for the 21st Century (TEA-21) was signed into law in 1998 and builds upon the initiatives established in the ISTEA legislation, discussed above. TEA-21 authorizes highway, highway safety, transit, and other efficient surface transportation programs. TEA-21 continues the program structure established for highways and transit under ISTEA, such as flexibility in the use of funds, emphasis on measures to improve the environment, and focus on a strong planning process as the foundation of good transportation decisions. TEA-21 also provides for investment in research and its application to maximize the performance of the transportation system through, for example, deployment of Intelligent Transportation Systems, to help improve operations and management of transportation systems and vehicle safety.

2.3.2 State Regulations

Integrated Energy Policy Report (IEPR)

Senate Bill 1389 requires the California Energy Commission (CEC) to prepare a biennial integrated energy policy report that assesses major energy trends and issues facing the State's electricity, natural gas, and

[3] https://www.nhtsa.gov/lawsregulations/corporate-average-fuel-economy.

[4] National Highway Traffic Safety Administration (NHTSA) and U.S. Environmental Protection Agency (USEPA), 2018. Federal Register / Vol. 83, No. 165 / Friday, August 24, 2018 / Proposed Rules, The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks 2018. Available at: https://www.epa.gov/regulations-emissions-vehicles-and-engines/safer-affordable-fuel-efficient-safe-vehicles-final-rule.

transportation fuel sectors and provides policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the state's economy; and protect public health and safety. The Energy Commission prepares these assessments and associated policy recommendations every two years, with updates in alternate years, as part of the Integrated Energy Policy Report.

The 2019 Integrated Energy Policy Report (2019 IEPR) was adopted February 20, 2020, and continues to work towards improving electricity, natural gas, and transportation fuel energy use in California. The 2019 IEPR focuses on a variety of topics such as decarbonizing buildings, integrating renewables, energy efficiency, energy equity, integrating renewable energy, updates on Southern California electricity reliability, climate adaptation activities for the energy sector, natural gas assessment, transportation energy demand forecast, and the California Energy Demand Forecast.[5]

The 2020 IEPR was adopted March 23, 2021 and identifies actions the state and others can take to ensure a clean. Affordable, and reliable energy system. In 2020, the IEPR focuses on California's transportation future and the transition to zero-emission vehicles, examines microgrids, lessons learned form a decade of state-supported research, and stakeholder feedback on the potential of microgrids to contribute to a lean and resilient energy system; and reports on California's energy demand outlook, updated to reflect the global pandemic and help plan for a growth in zero-emission plug in electric vehicles.[6]

State of California Energy Plan

The CEC is responsible for preparing the State Energy Plan, which identifies emerging trends related to energy supply, demand, conservation, public health and safety, and the maintenance of a healthy economy. The Plan calls for the state to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators and encouragement of urban designs that reduce vehicle miles traveled and accommodate pedestrian and bicycle access.

California Building Standards Code (Title 24)

California Building Energy Efficiency Standards (Title 24, Part 6)

The California Building Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations, Title 24, Part 6) were adopted to ensure that building construction and system design and installation achieve energy efficiency and preserve outdoor and indoor environmental quality. The current California Building Energy Efficiency Standards (Title 24 standards) are the 2019 Title

[5] California Energy Commission. Final 2019 Integrated Energy Policy Report. February 20, 2020. https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2019-integrated-energy-policy-report

[6] California Energy Commission. Final 2020 Integrated Energy Policy Report. March 23, 2020. https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2020-integrated-energy-policy-report-update

24 standards, which became effective on January 1, 2020. The 2019 Title 24 standards include efficiency improvements to the lighting and efficiency improvements to the non-residential standards include alignment with the American Society of Heating and Air-Conditioning Engineers.

All buildings for which an application for a building permit is submitted on or after January 1, 2020 must follow the 2019 standards. The 2016 residential standards were estimated to be approximately 28 percent more efficient than the 2013 standards, whereas the 2019 residential standards are estimated to be approximately 7 percent more efficient than the 2016 standards. Furthermore, once rooftop solar electricity generation is factored in, 2019 residential standards are estimated to be approximately 53 percent more efficient than the 2016 standards. Under the 2019 standards, nonresidential buildings are estimated to be approximately 30 percent more efficient than the 2016 standards. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas emissions.

California Building Energy Efficiency Standards (Title 24, Part 11)

The 2019 California Green Building Standards Code (California Code of Regulations, Title 24, Part 11), commonly referred to as the CALGreen Code, went into effect on January 1, 2020. The 2019 CALGreen Code includes mandatory measures for non-residential development related to site development; energy efficiency; water efficiency and conservation; material conservation and resource efficiency; and environmental quality.

The Department of Housing and Community Development (HCD) updated CALGreen through the 2019 Triennial Code Adoption Cycle. HCD modified the best management practices for stormwater pollution prevention adding Section 5.106.2; added sections 5.106.4.1.3 and 5.106.4.1.5 in regard to bicycle parking; amended section 5.106.5.3.5 allowing future charging spaces to qualify as designated parking for clean air vehicles; updated section 5.303.3.3 in regard to showerhead flow rates; amended section 5.304.1 for outdoor potable water use in landscape areas and repealed sections 5.304.2 and 5.304.3; and updated Section 5.504.5.3 in regard to the use of MERV filters in mechanically ventilated buildings.

Senate Bill 100

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The interim thresholds from prior Senate Bills and Executive Orders would also remain in effect. These include Senate Bill 1078 (SB 1078), which requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. Senate Bill 107 (SB 107) which changed the target date to 2010. Executive Order S-14-08, which was signed on November 2008 and expanded the State's Renewable Energy Standard to 33 percent renewable energy by 2020. Executive Order S-21-09 directed the CARB to adopt regulations by July 31, 2010 to enforce S-14-08. Senate Bill X1-2 codifies the 33 percent renewable energy requirement by 2020.

Senate Bill 350

Senate Bill 350 (SB 350) was signed into law October 7, 2015, SB 350 increases California's renewable electricity procurement goal from 33 percent by 2020 to 50 percent by 2030. This will increase the use of Renewables Portfolio Standard (RPS) eligible resources, including solar, wind, biomass, geothermal, and others. In addition, SB 350 requires the state to double statewide energy efficiency savings in electricity and natural gas end uses by 2030. To help ensure these goals are met and the greenhouse gas emission reductions are realized, large utilities will be required to develop and submit Integrated Resource Plans (IRPs). These IRPs will detail how each entity will meet their customers resource needs, reduce greenhouse gas emissions and ramp up the deployment of clean energy resources.

Assembly Bill 32

In 2006 the California State Legislature adopted Assembly Bill 32 (AB 32), the California Global Warming Solutions Act of 2006. AB 32 requires CARB, to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020 through an enforceable statewide emission cap which will be phased in starting in 2012. Emission reductions shall include carbon sequestration projects that would remove carbon from the atmosphere and best management practices that are technologically feasible and cost effective.

Assembly Bill 1493/Pavley Regulations

California Assembly Bill 1493 enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. In 2005, the CARB submitted a "waiver" request to the EPA from a portion of the federal Clean Air Act in order to allow the State to set more stringent tailpipe emission standards for CO_2 and other GHG emissions from passenger vehicles and light duty trucks. On December 19, 2007 the EPA announced that it denied the "waiver" request. On January 21, 2009, CARB submitted a letter to the EPA administrator regarding the State's request to reconsider the waiver denial. The EPA approved the waiver on June 30, 2009.

Executive Order S-1-07/Low Carbon Fuel Standard

Executive Order S-1-07 was issued in 2007 and proclaims that the transportation sector is the main source of GHG emissions in the State, since it generates more than 40 percent of the State's GHG emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in the State by at least ten percent by 2020. This Order also directs CARB to determine whether this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

On April 23, 2009 CARB approved the proposed regulation to implement the low carbon fuel standard and began implementation on January 1, 2011. The low carbon fuel standard is anticipated to reduce GHG emissions by about 16 MMT per year by 2020. CARB approved some amendments to the LCFS in December 2011, which were implemented on January 1, 2013. In September 2015, the Board approved the re-adoption of the LCFS, which became effective on January 1, 2016, to address procedural deficiencies in the way the original regulation was adopted. In 2018, the Board approved amendments

to the regulation, which included strengthening and smoothing the carbon intensity benchmarks through 2030 in-line with California's 2030 GHG emission reduction target enacted through SB 32, adding new 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.

The LCFS is designed to encourage the use of cleaner low-carbon transportation fuels in California, encourage the production of those fuels, and therefore, reduce GHG emissions and decrease petroleum dependence in the transportation sector. Separate standards are established for gasoline and diesel fuels and the alternative fuels that can replace each. The standards are "back-loaded", with more reductions required in the last five years, than during the first five years. This schedule allows for the development of advanced fuels that are lower in carbon than today's fuels and the market penetration of plug-in hybrid electric vehicles, battery electric vehicles, fuel cell vehicles, and flexible fuel vehicles. It is anticipated that compliance with the low carbon fuel standard will be based on a combination of both lower carbon fuels and more efficient vehicles.

Reformulated gasoline mixed with corn-derived ethanol at ten percent by volume and low sulfur diesel fuel represent the baseline fuels. Lower carbon fuels may be ethanol, biodiesel, renewable diesel, or blends of these fuels with gasoline or diesel as appropriate. Compressed natural gas and liquefied natural gas also may be low carbon fuels. Hydrogen and electricity, when used in fuel cells or electric vehicles are also considered as low carbon fuels for the low carbon fuel standard.

Executive Order N-79-20.

Executive Order N-79-20 was signed into law on September 23, 2020 and mandates 100 percent of in-state sales of new passenger cars and trucks be zero-emission by 2035; 100 percent of medium- and heavy-duty vehicles in the state be zero-emission vehicles by 2045 for all operations where feasible and by 2035 for drayage trucks; and to transition to 100 percent zero-emission off-road vehicles and equipment by 2035 where feasible.

California Air Resources Board

CARB's Advanced Clean Cars Program

Closely associated with the Pavley regulations, the Advanced Clean Cars emissions control program was approved by CARB in 2012. The program combines the control of smog, soot, and GHGs with requirements for greater numbers of zero-emission vehicles for model years 2015–2025. The components of the Advanced Clean Cars program include the Low-Emission Vehicle (LEV) regulations that reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles, and the Zero-Emission Vehicle (ZEV) regulation, which requires manufacturers to produce an increasing number of

pure ZEVs (meaning battery electric and fuel cell electric vehicles), with provisions to also produce plug-in hybrid electric vehicles (PHEV) in the 2018 through 2025 model years.[7]

Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling

The Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling (Title 13, California Code of Regulations, Division 3, Chapter 10, Section 2435) was adopted to reduce public exposure to diesel particulate matter and other air contaminants by limiting the idling of diesel-fueled commercial motor vehicles. This section applies to diesel-fueled commercial motor vehicles with gross vehicular weight ratings of greater than 10,000 pounds that are or must be licensed for operation on highways. Reducing idling of diesel-fueled commercial motor vehicles reduces the amount of petroleum-based fuel used by the vehicle.

Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen, and other Criteria Pollutants, form In-Use Heavy-Duty Diesel-Fueled Vehicles

The Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen and other Criteria Pollutants, from In-Use Heavy-Duty Diesel-Fueled Vehicles (Title 13, California Code of Regulations, Division 3, Chapter 1, Section 2025) was adopted to reduce emissions of diesel particulate matter, oxides of nitrogen (NO_X) and other criteria pollutants from in-use diesel-fueled vehicles. This regulation is phased, with full implementation by 2023. The regulation aims to reduce emissions by requiring the installation of diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission-controlled models. The newer emission controlled models would use petroleum-based fuel in a more efficient manner.

Sustainable Communities Strategy

The Sustainable Communities and Climate Protection Act of 2008, or Senate Bill 375 (SB 375), coordinates land use planning, regional transportation plans, and funding priorities to help California meet the GHG reduction mandates established in AB 32.

Senate Bill 375 (SB 375) was adopted September 2008 and aligns regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPO) to adopt a sustainable communities strategy (SCS) or alternate planning strategy (APS) that will prescribe land use allocation in that MPOs Regional Transportation Plan (RTP). CARB, in consultation with each MPO, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. CARB

[7] California Air Resources Board, California's Advanced Clean Cars Program, January 18, 2017. www.arb.ca.gov/msprog/acc/acc.htm.

is also charged with reviewing each MPO's sustainable communities strategy or alternate planning strategy for consistency with its assigned targets.

3.0 Setting

3.1 Existing Physical Setting

The project site is located in the City of Red Bluff, which is part of the Northern Sacramento Valley Air Basin (NSVAB) that includes all of Tehama County as well as Butte, Colusa, Glenn, Shasta, Sutter, and Yuba counties. The NSVAB is bounded on the north and west by the Coastal Mountain Range and on the east by the southern portion of the Cascade Mountain Range and the northern portion of the Sierra Nevada Mountains.

3.1.1 Local Climate and Meteorology

Dominant airflows provide the driving mechanism for transport and dispersion of air pollution. The mountain ranges surrounding the NSVAB reach heights in excess of 6,000 feet above mean sea level (MSL), with individual peaks rising much higher. The mountains provide a substantial barrier to both locally created pollution and the pollution that has been transported northward on prevailing winds from the BSA. The NSVAB is shaped like an elongated bowl. Temperature inversion layers can act as a lid on the bowl, allowing air pollution to rise to unhealthy levels. Prevailing winds in the area are from the south and southwest. Sea breezes flow over the San Francisco Bay Area and into the Sacramento Valley, transporting pollutants from the large urban areas. Growth and urbanization in Tehama County have also contributed to an increase in emissions.

The annual average temperature ranges from the middle 30s as winter lows to upper 90s as summer highs, measured in degrees Fahrenheit (°F). The majority of the annual rainfall in the basin occurs between October and May. Year-to-year patterns in rainfall are unpredictable because of fluctuations in the weather.

Temperature inversions limit the vertical depth through which pollution can be mixed. Among the most common temperature inversions in the basin are radiation inversions, which form on clear winter nights when cold air off mountains sink to the valley floor while the air aloft over the valley remains warm. These inversions, in conjunction with calm winds, trap pollutants near the source. Other types of temperature inversions that affect the basin include marine, subsidence, and high-pressure inversions.

Summers are often periods of hazy visibility and occasionally unhealthful air. Strong temperature inversions may occur that limit the vertical depth through which air pollution can be dispersed. Air pollutants concentrate because they cannot rise through the inversion layer and disperse. These inversions are more common and persistent during the summer months. Over time, sunlight produces photochemical reactions within this inversion layer that creates ozone, a particularly harmful air pollutant. Occasionally, strong thermal convections occur which allows the air pollutants to rise high enough to pass over the mountains and ultimately dilute the smog cloudtrap pollutants such as automobile exhaust near their source. While these inversions may lead to air pollution “hot spots” in heavily developed coastal areas of the basin, there is not enough traffic in inland valleys to cause any winter air pollution problems. Despite light wind conditions, especially at night and in the early morning, winter is generally a period of good air quality in the project vicinity.

In the winter, light nocturnal winds result mainly from the drainage of cool air off of the mountains toward the valley floor while the air aloft over the valley remains warm. This forms a type of inversion known as a radiation inversion. Such winds are characterized by stagnation and poor local mixing and trap pollutants such as automobile exhaust near their source. While these inversions may lead to air pollution "hot spots" in heavily developed coastal areas of the basin, there is not enough traffic to cause any winter air pollution problems. Despite light wind conditions, especially at night and in the early morning, winter is generally a period of good air quality in the project vicinity.

The temperature and precipitation levels for the City of Red Bluff are in Table 3. Table 3 shows that July is typically the warmest month and January is typically the coolest month. Rainfall in the project area varies considerably in both time and space. Almost all the annual rainfall comes from the fringes of mid-latitude storms from October to May, with summers being significantly more dry.

Table 3: Meteorological Summary

Month	Temperature (˚F)		Average Precipitation (inches)
	Average High	Average Low	
January	54.7	37.1	4.45
February	59.9	40.3	3.75
March	64.9	42.9	2.90
April	71.8	46.8	1.63
May	81.6	53.9	1.05
June	90.4	61.3	0.46
July	97.9	65.6	0.07
August	96.0	63.1	0.14
September	90.6	58.9	0.46
October	78.6	50.9	1.37
November	63.7	42.5	2.90
December	55.2	37.9	4.02
Annual Average	**75.4**	**50.1**	**23.20**

Notes:
[1] Source: https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7292

3.1.2 Local Air Quality

The project site is located in the City of Red Bluff in Tehama County. The nearest air monitoring stations to the project site with available data are the Red Bluff Station located at 1834 Walnut Street in Red Bluff. The Red Bluff Station is located approximately 1 mile easy of the project site, at 1834 Walnut Street, Red Bluff. Table 4 presents the monitored pollutant levels within the vicinity. However, it should be noted that due to the air monitoring station distance from the project site, recorded air pollution levels at the air monitoring station reflect with varying degrees of accuracy, local air quality conditions at the project site.

Table 4: Local Area Air Quality Levels

Pollutant (Standard)[2]	Year		
	2018	2019	2020
Ozone:			
Maximum 1-Hour Concentration (ppm)	0.092	0.075	0.072
Days > CAAQS (0.09 ppm)	**0**	**0**	**0**
Maximum 8-Hour Concentration (ppm)	0.087	0.067	0.063
Days > NAAQS (0.07 ppm)	**8**	**0**	**0**
Days > CAAQS (0.070 ppm)	**11**	**0**	**0**
Carbon Monoxide:			
Maximum 1-Hour Concentration (ppm)	-	-	-
Days > NAAQS (20 ppm)	-	-	-
Maximum 8-Hour Concentration (ppm)	-	-	-
Days > NAAQS (9 ppm)	-	-	-
Nitrogen Dioxide:			
Maximum 1-Hour Concentration (ppm)	0.051	0.045	0.046
Days > NAAQS (0.25 ppm)	0	0	0
Sulfur Dioxide:			
Maximum 1-Hour Concentration (ppm)	-	-	-
Days > CAAQS (0.25 ppm)	-	-	-
Inhalable Particulates (PM10):			
Maximum 24-Hour Concentration (ug/m^3)	102.5	43.6	172.0
Days > NAAQS (150 ug/m^3)	0	0	1
Days > CAAQS (50 ug/m^3)	6	0	4
Annual Average (ug/m^3)	23.8	14.6	-
Annual > NAAQS (50 ug/m^3)	No	No	-
Annual > CAAQS (20 ug/m^3)	**Yes**	No	**-**
Ultra-Fine Particulates (PM2.5):			
Maximum 24-Hour Concentration (ug/m^3)	130.7	22.6	142.9
Days > NAAQS (35 ug/m^3)	**24**	**0**	**31**
Annual Average (ug/m^3)	10.5	5.4	13.2
Annual > NAAQS (15 ug/m3)	No	No	No
Annual > CAAQS (12 ug/m^3)	No	No	**Yes**

[1] Source: obtained from https://www.arb.ca.gov/adam/topfour/topfour1.php.
[2] CAAQS = California Ambient Air Quality Standard; NAAQS = National Ambient Air Quality Standard; ppm = parts per million
[3] No data available.
[4] Obtained for Sacramento Valley Planning Area.

The monitoring data presented in Table 4 shows that ozone and particulate matter (PM10 and PM2.5) are the air pollutants of primary concern in the project area, which are detailed below.

Ozone

During the 2018 to 2020 monitoring period, the Red Bluff Station did not record an exceedance of the State 1-hour concentration standard for ozone. The State and Federal 8-hour ozone standard were exceeded 8 and 11 days respectively in 2018 at the Red Bluff Station.

Ozone is a secondary pollutant as it is not directly emitted. Ozone is the result of chemical reactions between other pollutants, most importantly hydrocarbons and NO_2, which occur only in the presence of

bright sunlight. Pollutants emitted from upwind cities react during transport downwind to produce the oxidant concentrations experienced in the area. Many areas of the TCAPCD contribute to the ozone levels experienced at the monitoring station, with the more significant areas being those directly upwind.

Carbon Monoxide
CO is another important pollutant that is due mainly to motor vehicles. The NSVAB did not record an exceedance of the state or federal 1-hour or 8-hour CO standards for the last three years.

Nitrogen Dioxide
The Sacramento Valley Planning Area did not record an exceedance of the State or Federal NO_2 standards for the last three years.

Sulfur Dioxide
The NSVAB did not record an exceedance of the State SO_2 standards for the last three years.

Particulate Matter
During the 2018 to 2020 monitoring period, the State 24-hour concentration standard for PM10 was exceeded 4 days in 2018 and 6 days in 2020 at the Red Bluff Station. Over the same time period, the Federal 24-hour standard was exceeded 1 day in 2020 and annual standard for PM10 was not exceeded at the Red Bluff Station.

During the 2018 to 2020 monitoring period, the Federal 24-hour standard for PM2.5 was exceeded 24 in 2018 and 31 days in 2020 at the Red Bluff Station.

According to the EPA, some people are much more sensitive than others to breathing fine particles (PM10 and PM2.5). People with influenza, chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death due to breathing these fine particles. People with bronchitis can expect aggravated symptoms from breathing in fine particles. Children may experience decline in lung function due to breathing in PM10 and PM2.5. Other groups considered sensitive are smokers and people who cannot breathe well through their noses. Exercising athletes are also considered sensitive, because many breathe through their mouths during exercise.

3.1.3 Attainment Status

The EPA and the ARB designate air basins where ambient air quality standards are exceeded as "nonattainment" areas. If standards are met, the area is designated as an "attainment" area. If there is inadequate or inconclusive data to make a definitive attainment designation, they are considered "unclassified." National nonattainment areas are further designated as marginal, moderate, serious, severe, or extreme as a function of deviation from standards. Table 5 lists the attainment status for the criteria pollutants in the basin.

Table 5: Northern Sacramento Valley Air Basin Attainment Status

Pollutant	Standard[1]	Averaging Time	Designation[2]
8-Hour Ozone[3]	NAAQS	2008 8-Hour (0.075 ppm)	Nonclassified/Attainment
	NAAQS	2015 8-Hour (0.070 ppm)	Nonclassified/Attainment
	CAAQS	8-Hour (0.070 ppm)	Nonattainment (Moderate)
PM10	NAAQS	1987 24-Hour (150 µg/m^3)	Nonclassified/Attainment
	CAAQS	24-Hour (50 µg/m^3) Annual (20 µg/m^3)	Nonclassified/Attainment
PM2.5 [4]	NAAQS	2006 24-Hour (35 µg/m^3)	Nonattainment
	NAAQS	1997 Annual (15.0 µg/m^3)	Nonattainment
	NAAQS	2021 Annual (12.0 µg/m^3)	Nonattainment
	CAAQS	Annual (12.0 µg/m^3)	Nonattainment

Notes:
Source: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/naaqs-caaqs-feb2016.pdf
[1] NAAQS = National Ambient Air Quality Standards, CAAQS = California Ambient Air Quality Standards
[2] U.S. EPA often only declares Nonattainment areas; everywhere else is listed as Unclassifiable/Attainment or Unclassifiable.
[3] 1997 8-hour O3 standard (0.08 ppm) was reduced (0.075 ppm), effective May 27, 2008; the revoked 1997 O3 standard is still subject to anti-backsliding requirements.
[4] Attainment deadline for the 2006 24-Hour PM2.5 NAAQS (designation effective December 14, 2009) is December 31, 2019 (end of the 10th calendar year after effective date of designations for Serious nonattainment areas). Annual PM2.5 standard was revised on January 15, 2013, effective March 18, 2013, from 15 to 12 µg/m3. Designations effective April 15, 2015, so Serious area attainment deadline is December 31, 2025.

3.2 Greenhouse Gases

Constituent gases of the Earth's atmosphere, called atmospheric greenhouse gases (GHG), play a critical role in the Earth's radiation amount by trapping infrared radiation emitted from the Earth's surface, which otherwise would have escaped to space. Prominent greenhouse gases contributing to this process include carbon dioxide (CO_2), methane (CH_4), ozone, water vapor, nitrous oxide (N_2O), and chlorofluorocarbons (CFCs). This phenomenon, known as the Greenhouse Effect, is responsible for maintaining a habitable climate. Anthropogenic (caused or produced by humans) emissions of these greenhouse gases in excess of natural ambient concentrations are responsible for the enhancement of the Greenhouse Effect and have led to a trend of unnatural warming of the Earth's natural climate, known as global warming or climate change. Emissions of gases that induce global warming are attributable to human activities associated with industrial/manufacturing, agriculture, utilities, transportation, and residential land uses. Transportation is responsible for 41 percent of the State's greenhouse gas emissions, followed by electricity generation. Emissions of CO_2 and nitrous oxide (NO_2) are byproducts of fossil fuel combustion. Methane, a potent greenhouse gas, results from off-gassing

associated with agricultural practices and landfills. Sinks of CO_2, where CO_2 is stored outside of the atmosphere, include uptake by vegetation and dissolution into the ocean. Table 6 provides a description of each of the greenhouse gases and their global warming potential.

Additional information is available: https://www.arb.ca.gov/cc/inventory/data/data.htm

<Table 6 on next page>

Table 6: Description of Greenhouse Gases

Greenhouse Gas	Description and Physical Properties	Sources
Nitrous oxide	Nitrous oxide (N_20),also known as laughing gas is a colorless gas. It has a lifetime of 114 years. Its global warming potential is 298.	Microbial processes in soil and water, fuel combustion, and industrial processes. In addition to agricultural sources, some industrial processes (nylon production, nitric acid production) also emit N_20.
Methane	Methane (CH_4) is a flammable gas and is the main component of natural gas. It has a lifetime of 12 years. Its global warming potential is 25.	A natural source of CH_4 is from the decay of organic matter. Methane is extracted from geological deposits (natural gas fields). Other sources are from the decay of organic material in landfills, fermentation of manure, and cattle farming.
Carbon dioxide	Carbon dioxide (CO_2) is an odorless, colorless, natural greenhouse gas. Carbon dioxide's global warming potential is 1. The concentration in 2005 was 379 parts per million (ppm), which is an increase of about 1.4 ppm per year since 1960.	Natural sources include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources are from burning coal, oil, natural gas, and wood.
Chlorofluorocarbons	CFCs are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the earth's surface). They are gases formed synthetically by replacing all hydrogen atoms in methane or methane with chlorine and/or fluorine atoms. Global warming potentials range from 3,800 to 8,100.	Chlorofluorocarbons were synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. They destroy stratospheric ozone, therefore their production was stopped as required by the Montreal Protocol.
Hydrofluorocarbons	Hydrofluorocarbons (HFCs) are a group of greenhouse gases containing carbon, chlorine, and at least one hydrogen atom. Global warming potentials range from 140 to 11,700.	Hydrofluorocarbons are synthetic manmade chemicals used as a substitute for chlorofluorocarbons in applications such as automobile air conditioners and refrigerants.
Perfluorocarbons	Perfluorocarbons (PFCs) have stable molecular structures and only break down by ultraviolet rays about 60 kilometers above the Earth's surface. They have a lifetime 10,000 to 50,000 years. They have a global warming potential range of 6,200 to 9,500.	Two main sources of perfluorocarbons are primary aluminum production and semiconductor manufacturing.
Sulfur hexafluoride	Sulfur hexafluoride (SF_6) is an inorganic, odorless, colorless, and nontoxic, nonflammable gas. It has a lifetime of 3,200 years. It has a high global warming potential, 23,900.	This gas is manmade and used for insulation in electric power transmission equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

Notes:

1. Sources: Intergovernmental Panel on Climate Change 2014a and Intergovernmental Panel on Climate Change 2014b. https://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html

3.3 Energy

3.3.1 Overview

California's estimated annual energy use as of 2019 included:

- Approximately 277,704 gigawatt hours of electricity; [8]
- Approximately 2,136,907 million cubic feet of natural gas per year (for the year 2018)[9];and
- Approximately 23.2 billion gallons of transportation fuel (for the year 2015)[10].

As of 2019, the year of most recent data currently available by the United States Energy Information Administration (EIA), energy use in California by demand sector was:

- Approximately 39.3 percent transportation;
- Approximately 23.2 percent industrial;
- Approximately 18.7 percent residential; and
- Approximately 18.9 percent commercial.[11]

California's electricity in-state generation system generates approximately 200,475 gigawatt-hours each year. In 2019, California produced approximately 72 percent of the electricity it uses; the rest was imported from the Pacific Northwest (approximately 9 percent) and the U.S. Southwest (approximately 19 percent). Natural gas is the main source for electricity generation at approximately 42.97 percent of the total in-state electric generation system power as shown in Table 7.

<Table 7, next page>

[8]California Energy Commission. Energy Almanac. Total Electric Generation. [Online] 2020. https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2019-total-system-electric-generation.

[9]Natural Gas Consumption by End Use. U.S. Energy Information Administration. [Online] August 31, 20020.https://www.eia.gov/dnav/ng/ng_cons_sum_dcu_SCA_a.htm.

[10]California Energy Commission. Revised Transportation Energy Demand Forecast 2018-2030. [Online] April 19, 2018. https://www.energy.ca.gov/assessments/

[11]U.S. Energy Information Administration. California Energy Consumption by by End-Use Sector. California State Profile and Energy Estimates.[Online] January 16, 2020 https://www.eia.gov/state/?sid=CA#tabs-2

Table 7: Total Electricity System Power (California 2019)

Fuel Type	California In-State Generation (GWh)	Percent of California In-State Generation	Northwest Imports (GWh)	Southwest Imports (GWh)	Total Imports (GWh)	Percent of Imports	California Power Mix (GWh)	Percent California Power Mix
Coal	248	0.12%	219	7,765	7,985	10.34%	8,233	2.96%
Natural Gas	86,136	42.97%	62	8,859	8,921	11.55%	95,057	34.23%
Nuclear	16,163	8.06%	39	8,743	8,782	11.37%	24,945	8.98%
Oil	36	0.02%	0	0	0	0.00%	36	0.01%
Other (Petroleum Coke/Waste Heat)	411	0.20%	0	11	11	0.01%	422	0.15%
Large Hydro	33,145	16.53%	6,387	1,071	7,458	9.66%	40,603	14.62%
Unspecified Sources of Power	0	0.00%	6,609	13,767	20,376	26.38%	20,376	7.34%
Renewables	64,336	32.09%	10,615	13,081	23,696	30.68%	88,032	31.70%
Biomass	5,851	2.92%	903	33	936	1.21%	6,787	2.44%
Geothermal	10,943	5.46%	99	2,218	2,318	3.00%	13,260	4.77%
Somall Hydro	5,349	2.67%	292	4	296	0.38%	5,646	2.03%
Solar	28,513	14.22%	282	5,295	5,577	7.22%	34,090	12.28%
Wind	13,680	6.82%	9,038	5,531	14,569	18.87%	28,249	10.17%
Total	200,475	100.00%	23,930	53,299	77,229	100.00%	277,704	100.00%

Notes:
[1] Source: California Energy Commission. 2019 Total System electric Generation. https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2019-total-system-electric-generation

A summary of and context for energy consumption and energy demands within the State is presented in "U.S. Energy Information Administration, California State Profile and Energy Estimates, Quick Facts" excerpted below:

- California was the seventh-largest producer of crude oil among the 50 states in 2018, and, as of January 2019, it ranked third in oil refining capacity.
- California is the largest consumer of jet fuel among the 50 states and accounted for one-fifth of the nation's jet fuel consumption in 2018.
- California's total energy consumption is the second-highest in the nation, but, in 2018, the State's per capita energy consumption ranked the fourth-lowest, due in part to its mild climate and its energy efficiency programs.
- In 2018, California ranked first in the nation as a producer of electricity from solar, geothermal, and biomass resources and fourth in the nation in conventional hydroelectric power generation.
- In 2018, large- and small-scale solar PV and solar thermal installations provided 19% of California's net electricity generation[12].

12 State Profile and Energy Estimates. Independent Statistics and Analysis. [Online] [Cited: January 16, 2020.] http://www.eia.gov/state/?sid=CA#tabs2.

As indicated above, California is one of the nation's leading energy-producing states, and California per capita energy use is among the nation's most efficient. Given the nature of the proposed project, the remainder of this discussion will focus on the three sources of energy that are most relevant to the project—namely, electricity and natural gas for building uses, and transportation fuel for vehicle trips associated with the proposed project.

3.3.2 Electricity and Natural Gas

Electricity and natural gas would be provided to the project by Pacific Gas & Electric (PG&E). PG&E provides electrical and natural gas service to the project area through State-regulated utility contracts. PG&E provides electric energy service to 16 million people located in northern and central California, within a service area encompassing approximately 70,000 square miles.[13] The delivery of electricity involves a number of system components, including substations and transformers that lower transmission line power (voltage) to a level appropriate for on-site distribution and use. The electricity generated is distributed through a network of transmission and distribution lines commonly called a power grid. In 2020, PG&E provided 29,834 Gigawatt-hours per year of electricity.[14]

Table 8 identifies PG&E's specific proportional shares of electricity sources in 2019. As shown in Table 8, the 2019 PG&E Power Mix has renewable energy at 29 percent of the overall energy resources, of which biomass and waste is at 3 percent, solar energy is at 12 percent, and wind power is at 9 percent; other energy sources include large hydroelectric at 27 percent and nuclear at 44 percent.

Natural gas is delivered through a nation-wide network of high-pressure transmission pipelines. In 2020, PG&E provided 1,891 Million Therms of natural gas.[15]

The following summary of natural gas resources and service providers, delivery systems, and associated regulation is excerpted from information provided by the California Public Utilities Commission (CPUC).

The CPUC regulates natural gas utility service for approximately 11 million customers that receive natural gas from Pacific Gas and Electric (PG&E), Southern California Gas (SoCalGas), San Diego Gas & Electric (SDG&E), Southwest Gas, and several smaller investor-owned natural gas utilities. The CPUC also regulates independent storage operators Lodi Gas Storage, Wild Goose Storage, Central Valley Storage and Gill Ranch Storage.

California's natural gas utilities provide service to over 11 million gas meters. SoCalGas and PG&E provide service to about 5.9 million and 4.3 million customers, respectively, while SDG&E provides service to over 800, 000 customers. In 2018, California gas utilities forecasted that they would deliver

[13] https://www.pge.com/en_US/about-pge/company-information/profile/profile.page

[14] Obtained from http://www.ecdms.energy.ca.gov/elecbyutil.aspx

[15] Obtained from http://www.ecdms.energy.ca.gov/gasbyutil.aspx

about 4740 million cubic feet per day (MMcfd) of gas to their customers, on average, under normal weather conditions.

The vast majority of California's natural gas customers are residential and small commercial customers, referred to as "core" customers. Larger volume gas customers, like electric generators and industrial customers, are called "noncore" customers. Although very small in number relative to core customers, noncore customers consume about 65% of the natural gas delivered by the state's natural gas utilities, while core customers consume about 35%.

The PUC regulates the California utilities' natural gas rates and natural gas services, including in-state transportation over the utilities' transmission and distribution pipeline systems, storage, procurement, metering and billing.

Most of the natural gas used in California comes from out-of-state natural gas basins. In 2017, for example, California utility customers received 38% of their natural gas supply from basins located in the U.S. Southwest, 27% from Canada, 27% from the U.S. Rocky Mountain area, and 8% from production located in California."[16]

Table 8: PG&E 2019 Power Content Mix

Energy Resources	2019 PG&E Power Mix
Eligible Renewable[1]	29%
Biomass & Biowaste	3%
Geothermal	2%
Eligible Hydroelectric	2%
Solar	12%
Wind	9%
Coal	0%
Large Hydroelectric	27%
Natural Gas	0%
Nuclear	44%
Other	0%
Unspecified Sources of power[2]	0%
Total	100%

Notes:
Source: https://www.pge.com/pge_global/common/pdfs/your-account/your-bill/understand-your-bill/bill-inserts/2020/1220-PowerContent-ADA.pdf

[16]California Public Utilities Commission. Natural Gas and California. http://www.cpuc.ca.gov/natural_gas/

(1) The eligible renewable percentage above does not reflect RPS compliance, which is determined using a different methodology.
(2) Unspecified sources of power means electricity from transactions that are not traceable to specific generation sources.

3.3.3 Transportation Energy Resources

The project would attract additional vehicle trips with resulting consumption of energy resources, predominantly gasoline and diesel fuel. Gasoline (and other vehicle fuels) are commercially-provided commodities and would be available to the project patrons and employees via commercial outlets.

The most recent data available shows the transportation sector emits 40 percent of the total greenhouse gases in the state and about 84 percent of smog-forming oxides of nitrogen (NOx).[17,18] About 28 percent of total United States energy consumption in 2019 was for transporting people and goods from one place to another. In 2019, petroleum comprised about 91 percent of all transportation energy use, excluding fuel consumed for aviation and most marine vessels.[19] In 2020, about 123.49 billion gallons (or about 2.94 billion barrels) of finished motor gasoline were consumed in the United States, an average of about 337 million gallons (or about 8.03 million barrels) per day.[20]

[17] CARB. California Greenhouse Gas Emissions Inventory – 2020 Edition. https://www.arb.ca.gov/cc/inventory/data/data.htm

[18] CARB. 2016 SIP Emission Projection Data. https://www.arb.ca.gov/app/emsinv/2017/emseic1_query.php?F_DIV=-4&F_YR=2012&F_SEASON=A&SP=SIP105ADJ&F_AREA=CA

[19] US Energy Information Administration. Use of Energy in the United States Explained: Energy Use for Transportation. https://www.eia.gov/energyexplained/?page=us_energy_transportation

[20] https://www.eia.gov/tools/faqs/faq.php?id=23&t=10

4.0 Modeling Parameters and Assumptions

4.1 Construction

Typical emission rates from construction activities were obtained from CalEEMod Version 2020.4.0 CalEEMod is a computer model published by the South Coast Air Quality Management District (SCAQMD) for estimating air pollutant emissions. The CalEEMod program uses the EMFAC2017 computer program to calculate the emission rates specific for Tehama County for construction-related employee vehicle trips and the OFFROAD2011 computer program to calculate emission rates for heavy truck operations. EMFAC2017 and OFFROAD2011 are computer programs generated by CARB that calculates composite emission rates for vehicles. Emission rates are reported by the program in grams per trip and grams per mile or grams per running hour. Using CalEEMod, the peak daily air pollutant emissions were calculated and presented below. These emissions represent the highest level of emissions for each of the construction phases in terms of air pollutant emissions.

The analysis assesses the emissions associated with the construction of the proposed project as indicated in Table 1. Per the project owner, the proposed project is to be operational in 2025; therefore, construction is estimated to start no sooner than April 2024 and be completed by June 2025. The phases of the construction activities which have been analyzed below are: 1) demolition, 2) grading, 3) building, 4) paving, and 5) architectural coating. For details on construction modeling and construction equipment for each phase, please see Appendix A.

The project will be required to comply with existing TCAPCD rules for the reduction of fugitive dust emissions. TCAPCD Rule 4.24 establishes these procedures. Compliance with this rule is achieved through application of standard best management practices in construction and operation activities, such as application of water or chemical stabilizers to disturbed soils, managing haul road dust by application of water, covering haul vehicles, restricting vehicle speeds on unpaved roads to 15 mph, sweeping loose dirt from paved site access roadways, cessation of construction activity when winds exceed 25 mph and establishing a permanent, stabilizing ground cover on finished sites. In addition, large projects that disturb 100 contiguous acres or more of soil or move 10,000 cubic yards of materials per day are required to submit a Fugitive Dust Control Plan or conduct on-site PM10 air quality monitoring and associated recordkeeping. Based on the size of the Project area (approximately 2.75 acres) and the fact that the project won't export more than 5,000 cubic yards of material a day a Fugitive Dust Control Plan or monitoring would not be required.

TCAPCD's Rule 4.24 minimum requirements require that the application of the best available dust control measures are used for all grading operations and include the application of water or other soil stabilizers in sufficient quantity to prevent the generation of visible dust plumes. Compliance with Rule 4.24 would require the use of water trucks during all phases where earth moving operations would occur. Compliance with Rule 4.24 is required.

4.2 Operations

Operational or long-term emissions occur over the life of the Project. Both mobile and area sources generate operational emissions. Area source emissions arise from consumer product usage, gasoline-

powered landscape equipment, and architectural coatings (painting). Mobile source emissions from motor vehicles are the largest single long-term source of air pollutants from the operation of the Project. Small amounts of emissions would also occur from area sources such as the consumption of from landscaping emissions and consumer product usage. The operational emissions were estimated using the latest version of CalEEMod.

Mobile Sources

Mobile sources include emissions from the additional vehicle miles generated from the proposed project. The vehicle trips associated with the proposed project are based upon the trip generation rates give in the Trip Generation and Vehicle Miles Traveled Memorandum (TJW Engineering, Inc.) which uses the ITE 11th Trip Generation Manual.

The program then applies the emission factors for each trip which is provided by the EMFAC2017 model to determine the vehicular traffic pollutant emissions. The CalEEMod default trip lengths were used in this analysis. Please see CalEEMod output comments sections in Appendix A and B for details.

Area Sources

Area sources include emissions from consumer products, landscape equipment and architectural coatings. Landscape maintenance includes fuel combustion emissions from equipment such as lawn mowers, rototillers, shredders/grinders, blowers, trimmers, chain saws, and hedge trimmers, as well as air compressors, generators, and pumps. As specifics were not known about the landscaping equipment fleet, CalEEMod defaults were used to estimate emissions from landscaping equipment.

The architectural coatings that would be applied will be limited to an average of 50 grams per liter or less for buildings and 100 grams per liter or less for parking lot striping and would not exceed any limit set forth in TCAPCD Rule 4.39 as amended on February 25, 2014. CalEEMod architectural coating default values were adjusted accordingly.

Energy Usage

2020.4.0 CalEEMod defaults were utilized.

5.0 Thresholds of Significance

5.1 Air Quality Thresholds of Significance

5.1.1 CEQA Guidelines for Air Quality

The CEQA Guidelines define a significant effect on the environment as "a substantial, or potentially substantial, adverse change in the environment." To determine if a project would have a significant impact on air quality, the type, level, and impact of emissions generated by the project must be evaluated.

The following air quality significance thresholds are contained in Appendix G of the CEQA Guidelines. A significant impact would occur if the project would:

a) Conflict with or obstruct implementation of the applicable air quality plan;

b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable national or state ambient air quality standard;

c) Expose sensitive receptors to substantial pollutant concentrations; or

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

While the final determination of whether a project is significant is within the purview of the Lead Agency pursuant to Section 15064(b) of the CEQA Guidelines, TCAPCD recommends that its quantitative air pollution thresholds be used to determine the significance of project emissions. If the Lead Agency finds that the project has the potential to exceed these air pollution thresholds, the project should be considered to have significant air quality impacts. There are daily emission thresholds for construction and operation of a proposed project in the basin.

5.1.2 Regional Significance Thresholds for Emissions

The following CEQA significance thresholds for daily emissions are established for the Basin:

- 25 pounds per day (lbs/day) of VOC
- 25 lbs/day of NO_x
- 500 lbs/day of CO
- 80 lbs/day of PM_{10}
- 80 lbs/day of SO_2

Projects in the basin with emissions that exceed any of the emission thresholds are considered to be significant under TCAPCD guidelines.

5.2 Greenhouse Gas Thresholds of Significance

5.2.1 CEQA Guidelines for Greenhouse Gas

CEQA Guidelines define a significant effect on the environment as "a substantial, or potentially substantial, adverse change in the environment." To determine if a project would have a significant impact on greenhouse gases, the type, level, and impact of emissions generated by the project must be evaluated.

The following greenhouse gas significance thresholds are contained in Appendix G of the CEQA Guidelines, which were amendments adopted into the Guidelines on March 18, 2010, pursuant to SB 97. A significant impact would occur if the project would:

(a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or

(b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

However, despite this, currently neither the CEQA statutes, OPR guidelines, nor the draft proposed changes to the CEQA Guidelines prescribe thresholds of significance or a particular methodology for performing an impact analysis; as with most environmental topics, significance criteria are left to the judgment and discretion of the Lead Agency. As previously discussed (Section 2.2.3 of this report), this analysis uses the TCAPCD annual threshold of 900 MTCO2e.

5.3 Energy Thresholds of Significance

CEQA Guidelines define a significant effect on the environment as "a substantial, or potentially substantial, adverse change in the environment." To determine if a project would have a significant impact on energy, the type, level, and impact of energy usage generated by the project must be evaluated.

CEQA Guidelines defines significant energy usage as wasteful, inefficient, or unnecessary consumption of energy, or wasteful use of energy resources. However, despite this, currently neither the CEQA statutes, OPR guidelines, nor the draft proposed changes to the CEQA Guidelines prescribe thresholds of significance or a particular methodology for performing an impact analysis; as with most environmental topics, significance criteria are left to the judgment and discretion of the Lead Agency. As such, a qualitative review of the energy usage shall be performed to analyze construction and operation activities as well as compare overall energy usage to the local energy usage.

6.0 Air Quality Emissions Impact

6.1 Construction Air Quality Emissions Impact

The latest version of CalEEMod was used to estimate the onsite and offsite construction emissions. The emissions incorporate TCAPCD Rules 4.04, 4.24, and 4.39, which are not considered mitigation measures as the project by default is required to incorporate these rules during construction.

6.1.1 Regional Construction Emissions

The construction emissions for the Project would not exceed the TCAPCD's daily emission thresholds at the regional level as demonstrated in Table 9, and therefore would be considered less than significant.

Table 9: Regional Significance - Construction Emissions (pounds/day) – Project

Activity	Pollutant Emissions (pounds/day)				
	VOC	NOx	CO	SO_2	PM10
2024 Maximum	1.85	14.15	16.11	0.03	3.42
2025 Maximum	1.72	12.92	15.88	0.03	1.11
Overall Maximum	**1.85**	**14.15**	**16.11**	**0.03**	**3.42**
TCAPCD Thresholds	**25**	**25**	**500**	**80**	**80**
Exceeds Thresholds	No	No	No	No	No

Notes:
[1] Source: CalEEMod Version 2020.4.0

6.1.2 Construction-Related Human Health Impacts

Regarding health effects related to criteria pollutant emissions, the applicable significance thresholds are established for regional compliance with the state and federal ambient air quality standards, which are intended to protect public health from both acute and long-term health impacts, depending on the potential effects of the pollutant. Because regional and local emissions of criteria pollutants during construction of the Project would be below the applicable thresholds, they would not contribute to long-term health impacts related to nonattainment of the ambient air quality standards. Therefore, significant adverse acute health impacts as a result of construction are not anticipated.

6.1.3 Odors

Potential sources that may emit odors during construction activities include the application of materials such as asphalt pavement. The objectionable odors that may be produced during the construction process are of short-term in nature and the odor emissions are expected cease upon the drying or hardening of the odor producing materials. Diesel exhaust and VOCs would be emitted during construction of the project, which are objectionable to some; however, emissions would disperse rapidly from the project site and therefore should not reach an objectionable level at the nearest sensitive receptors. Due to the short-term nature and limited amounts of odor producing materials being utilized, no significant impact related to odors would occur during construction of the proposed project.

The TCAPCD recommends that odor impacts be addressed in a qualitative manner. Such an analysis shall determine whether the project would result in excessive nuisance odors, as defined under the California Code of Regulations and Section 41700 of the California Health and Safety Code, and thus would constitute a public nuisance related to air quality.

Potential sources that may emit odors during the on-going operations of the proposed project would include odor emissions from the trash storage areas. Through compliance with TCAPCD Rule 4.04, no public nuisance would be cause by odors from the project and therefore no significant impact related to odors would occur during the on-going operations of the proposed project.

6.1.4 Construction-Related Toxic Air Contaminant Impact

The greatest potential for toxic air contaminant emissions would be related to diesel particulate emissions associated with heavy equipment operations during construction of the proposed project. The Office of Environmental Health Hazard Assessment (OEHHA) has issued the Air Toxic Hot Spots Program Risk Assessment Guidelines and Guidance Manual for the Preparation of Health Risk Assessments, February 2015 to provide a description of the algorithms, recommended exposure variates, cancer and noncancer health values, and the air modeling protocols needed to perform a health risk assessment (HRA) under the Air Toxics Hot Spots Information and Assessment Act of 1987. Hazard identification includes identifying all substances that are evaluated for cancer risk and/or non-cancer acute, 8-hour, and chronic health impacts. In addition, identifying any multi-pathway substances that present a cancer risk or chronic non-cancer hazard via non-inhalation routes of exposure.

Given the relatively limited construction schedule, the proposed project would not result in a long-term substantial source of toxic air containment emissions and corresponding individual cancer risk. Furthermore, construction-based particulate matter (PM) emissions (including diesel exhaust emissions) do not exceed any local or regional thresholds. Therefore, no significant short-term toxic air contaminant impacts would occur during construction of the proposed project.

6.2 Operational Air Quality Emissions Impact

6.2.1 Regional Operational Emissions

The operations-related criteria air quality impacts created by the proposed project have been analyzed through the use of CalEEMod model. The operating emissions were based on year 2024, which is the anticipated opening year for the project per the Trip Generation and Vehicle Miles Traveled Memorandum (TJW Engineering, Inc.). The summer and winter emissions created by the proposed project's long-term operations were calculated and the highest emissions from either summer or winter are summarized in Table 10.

<Table 10, next page>

Table 10: Regional Significance - Unmitigated Operational Emissions (lbs/day)

Activity	Pollutant Emissions (pounds/day)[1]				
	VOC	NOx	CO	SO2	PM10
Area Sources[2]	1.58	0.06	5.04	0.00	0.03
Energy Usage[3]	0.02	0.18	0.08	0.00	0.01
Mobile Sources[4]	1.12	1.99	9.13	0.02	1.79
Total Emissions	**2.72**	**2.23**	**14.24**	**0.02**	**1.83**
TCAPCD Thresholds	**25**	**25**	**500**	**80**	**80**
Exceeds Threshold?	No	No	No	No	No

Notes:
[1] Source: CalEEMod Version 2020.4.0
[2] Area sources consist of emissions from consumer products, architectural coatings, and landscaping equipment.
[3] Energy usage consists of emissions from on-site natural gas usage.
[4] Mobile sources consist of emissions from vehicles and road dust.

Table 10 provides the project's unmitigated operational emissions. Table 10 shows that the project does not exceed the TCAPCD daily emission threshold and regional operational emissions are considered to be less than significant.

6.2.2 Operations-Related Human Health Impacts

As stated previously, regarding health effects related to criteria pollutant emissions, the applicable significance thresholds are established for regional compliance with the state and federal ambient air quality standards, which are intended to protect public health from both acute and long-term health impacts, depending on the potential effects of the pollutant. Because regional and local emissions of criteria pollutants during operation of the project would be below the applicable thresholds, it would not contribute to long-term health impacts related to nonattainment of the ambient air quality standards. Therefore, significant adverse acute health impacts as a result of project operation are not anticipated.

6.3 CO Hot Spot Emissions

CO is the pollutant of major concern along roadways because the most notable source of CO is motor vehicles. For this reason, CO concentrations are usually indicative of the local air quality generated by a roadway network and are used as an indicator of potential local air quality impacts. Local air quality impacts can be assessed by comparing future without and with project CO levels to the State and Federal CO standards which were presented in above in Section 5.0.

To determine if the proposed project could cause emission levels in excess of the CO standards discussed above in Section 5.0, a sensitivity analysis is typically conducted to determine the potential for CO “hot spots” at a number of intersections in the general project vicinity. Because of reduced speeds and vehicle queuing, “hot spots” potentially can occur at high traffic volume intersections with a Level of Service E or worse.

Micro-scale air quality emissions have traditionally been analyzed in environmental documents where the air basin was a non-attainment area for CO. However, the SCAQMD has demonstrated in the CO

attainment redesignation request to EPA that there are no "hot spots" anywhere in the SCAQMD, even at intersections with much higher volumes, much worse congestion, and much higher background CO levels. Tehama County would not have any intersections with volumes exceeding the highest volumes found in the SCAQMD. If the worst-case intersections in the air basin have no "hot spot" potential, any local impacts will be below thresholds.

Trip generation analysis for the project showed that the project would generate 293 average daily trips. The 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan) showed that an intersection which has a daily traffic volume of approximately 100,000 vehicles per day would not violate the CO standard. The volume of traffic at project buildout would be well below 100,000 vehicles and below the necessary volume to even get close to causing a violation of the CO standard. Therefore, no CO "hot spot" modeling was performed and no significant long-term air quality impact is anticipated to local air quality with the on-going use of the proposed project.

6.4 Cumulative Regional Air Quality Impacts

Cumulative projects include local development as well as general growth within the project area. However, as with most development, the greatest source of emissions is from mobile sources, which travel well out of the local area. Therefore, from an air quality standpoint, the cumulative analysis would extend beyond any local projects and when wind patterns are considered, would cover an even larger area. Accordingly, the cumulative analysis for the project's air quality must be generic by nature.

The project area is out of attainment for both ozone and PM10 particulate matter. Construction and operation of cumulative projects will further degrade the local air quality, as well as the air quality of the Northern Sacramento Valley Air Basin. The greatest cumulative impact on the quality of regional air cell will be the incremental addition of pollutants mainly from increased traffic from residential, commercial, and industrial development and the use of heavy equipment and trucks associated with the construction of these projects. Air quality will be temporarily degraded during construction activities that occur separately or simultaneously. However, in accordance with the TCAPCD methodology, projects that do not exceed the TCAPCD criteria or can be mitigated to less than criteria levels are not significant and do not add to the overall cumulative impact. The project does not exceed any of the thresholds of significance and therefore is considered less than significant.

6.5 Air Quality Compliance

The California Environmental Quality Act (CEQA) requires a discussion of any inconsistencies between a proposed project and applicable General Plans and Regional Plans (CEQA Guidelines Section 15125). According to the TCAPCD, a project is non-conforming if it conflicts with any applicable attainment or maintenance plan.

A project is conforming if it complies with all applicable District rules and regulations, complies with all proposed control measures that are not yet adopted from the applicable plan(s), and is consistent with the growth forecasts in the applicable plan(s) (or is directly included in the applicable plan). Conformity with growth forecasts can be established by demonstrating that the project is consistent with the land use plan that was used to generate the growth forecast.

The project site is located within the City of Red Bluff. The proposed project will be a multi-family apartment building. The site has a current General Plan land use classification of R-1 Single Family Residence and R-3 Neighborhood Apartment. As shown by the results of this air analysis, the project's emissions do not exceed any TCAPCD thresholds during either short-term construction or long-term operation of the project. Therefore, as the project is a residential use, the proposed project is not anticipated to exceed the Attainment Plan assumptions for the project site.

Based on the above, the proposed project would not conflict with implementation of any TCAPCD attainment plans, impacts are considered to be less than significant.

7.0 Greenhouse Gas Impact Analysis

7.1 Construction Greenhouse Gas Emissions Impact

The greenhouse gas emissions from project construction equipment and worker vehicles are shown in Table 11. The emissions are from all phases of construction. The total construction emissions amortized over a period of 30 years are estimated at 11.59 metric tons of CO_2e per year. Annual CalEEMod output calculations are provided in Appendix B.

Table 11: Construction Greenhouse Gas Emissions

Year	Metric Tons Per Year					
	Bio-CO2	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e (MT)**
2024	0	266.65	266.65	0.01	0.00	269.14
2025	0	77.78	77.78	0.01	0.00	78.48
Total	0.00	344.43	344.43	0.03	0.01	347.62
					Annualized Construction Emissions	11.59

Notes:
[1.] $MTCO_2e$=metric tons of carbon dioxide equivalents (includes carbon dioxide, methane and nitrous oxide).
[2.] The emissions are averaged over 30 years.
* CalEEMod output (Appendix B)

7.2 Operational Greenhouse Gas Emissions Impact

Operational emissions occur over the life of the project. The operational emissions for the project are 302.42 metric tons of CO_2e per year (see Table 12). Furthermore, as shown in Table 12, the project's total emissions (with incorporation of construction related GHG emissions) would be 420.12 metric tons of CO_2e per year. These emissions do not exceed the TCAPCD of 900 metric tons of CO_2e per year. Therefore, the project's GHG emissions are considered to be less than significant.

<Table 12, next page>

Table 12: Unmitigated Project-Related Greenhouse Gas Emissions

Category	Greenhouse Gas Emissions (Metric Tons/Year)[1]					
	Bio-CO2	**NonBio-CO_2**	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
Area Sources[2]	0.00	0.74	0.74	0.00	0.00	0.76
Energy Usage[3]	0.00	61.76	61.76	0.00	0.00	62.22
Mobile Sources[4]	0.00	306.06	306.06	0.02	0.02	312.08
Solid Waste[5]	5.70	0.00	5.70	0.34	0.00	14.11
Water[6]	0.46	2.80	3.27	0.61	0.00	19.36
Construction[7]	0.00	11.48	11.48	0.00	0.00	11.59
Total Emissions	6.16	382.85	389.01	0.97	0.02	**420.12**
TCAPCD Threshold						**900**
Exceeds Threshold?						**No**

Notes:
[1] Source: CalEEMod Version 2020.4.0
[2] Area sources consist of GHG emissions from consumer products, architectural coatings, and landscape equipment.
[3] Energy usage consist of GHG emissions from electricity and natural gas usage.
[4] Mobile sources consist of GHG emissions from vehicles.
[5] Solid waste includes the CO_2 and CH_4 emissions created from the solid waste placed in landfills.
[6] Water includes GHG emissions from electricity used for transport of water and processing of wastewater.
[7] Construction GHG emissions based on a 30-year amortization rate.

7.3 Greenhouse Gas Plan Consistency

The proposed 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 greenhouse gases.

The project's total net operational GHG emissions do not exceed the County's screening threshold of 900 MTCO2e per year per the TCAPCD CEQA Planning & Permitting Handbook. Therefore, the project does not need to accrue points using the screening tables and is consistent with the GHG Plan, pursuant to Section 15183.5 of the State CEQA Guidelines. The proposed project will not result in substantial emissions of greenhouse gases and will not conflict with any County initiatives.

8.0 Energy Analysis

Information from the CalEEMod 2020.4.0 Daily and Annual Outputs contained in the air quality and greenhouse gas analyses above was utilized for this analysis. The CalEEMod outputs detail project related construction equipment, transportation energy demands, and facility energy demands.

8.1 Construction Energy Demand

8.1.1 Construction Equipment Electricity Usage Estimates

Electrical service will be provided by Pacific Gas & Electric (PG&E). Based on the 2017 National Construction Estimator, Richard Pray (2017)[21], the typical power cost per 1,000 square feet of building construction per month is estimated to be $2.32. The project plans to develop the site with approximately 61,000 square feet of new multi-family houses over the course of approximately 14 months.[22] Based on Table 13, the total power cost of the on-site electricity usage during the construction of the proposed project is estimated to be approximately $1,981.28. As shown in Table 13, the total electricity usage from Project construction related activities is estimated to be approximately 36,023 kWh.[23]

Table 13: Project Construction Power Cost and Electricity Usage

Power Cost (per 1,000 square foot of building per month of construction)	Total Building Size (1,000 Square Foot)[1]	Construction Duration (months)	Total Project Construction Power Cost
$2.32	61	14	$1,981.28

Cost per kWh	Total Project Construction Electricity Usage (kWh)
$0.06	36,023

* Assumes the project will be under the GS-1 General Service rate under SCE.

[21] Pray, Richard. 2017 National Construction Estimator. Carlsbad: Craftsman Book Company, 2017.
[22] As stated in the project description, the project involves the demolition of approximately 7,500 square feet of existing foundation.
[23] LADWP's Small Commercial & Multi-Family Service (A-1) is approximately $0.06 per kWh of electricity Southern California Edison (SCE). Rates & Pricing Choices: General Service/Industrial Rates. https://library.sce.com/content/dam/sce-doclib/public/regulatory/historical/electric/2020/schedules/general-service-&-industrial-rates/ELECTRIC_SCHEDULES_GS-1_2020.pdf

8.1.2 Construction Equipment Fuel Estimates

Using the CalEEMod data input, the project's construction phase would consume electricity and fossil fuels as a single energy demand, that is, once construction is completed their use would cease. CARB's 2017 Emissions Factors Tables show that on average aggregate fuel consumption (gasoline and diesel fuel) would be approximately 18.5 hp-hr-gal.[24] As presented in Table 14 below, project construction activities would consume an estimated 27,618 gallons of diesel fuel.

Table 14: Construction Equipment Fuel Consumption Estimates

Phase	Number of Days	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	HP hrs/ day	Total Fuel Consumption (gal diesel fuel)[1]
Demolition	20	Concrete/Industrial Saws	1	8	81	0.73	473	511.39
	20	Rubber Tired Dozers	1	8	247	0.4	790	854.49
	20	Tractors/Loaders/Backhoes	3	8	97	0.37	861	931.20
Grading	6	Graders	1	8	187	0.41	613	198.93
	6	Rubber Tired Dozers	1	8	247	0.4	790	256.35
	6	Tractors/Loaders/Backhoes	2	7	97	0.37	502	162.96
	220	Cranes	1	8	231	0.29	536	6,373.10
	220	Forklifts	2	7	89	0.2	249	2,963.46
Building Construction	220	Generator Sets	1	8	84	0.74	497	5,913.60
	220	Tractors/Loaders/Backhoes	1	6	97	0.37	215	2,560.80
	220	Welders	3	8	46	0.45	497	5,907.89
	10	Cement and Mortar Mixers	1	8	9	0.56	40	21.79
	10	Pavers	1	8	130	0.42	437	236.11
Paving	10	Paving Equipment	1	8	132	0.36	380	205.49
	10	Rollers	2	8	80	0.38	486	262.92
	10	Tractors/Loaders/Backhoes	1	7	97	0.37	251	135.80
Architectural Coating	10	Air Compressors	1	6	78	0.48	225	121.43
CONSTRUCTION FUEL DEMAND (gallons of diesel fuel)								**27,618**

Notes:
[1]Using Carl Moyer Guidelines Table D-21 Fuel consumption rate factors (bhp-hr/gal) for engines less than 750 hp.
(Source: https://www.arb.ca.gov/msprog/moyer/guidelines/2017gl/2017_gl_appendix_d.pdf)

[24] Aggregate fuel consumption rate for all equipment was estimated at 18.5 hp-hr/day (from CARB's 2017 Emissions Factors Tables and fuel consumption rate factors as shown in Table D-21 of the Moyer Guidelines: (https://www.arb.ca.gov/msprog/moyer/guidelines/2017gl/2017_gl_appendix_d.pdf).

8.1.3 Construction Worker Fuel Estimates

It is assumed that all construction worker trips are from light duty autos (LDA) along area roadways. With respect to estimated VMT, the construction worker trips would generate an estimated 215,208 VMT. Vehicle fuel efficiencies for construction workers were estimated in the air quality and greenhouse gas analysis using information generated using CARB's EMFAC model (see Appendix C for details). Table 15 shows that an estimated 7,077 gallons of fuel would be consumed for construction worker trips.

Table 15: Construction Worker Fuel Consumption Estimates

Phase	Number of Days	Worker Trips/Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Demolition	20	13	14.7	3,822	30.95	123
Grading	6	10	14.7	882	30.95	28
Building Construction	220	65	14.7	210,210	30.95	6,792
Paving	10	15	14.7	2,205	30.95	71
Architectural Coating	10	13	14.7	1,911	30.95	62
Total Construction Worker Fuel Consumption						**7,077**

Notes:
[1]Assumptions for the worker trip length and vehicle miles traveled are consistent with CalEEMod 2020.4.0 defaults.

8.1.4 Construction Vendor/Hauling Fuel Estimates

Tables 16 and 17 show the estimated fuel consumption for vendor and hauling during building construction and architectural coating. With respect to estimated VMT, the vendor and hauling trips would generate an estimated 23,450 VMT. For the architectural coatings it is assumed that the contractors would be responsible for bringing coatings and equipment with them in their light duty vehicles.[25] Tables 16 and 17 show that an estimated 2,571 gallons of fuel would be consumed for vendor and hauling trips.

<Tables 16 & 17, next page>

[25] Vendors delivering construction material or hauling debris from the site during grading would use medium to heavy duty vehicles with an average fuel consumption of 9.22 mpg for medium heavy-duty trucks and 6.74 mpg for heavy heavy-duty trucks (see Appendix C for details).

Table 16: Construction Vendor Fuel Consumption Estimates (MHD Trucks)[1]

Phase	Number of Days	Vendor Trips/Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Demolition	20	0	6.9	0	9.22	0
Grading	6	0	6.9	0	9.22	0
Building Construction	220	15	6.9	22,770	9.22	2,470
Paving	10	0	6.9	0	9.22	0
Architectural Coating	10	0	6.9	0	9.22	0
Total Vendor Fuel Consumption						**2,470**

Notes:
[1] Assumptions for the vendor trip length and vehicle miles traveled are consistent with CalEEMod 2020.4.0 defaults.

Table 17: Construction Hauling Fuel Consumption Estimates (HHD Trucks)[1]

Phase	Number of Days	Hauling Trips/Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Demolition	20	1.7	20	680	6.74	101
Grading	6	0.0	20	0	6.74	0
Building Construction	220	0	20	0	6.74	0
Paving	10	0	20	0	6.74	0
Architectural Coating	10	0	20	0	6.74	0
Total Construction Hauling Fuel Consumption						**101**

Notes:
[1]Assumptions for the hauling trip length and vehicle miles traveled are consistent with CalEEMod 2020.40 defaults.

8.1.5 Construction Energy Efficiency/Conservation Measures

Construction equipment used over the approximately 24-month construction phase would conform to CARB regulations and California emissions standards and is evidence of related fuel efficiencies. In addition, the CARB Airborne Toxic Control Measure limits idling times of construction vehicles to no more than five minutes, thereby minimizing unnecessary and wasteful consumption of fuel due to unproductive idling of construction equipment. Furthermore, the project has been designed in compliance with California's Energy Efficiency Standards and 2019 CALGreen Standards.

Construction of the proposed residential development would require the typical use of energy resources. There are no unusual project characteristics or construction processes that would require the use of equipment that would be more energy intensive than is used for comparable activities; or equipment that would not conform to current emissions standards (and related fuel efficiencies). Equipment

employed in construction of the project would therefore not result in inefficient wasteful, or unnecessary consumption of fuel.

8.2 Operational Energy Demand

Energy consumption in support of or related to project operations would include transportation energy demands (energy consumed by employee and patron vehicles accessing the project site) and facilities energy demands (energy consumed by building operations and site maintenance activities).

8.2.1 Transportation Fuel Consumption

The largest source of operational energy use would be vehicle operation of residents. The site is located in an urbanized area just in close proximity to transit stops. Using the CalEEMod output, it is assumed that an average trip for autos were assumed to be 16.6 miles, light trucks were assumed to travel an average of 6.9 miles, and 3- 4-axle trucks were assumed to travel an average of 8.4 miles[26]. To show a worst-case analysis, as the proposed project is an residential project, it was assumed that vehicles would operate 365 days per year. Table 18 shows the worst-case estimated annual fuel consumption for all classes of vehicles from autos to heavy-heavy trucks.[27] Table 18 shows that an estimated 49,298 gallons of fuel would be consumed per year for the operation of the proposed project.

Table 18: Estimated Vehicle Operations Fuel Consumption

Vehicle Type	Vehicle Mix	Number of Vehicles	Average Trip (miles)[1]	Daily VMT	Average Fuel Economy (mpg)	Total Gallons per Day	Total Annual Fuel Consumption (gallons)
Light Auto	Automobile	153	16.6	2,546	31.82	80.01	29,205
Light Truck	Automobile	16	6.9	108	27.16	3.99	1,457
Light Truck	Automobile	53	6.9	367	25.6	14.34	5,234
Medium Truck	Automobile	43	6.9	297	20.81	14.26	5,206
Light Heavy Truck	2-Axle Truck	13	8.4	113	13.81	8.18	2,986
Light Heavy Truck 10,000 lbs +	2-Axle Truck	3	8.4	27	14.18	1.92	701
Medium Heavy Truck	3-Axle Truck	2	8.4	16	9.58	1.72	626
Heavy Heavy Truck	4-Axle Truck	9	8.4	76	7.14	10.64	3,882
Total		293	--	3,551	--	135.06	--
Total Annual Fuel Consumption							**49,298**

Notes:
[1] The trip generation assessment, the project is to generate 832 total net new trips after reduction of existing uses. Default CalEEMod vehicle fleet mix utilized.
[1]Based on the size of the site and relative location, trips were assumed to be local rather than regional.

[26] CalEEMod default distance for H-W (home-work) or C-W (commercial-work) is 16.6 miles; 6.9 miles for H-S (home-shop) or C-C (commercial-customer); and 8.4 miles for H-O (home-other) or C-O (commercial-other).
[27] Average fuel economy based on aggregate mileage calculated in EMFAC 2017 for opening year (2023). See Appendix C for EMFAC output.

Trip generation generated by the proposed project are consistent with other similar residential uses of similar scale and configuration as reflected in the Trip Generation and Vehicle Miles Traveled Memorandum (TJW Engineering, 2022). That is, the proposed project does not propose uses or operations that would inherently result in excessive and wasteful vehicle trips, nor associated excess and wasteful vehicle energy consumption. Therefore, project transportation energy consumption would not be considered inefficient, wasteful, or otherwise unnecessary.

8.2.2 Facility Energy Demands (Electricity and Natural Gas)

The annual electricity and natural gas demands were provided per the CalEEMod output and are provided in Table 19.

Table 19: Project Unmitigated Annual Operational Energy Demand Summary[1]

Natural Gas Demand	kBTU/year
Apartments Mid Rise	718,610
Total	718,610

Electricity Demand	kWh/year
Apartments Mid Rise	240,632
Parking Lot	12,460
Total	253,092

Notes:
[1]Taken from the CalEEMod 2020.4.0 annual output.

As shown in Table 19, the estimated electricity demand for the proposed project is approximately 253,092 kWh per year. In 2020, the residential sector of the County of Tehama consumed approximately 264 million kWh of electricity.[28] In addition, the estimated natural gas demand for the proposed project is approximately 718,610 kBTU per year. In 2020, the residential sector of the County of Tehama consumed approximately 3.7 million therms of natural gas.[29]. Therefore, the increase in both electricity and natural gas demand from the proposed project is insignificant compared to the County's 2020 demand.

8.3 Renewable Energy and Energy Efficiency Plan Consistency

Regarding federal transportation regulations, the project site is located in an already developed area. Access to/from the project site is from existing roads. These roads are already in place so the project would not interfere with, nor otherwise obstruct intermodal transportation plans or projects that may

[28] California Energy Commission, Electricity Consumption by County. https://ecdms.energy.ca.gov/elecbycounty.aspx
[29] California Energy Commission, Gas Consumption by County. https://ecdms.energy.ca.gov/gasbycounty.aspx

be proposed pursuant to the ISTEA because SCAG is not planning for intermodal facilities in the project area.

Regarding the State's Energy Plan and compliance with Title 24 CCR energy efficiency standards, the applicant is required to comply with the California Green Building Standard Code requirements for energy efficient buildings and appliances as well as utility energy efficiency programs implemented by the SCE.

Regarding the State's Renewable Energy Portfolio Standards, the project would be required to meet or exceed the energy standards established in the California Green Building Standards Code, Title 24, Part 11 (CALGreen). CalGreen Standards require that new buildings reduce water consumption, employ building commissioning to increase building system efficiencies, divert construction waste from landfills, and install low pollutant-emitting finish materials.

9.0 References

The following references were used in the preparing this analysis.

California Air Pollution Control Officers Association
2009 Health Risk Assessments for Proposed Land Use Projects

California Air Resources Board
2008 Resolution 08-43

2008 Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act

2008 ARB Recommended Interim Risk Management Policy for Inhalation-Based Residential Cancer Risk – Frequently Asked Questions

2008 Climate Change Scoping Plan, a framework for change.

2011 Supplement to the AB 32 Scoping Plan Functional Equivalent Document

2013 Revised Emission Factors for Gasoline Marketing Operations at California Gasoline Dispensing Facilities

2014 First Update to the Climate Change Scoping Plan, Building on the Framework Pursuant to AB32, the California Global Warming Solutions Act of 2006. May.

2021 Historical Air Quality, Top 4 Summary

City of Artesia
2010 City of Artesia General Plan 2030

Governor's Office of Planning and Research
2008 CEQA and Climate: Addressing Climate Change Through California Environmental Quality Act (CEQA) Review

2009 CEQA Guideline Sections to be Added or Amended

Office of Environmental Health Hazard Assessment
2015 Air Toxics Hot Spots Program Risk Assessment Guidelines

South Coast Air Quality Management District
1993 CEQA Air Quality Handbook

2007 2007 Air Quality Management Plan

2011 Appendix A Calculation Details for CalEEMod

2012 Final 2012 Air Quality Management Plan

2016 Final 2016 Air Quality Management Plan

TJW Engineering, Inc.
2022 Palm Villas at Red Bluff Trip Generation Analysis

Appendix A:

CalEEMod Daily Emission Output

Red Bluff Apartments - Tehama County, Summer

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

Red Bluff Apartments

Tehama County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Mid Rise	61.00	Dwelling Unit	1.61	61,000.00	159
Other Non-Asphalt Surfaces	0.34	Acre	0.34	14,810.40	0
Parking Lot	89.00	Space	0.80	35,600.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.1	**Precipitation Freq (Days)**	68
Climate Zone	3			**Operational Year**	2025
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 2.75-acre infill site with three 3-story apartment buildings, one 2-story community building, and one 1-story maintenance building as well as outdoor recreation areas and 89 parking spaces.

Construction Phase -

Architectural Coating - Rule 1113

Demolition - Estimated via Google Earth

Vehicle Trips - Per trip generation analysis, 4.81 trips generated per day per unit or 293 total trips per day.

Woodstoves - No hearths

Area Coating - SCAQMD Rule 1113

Construction Off-road Equipment Mitigation - SCAQMD Rule 403

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

Sequestration - Per landscape plan

Waste Mitigation -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Nonresidential_Exterior	0	50
tblAreaCoating	Area_EF_Nonresidential_Interior	0	50
tblAreaCoating	Area_EF_Parking	0	100
tblAreaCoating	Area_EF_Residential_Exterior	0	50
tblAreaCoating	Area_EF_Residential_Interior	0	50
tblFireplaces	FireplaceDayYear	82.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	4,558.40	0.00
tblFireplaces	NumberGas	12.20	0.00
tblFireplaces	NumberNoFireplace	36.60	0.00
tblFireplaces	NumberWood	12.20	0.00
tblSequestration	NumberOfNewTrees	0.00	4.00
tblSequestration	NumberOfNewTrees	0.00	25.00
tblSequestration	NumberOfNewTrees	0.00	67.00
tblVehicleTrips	ST_TR	4.91	4.81
tblVehicleTrips	SU_TR	4.09	4.81
tblVehicleTrips	WD_TR	5.44	4.81
tblWoodstoves	NumberCatalytic	18.30	0.00
tblWoodstoves	NumberNoncatalytic	18.30	0.00
tblWoodstoves	WoodstoveDayYear	82.00	0.00
tblWoodstoves	WoodstoveWoodMass	4,558.40	0.00

2.0 Emissions Summary

Red Bluff Apartments - Tehama County, Summer

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

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	1.8454	14.1254	16.1088	0.0329	7.1647	0.6338	7.7374	3.4465	0.5920	3.9734	0.0000	3,111.4702	3,111.4702	0.6475	0.0594	3,140.1920
2025	1.7213	12.8268	15.8792	0.0327	0.6357	0.4775	1.1132	0.1709	0.4569	0.6279	0.0000	3,093.7740	3,093.7740	0.5447	0.0575	3,121.7470
Maximum	**1.8454**	**14.1254**	**16.1088**	**0.0329**	**7.1647**	**0.6338**	**7.7374**	**3.4465**	**0.5920**	**3.9734**	**0.0000**	**3,111.4702**	**3,111.4702**	**0.6475**	**0.0594**	**3,140.1920**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	1.8454	14.1254	16.1088	0.0329	2.8444	0.6338	3.4170	1.3574	0.5920	1.8843	0.0000	3,111.4702	3,111.4702	0.6475	0.0594	3,140.1920
2025	1.7213	12.8268	15.8792	0.0327	0.6357	0.4775	1.1132	0.1709	0.4569	0.6279	0.0000	3,093.7740	3,093.7740	0.5447	0.0575	3,121.7470
Maximum	**1.8454**	**14.1254**	**16.1088**	**0.0329**	**2.8444**	**0.6338**	**3.4170**	**1.3574**	**0.5920**	**1.8843**	**0.0000**	**3,111.4702**	**3,111.4702**	**0.6475**	**0.0594**	**3,140.1920**

Red Bluff Apartments - Tehama County, Summer

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	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	55.39	0.00	48.81	57.75	0.00	45.40	0.00	0.00	0.00	0.00	0.00	0.00

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.5835	0.0580	5.0369	2.7000e-004		0.0279	0.0279		0.0279	0.0279	0.0000	9.0812	9.0812	8.7300e-003	0.0000	9.2995
Energy	0.0212	0.1814	0.0772	1.1600e-003		0.0147	0.0147		0.0147	0.0147		231.6229	231.6229	4.4400e-003	4.2500e-003	232.9993
Mobile	1.1165	1.7318	8.6186	0.0189	1.7706	0.0212	1.7917	0.4729	0.0200	0.4929		1,968.3275	1,968.3275	0.1012	0.1082	2,003.0979
Total	**2.7212**	**1.9712**	**13.7328**	**0.0203**	**1.7706**	**0.0638**	**1.8343**	**0.4729**	**0.0626**	**0.5355**	**0.0000**	**2,209.0316**	**2,209.0316**	**0.1144**	**0.1124**	**2,245.3966**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.5835	0.0580	5.0369	2.7000e-004		0.0279	0.0279		0.0279	0.0279	0.0000	9.0812	9.0812	8.7300e-003	0.0000	9.2995
Energy	0.0212	0.1814	0.0772	1.1600e-003		0.0147	0.0147		0.0147	0.0147		231.6229	231.6229	4.4400e-003	4.2500e-003	232.9993
Mobile	1.1165	1.7318	8.6186	0.0189	1.7706	0.0212	1.7917	0.4729	0.0200	0.4929		1,968.3275	1,968.3275	0.1012	0.1082	2,003.0979
Total	**2.7212**	**1.9712**	**13.7328**	**0.0203**	**1.7706**	**0.0638**	**1.8343**	**0.4729**	**0.0626**	**0.5355**	**0.0000**	**2,209.0316**	**2,209.0316**	**0.1144**	**0.1124**	**2,245.3966**

Red Bluff Apartments - Tehama County, Summer

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	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	4/1/2024	4/26/2024	5	20	
2	Grading	Grading	4/27/2024	5/6/2024	5	6	
3	Building Construction	Building Construction	5/7/2024	3/10/2025	5	220	
4	Paving	Paving	3/11/2025	3/24/2025	5	10	
5	Architectural Coating	Architectural Coating	3/25/2025	4/7/2025	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 6

Acres of Paving: 1.14

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 3,025 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74

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

Grading	Graders	1	8.00	187	0.41
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45

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	5	13.00	0.00	34.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	65.00	15.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

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

3.2 Demolition - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3798	0.0000	0.3798	0.0575	0.0000	0.0575			0.0000			0.0000
Off-Road	1.4397	13.8867	13.4879	0.0241		0.6311	0.6311		0.5895	0.5895		2,324.9459	2,324.9459	0.5884		2,339.6562
Total	**1.4397**	**13.8867**	**13.4879**	**0.0241**	**0.3798**	**0.6311**	**1.0109**	**0.0575**	**0.5895**	**0.6470**		**2,324.9459**	**2,324.9459**	**0.5884**		**2,339.6562**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.2200e-003	0.2150	0.0490	9.8000e-004	0.0298	2.1500e-003	0.0320	8.1800e-003	2.0600e-003	0.0102		103.9399	103.9399	2.0000e-004	0.0163	108.8132
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
Worker	0.0452	0.0237	0.3538	9.6000e-004	0.1068	5.7000e-004	0.1074	0.0283	5.2000e-004	0.0289		99.3063	99.3063	2.6700e-003	2.4400e-003	100.0990
Total	**0.0495**	**0.2387**	**0.4029**	**1.9400e-003**	**0.1366**	**2.7200e-003**	**0.1393**	**0.0365**	**2.5800e-003**	**0.0391**		**203.2462**	**203.2462**	**2.8700e-003**	**0.0188**	**208.9122**

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

3.2 Demolition - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1481	0.0000	0.1481	0.0224	0.0000	0.0224			0.0000			0.0000
Off-Road	1.4397	13.8867	13.4879	0.0241		0.6311	0.6311		0.5895	0.5895	0.0000	2,324.9459	2,324.9459	0.5884		2,339.6562
Total	**1.4397**	**13.8867**	**13.4879**	**0.0241**	**0.1481**	**0.6311**	**0.7792**	**0.0224**	**0.5895**	**0.6119**	**0.0000**	**2,324.9459**	**2,324.9459**	**0.5884**		**2,339.6562**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.2200e-003	0.2150	0.0490	9.8000e-004	0.0298	2.1500e-003	0.0320	8.1800e-003	2.0600e-003	0.0102		103.9399	103.9399	2.0000e-004	0.0163	108.8132
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
Worker	0.0452	0.0237	0.3538	9.6000e-004	0.1068	5.7000e-004	0.1074	0.0283	5.2000e-004	0.0289		99.3063	99.3063	2.6700e-003	2.4400e-003	100.0990
Total	**0.0495**	**0.2387**	**0.4029**	**1.9400e-003**	**0.1366**	**2.7200e-003**	**0.1393**	**0.0365**	**2.5800e-003**	**0.0391**		**203.2462**	**203.2462**	**2.8700e-003**	**0.0188**	**208.9122**

Red Bluff Apartments - Tehama County, Summer

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

3.3 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0826	0.0000	7.0826	3.4247	0.0000	3.4247			0.0000			0.0000
Off-Road	1.3015	13.8178	8.6998	0.0206		0.5722	0.5722		0.5265	0.5265		1,995.5803	1,995.5803	0.6454		2,011.7155
Total	**1.3015**	**13.8178**	**8.6998**	**0.0206**	**7.0826**	**0.5722**	**7.6548**	**3.4247**	**0.5265**	**3.9512**		**1,995.5803**	**1,995.5803**	**0.6454**		**2,011.7155**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0348	0.0182	0.2722	7.4000e-004	0.0822	4.4000e-004	0.0826	0.0218	4.0000e-004	0.0222		76.3895	76.3895	2.0500e-003	1.8700e-003	76.9993
Total	**0.0348**	**0.0182**	**0.2722**	**7.4000e-004**	**0.0822**	**4.4000e-004**	**0.0826**	**0.0218**	**4.0000e-004**	**0.0222**		**76.3895**	**76.3895**	**2.0500e-003**	**1.8700e-003**	**76.9993**

Red Bluff Apartments - Tehama County, Summer

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

3.3 Grading - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.7622	0.0000	2.7622	1.3357	0.0000	1.3357			0.0000			0.0000
Off-Road	1.3015	13.8178	8.6998	0.0206		0.5722	0.5722		0.5265	0.5265	0.0000	1,995.5803	1,995.5803	0.6454		2,011.7155
Total	**1.3015**	**13.8178**	**8.6998**	**0.0206**	**2.7622**	**0.5722**	**3.3345**	**1.3357**	**0.5265**	**1.8621**	**0.0000**	**1,995.5803**	**1,995.5803**	**0.6454**		**2,011.7155**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0348	0.0182	0.2722	7.4000e-004	0.0822	4.4000e-004	0.0826	0.0218	4.0000e-004	0.0222		76.3895	76.3895	2.0500e-003	1.8700e-003	76.9993
Total	**0.0348**	**0.0182**	**0.2722**	**7.4000e-004**	**0.0822**	**4.4000e-004**	**0.0826**	**0.0218**	**4.0000e-004**	**0.0222**		**76.3895**	**76.3895**	**2.0500e-003**	**1.8700e-003**	**76.9993**

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

3.4 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5971	12.8235	14.1002	0.0250		0.5381	0.5381		0.5153	0.5153		2,289.6541	2,289.6541	0.4265		2,300.3154
Total	**1.5971**	**12.8235**	**14.1002**	**0.0250**		**0.5381**	**0.5381**		**0.5153**	**0.5153**		**2,289.6541**	**2,289.6541**	**0.4265**		**2,300.3154**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0221	0.7086	0.2395	3.0900e-003	0.1017	4.9300e-003	0.1067	0.0293	4.7200e-003	0.0340		325.2848	325.2848	1.2200e-003	0.0472	339.3815
Worker	0.2262	0.1185	1.7692	4.8100e-003	0.5340	2.8500e-003	0.5368	0.1416	2.6200e-003	0.1443		496.5314	496.5314	0.0133	0.0122	500.4951
Total	**0.2483**	**0.8271**	**2.0087**	**7.9000e-003**	**0.6357**	**7.7800e-003**	**0.6435**	**0.1709**	**7.3400e-003**	**0.1783**		**821.8161**	**821.8161**	**0.0146**	**0.0594**	**839.8766**

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

3.4 Building Construction - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5971	12.8235	14.1002	0.0250		0.5381	0.5381		0.5153	0.5153	0.0000	2,289.6541	2,289.6541	0.4265		2,300.3154
Total	**1.5971**	**12.8235**	**14.1002**	**0.0250**		**0.5381**	**0.5381**		**0.5153**	**0.5153**	**0.0000**	**2,289.6541**	**2,289.6541**	**0.4265**		**2,300.3154**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0221	0.7086	0.2395	3.0900e-003	0.1017	4.9300e-003	0.1067	0.0293	4.7200e-003	0.0340		325.2848	325.2848	1.2200e-003	0.0472	339.3815
Worker	0.2262	0.1185	1.7692	4.8100e-003	0.5340	2.8500e-003	0.5368	0.1416	2.6200e-003	0.1443		496.5314	496.5314	0.0133	0.0122	500.4951
Total	**0.2483**	**0.8271**	**2.0087**	**7.9000e-003**	**0.6357**	**7.7800e-003**	**0.6435**	**0.1709**	**7.3400e-003**	**0.1783**		**821.8161**	**821.8161**	**0.0146**	**0.0594**	**839.8766**

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

3.4 Building Construction - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4897	12.0233	14.0072	0.0250		0.4700	0.4700		0.4498	0.4498		2,289.8898	2,289.8898	0.4200		2,300.3887
Total	**1.4897**	**12.0233**	**14.0072**	**0.0250**		**0.4700**	**0.4700**		**0.4498**	**0.4498**		**2,289.8898**	**2,289.8898**	**0.4200**		**2,300.3887**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0213	0.6979	0.2329	3.0300e-003	0.1017	4.8400e-003	0.1066	0.0293	4.6300e-003	0.0339		319.5315	319.5315	1.1600e-003	0.0462	333.3297
Worker	0.2103	0.1056	1.6391	4.6500e-003	0.5340	2.7000e-003	0.5367	0.1416	2.4900e-003	0.1441		484.3527	484.3527	0.0120	0.0113	488.0286
Total	**0.2316**	**0.8035**	**1.8720**	**7.6800e-003**	**0.6357**	**7.5400e-003**	**0.6432**	**0.1709**	**7.1200e-003**	**0.1781**		**803.8842**	**803.8842**	**0.0132**	**0.0575**	**821.3583**

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

3.4 Building Construction - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4897	12.0233	14.0072	0.0250		0.4700	0.4700		0.4498	0.4498	0.0000	2,289.8898	2,289.8898	0.4200		2,300.3887
Total	**1.4897**	**12.0233**	**14.0072**	**0.0250**		**0.4700**	**0.4700**		**0.4498**	**0.4498**	**0.0000**	**2,289.8898**	**2,289.8898**	**0.4200**		**2,300.3887**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0213	0.6979	0.2329	3.0300e-003	0.1017	4.8400e-003	0.1066	0.0293	4.6300e-003	0.0339		319.5315	319.5315	1.1600e-003	0.0462	333.3297
Worker	0.2103	0.1056	1.6391	4.6500e-003	0.5340	2.7000e-003	0.5367	0.1416	2.4900e-003	0.1441		484.3527	484.3527	0.0120	0.0113	488.0286
Total	**0.2316**	**0.8035**	**1.8720**	**7.6800e-003**	**0.6357**	**7.5400e-003**	**0.6432**	**0.1709**	**7.1200e-003**	**0.1781**		**803.8842**	**803.8842**	**0.0132**	**0.0575**	**821.3583**

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

3.5 Paving - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7854	7.4371	11.6737	0.0179		0.3503	0.3503		0.3234	0.3234		1,710.0067	1,710.0067	0.5420		1,723.5556
Paving	0.2096					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9950**	**7.4371**	**11.6737**	**0.0179**		**0.3503**	**0.3503**		**0.3234**	**0.3234**		**1,710.0067**	**1,710.0067**	**0.5420**		**1,723.5556**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0485	0.0244	0.3783	1.0700e-003	0.1232	6.2000e-004	0.1239	0.0327	5.7000e-004	0.0333		111.7737	111.7737	2.7700e-003	2.6100e-003	112.6220
Total	**0.0485**	**0.0244**	**0.3783**	**1.0700e-003**	**0.1232**	**6.2000e-004**	**0.1239**	**0.0327**	**5.7000e-004**	**0.0333**		**111.7737**	**111.7737**	**2.7700e-003**	**2.6100e-003**	**112.6220**

Red Bluff Apartments - Tehama County, Summer

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

3.5 Paving - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7854	7.4371	11.6737	0.0179		0.3503	0.3503		0.3234	0.3234	0.0000	1,710.0067	1,710.0067	0.5420		1,723.5556
Paving	0.2096					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9950**	**7.4371**	**11.6737**	**0.0179**		**0.3503**	**0.3503**		**0.3234**	**0.3234**	**0.0000**	**1,710.0067**	**1,710.0067**	**0.5420**		**1,723.5556**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0485	0.0244	0.3783	1.0700e-003	0.1232	6.2000e-004	0.1239	0.0327	5.7000e-004	0.0333		111.7737	111.7737	2.7700e-003	2.6100e-003	112.6220
Total	**0.0485**	**0.0244**	**0.3783**	**1.0700e-003**	**0.1232**	**6.2000e-004**	**0.1239**	**0.0327**	**5.7000e-004**	**0.0333**		**111.7737**	**111.7737**	**2.7700e-003**	**2.6100e-003**	**112.6220**

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

3.6 Architectural Coating - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515		281.4481	281.4481	0.0154		281.8319
Total	**0.1709**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**		**281.4481**	**281.4481**	**0.0154**		**281.8319**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0421	0.0211	0.3278	9.3000e-004	0.1068	5.4000e-004	0.1073	0.0283	5.0000e-004	0.0288		96.8705	96.8705	2.4000e-003	2.2700e-003	97.6057
Total	**0.0421**	**0.0211**	**0.3278**	**9.3000e-004**	**0.1068**	**5.4000e-004**	**0.1073**	**0.0283**	**5.0000e-004**	**0.0288**		**96.8705**	**96.8705**	**2.4000e-003**	**2.2700e-003**	**97.6057**

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

3.6 Architectural Coating - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515	0.0000	281.4481	281.4481	0.0154		281.8319
Total	**0.1709**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**	**0.0000**	**281.4481**	**281.4481**	**0.0154**		**281.8319**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0421	0.0211	0.3278	9.3000e-004	0.1068	5.4000e-004	0.1073	0.0283	5.0000e-004	0.0288		96.8705	96.8705	2.4000e-003	2.2700e-003	97.6057
Total	**0.0421**	**0.0211**	**0.3278**	**9.3000e-004**	**0.1068**	**5.4000e-004**	**0.1073**	**0.0283**	**5.0000e-004**	**0.0288**		**96.8705**	**96.8705**	**2.4000e-003**	**2.2700e-003**	**97.6057**

4.0 Operational Detail - Mobile

Red Bluff Apartments - Tehama County, Summer

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	lb/day										lb/day					
Mitigated	1.1165	1.7318	8.6186	0.0189	1.7706	0.0212	1.7917	0.4729	0.0200	0.4929		1,968.3275	1,968.3275	0.1012	0.1082	2,003.0979
Unmitigated	1.1165	1.7318	8.6186	0.0189	1.7706	0.0212	1.7917	0.4729	0.0200	0.4929		1,968.3275	1,968.3275	0.1012	0.1082	2,003.0979

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	293.41	293.41	293.41	835,443	835,443
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	293.41	293.41	293.41	835,443	835,443

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
Apartments Mid Rise	10.80	7.30	7.50	41.00	21.20	37.80	86	11	3
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

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

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.504547	0.051683	0.175019	0.141516	0.044240	0.010664	0.006436	0.029741	0.000646	0.000000	0.029297	0.001351	0.004860
Other Non-Asphalt Surfaces	0.504547	0.051683	0.175019	0.141516	0.044240	0.010664	0.006436	0.029741	0.000646	0.000000	0.029297	0.001351	0.004860
Parking Lot	0.504547	0.051683	0.175019	0.141516	0.044240	0.010664	0.006436	0.029741	0.000646	0.000000	0.029297	0.001351	0.004860

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	lb/day										lb/day					
NaturalGas Mitigated	0.0212	0.1814	0.0772	1.1600e-003		0.0147	0.0147		0.0147	0.0147		231.6229	231.6229	4.4400e-003	4.2500e-003	232.9993
NaturalGas Unmitigated	0.0212	0.1814	0.0772	1.1600e-003		0.0147	0.0147		0.0147	0.0147		231.6229	231.6229	4.4400e-003	4.2500e-003	232.9993

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	lb/day										lb/day					
Apartments Mid Rise	1968.79	0.0212	0.1814	0.0772	1.1600e-003		0.0147	0.0147		0.0147	0.0147		231.6229	231.6229	4.4400e-003	4.2500e-003	232.9993
Other Non-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
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
Total		**0.0212**	**0.1814**	**0.0772**	**1.1600e-003**		**0.0147**	**0.0147**		**0.0147**	**0.0147**		**231.6229**	**231.6229**	**4.4400e-003**	**4.2500e-003**	**232.9993**

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	lb/day										lb/day					
Apartments Mid Rise	1.96879	0.0212	0.1814	0.0772	1.1600e-003		0.0147	0.0147		0.0147	0.0147		231.6229	231.6229	4.4400e-003	4.2500e-003	232.9993
Other Non-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
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
Total		**0.0212**	**0.1814**	**0.0772**	**1.1600e-003**		**0.0147**	**0.0147**		**0.0147**	**0.0147**		**231.6229**	**231.6229**	**4.4400e-003**	**4.2500e-003**	**232.9993**

6.0 Area Detail

6.1 Mitigation Measures Area

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	lb/day										lb/day					
Mitigated	1.5835	0.0580	5.0369	2.7000e-004		0.0279	0.0279		0.0279	0.0279	0.0000	9.0812	9.0812	8.7300e-003	0.0000	9.2995
Unmitigated	1.5835	0.0580	5.0369	2.7000e-004		0.0279	0.0279		0.0279	0.0279	0.0000	9.0812	9.0812	8.7300e-003	0.0000	9.2995

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1084					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.3233					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1518	0.0580	5.0369	2.7000e-004		0.0279	0.0279		0.0279	0.0279		9.0812	9.0812	8.7300e-003		9.2995
Total	**1.5835**	**0.0580**	**5.0369**	**2.7000e-004**		**0.0279**	**0.0279**		**0.0279**	**0.0279**	**0.0000**	**9.0812**	**9.0812**	**8.7300e-003**	**0.0000**	**9.2995**

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	lb/day										lb/day					
Architectural Coating	0.1084					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.3233					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1518	0.0580	5.0369	2.7000e-004		0.0279	0.0279		0.0279	0.0279		9.0812	9.0812	8.7300e-003		9.2995
Total	**1.5835**	**0.0580**	**5.0369**	**2.7000e-004**		**0.0279**	**0.0279**		**0.0279**	**0.0279**	**0.0000**	**9.0812**	**9.0812**	**8.7300e-003**	**0.0000**	**9.2995**

7.0 Water Detail

7.1 Mitigation Measures Water

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

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 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

11.0 Vegetation

Red Bluff Apartments - Tehama County, Winter

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

Red Bluff Apartments

Tehama County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Mid Rise	61.00	Dwelling Unit	1.61	61,000.00	159
Other Non-Asphalt Surfaces	0.34	Acre	0.34	14,810.40	0
Parking Lot	89.00	Space	0.80	35,600.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.1	**Precipitation Freq (Days)**	68
Climate Zone	3			**Operational Year**	2025
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 2.75-acre infill site with three 3-story apartment buildings, one 2-story community building, and one 1-story maintenance building as well as outdoor recreation areas and 89 parking spaces.

Construction Phase -

Architectural Coating - Rule 1113

Demolition - Estimated via Google Earth

Vehicle Trips - Per trip generation analysis, 4.81 trips generated per day per unit or 293 total trips per day.

Woodstoves - No hearths

Area Coating - SCAQMD Rule 1113

Construction Off-road Equipment Mitigation - SCAQMD Rule 403

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

Sequestration - Per landscape plan

Waste Mitigation -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Nonresidential_Exterior	0	50
tblAreaCoating	Area_EF_Nonresidential_Interior	0	50
tblAreaCoating	Area_EF_Parking	0	100
tblAreaCoating	Area_EF_Residential_Exterior	0	50
tblAreaCoating	Area_EF_Residential_Interior	0	50
tblFireplaces	FireplaceDayYear	82.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	4,558.40	0.00
tblFireplaces	NumberGas	12.20	0.00
tblFireplaces	NumberNoFireplace	36.60	0.00
tblFireplaces	NumberWood	12.20	0.00
tblSequestration	NumberOfNewTrees	0.00	4.00
tblSequestration	NumberOfNewTrees	0.00	25.00
tblSequestration	NumberOfNewTrees	0.00	67.00
tblVehicleTrips	ST_TR	4.91	4.81
tblVehicleTrips	SU_TR	4.09	4.81
tblVehicleTrips	WD_TR	5.44	4.81
tblWoodstoves	NumberCatalytic	18.30	0.00
tblWoodstoves	NumberNoncatalytic	18.30	0.00
tblWoodstoves	WoodstoveDayYear	82.00	0.00
tblWoodstoves	WoodstoveWoodMass	4,558.40	0.00

2.0 Emissions Summary

Red Bluff Apartments - Tehama County, Winter

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

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	1.8232	14.1501	15.9806	0.0325	7.1647	0.6338	7.7374	3.4465	0.5920	3.9734	0.0000	3,062.0699	3,062.0699	0.6478	0.0619	3,091.6083
2025	1.7009	12.9153	15.7674	0.0323	0.6357	0.4775	1.1132	0.1709	0.4570	0.6279	0.0000	3,045.7076	3,045.7076	0.5453	0.0599	3,074.4389
Maximum	**1.8232**	**14.1501**	**15.9806**	**0.0325**	**7.1647**	**0.6338**	**7.7374**	**3.4465**	**0.5920**	**3.9734**	**0.0000**	**3,062.0699**	**3,062.0699**	**0.6478**	**0.0619**	**3,091.6083**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	1.8232	14.1501	15.9806	0.0325	2.8444	0.6338	3.4170	1.3574	0.5920	1.8843	0.0000	3,062.0699	3,062.0699	0.6478	0.0619	3,091.6083
2025	1.7009	12.9153	15.7674	0.0323	0.6357	0.4775	1.1132	0.1709	0.4570	0.6279	0.0000	3,045.7076	3,045.7076	0.5453	0.0599	3,074.4389
Maximum	**1.8232**	**14.1501**	**15.9806**	**0.0325**	**2.8444**	**0.6338**	**3.4170**	**1.3574**	**0.5920**	**1.8843**	**0.0000**	**3,062.0699**	**3,062.0699**	**0.6478**	**0.0619**	**3,091.6083**

Red Bluff Apartments - Tehama County, Winter

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	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	55.39	0.00	48.81	57.75	0.00	45.40	0.00	0.00	0.00	0.00	0.00	0.00

Red Bluff Apartments - Tehama County, Winter

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.5835	0.0580	5.0369	2.7000e-004		0.0279	0.0279		0.0279	0.0279	0.0000	9.0812	9.0812	8.7300e-003	0.0000	9.2995
Energy	0.0212	0.1814	0.0772	1.1600e-003		0.0147	0.0147		0.0147	0.0147		231.6229	231.6229	4.4400e-003	4.2500e-003	232.9993
Mobile	0.9217	1.9864	9.1291	0.0176	1.7706	0.0212	1.7918	0.4729	0.0200	0.4929		1,832.8645	1,832.8645	0.1188	0.1176	1,870.8788
Total	**2.5264**	**2.2259**	**14.2432**	**0.0190**	**1.7706**	**0.0638**	**1.8344**	**0.4729**	**0.0626**	**0.5355**	**0.0000**	**2,073.5686**	**2,073.5686**	**0.1320**	**0.1219**	**2,113.1775**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.5835	0.0580	5.0369	2.7000e-004		0.0279	0.0279		0.0279	0.0279	0.0000	9.0812	9.0812	8.7300e-003	0.0000	9.2995
Energy	0.0212	0.1814	0.0772	1.1600e-003		0.0147	0.0147		0.0147	0.0147		231.6229	231.6229	4.4400e-003	4.2500e-003	232.9993
Mobile	0.9217	1.9864	9.1291	0.0176	1.7706	0.0212	1.7918	0.4729	0.0200	0.4929		1,832.8645	1,832.8645	0.1188	0.1176	1,870.8788
Total	**2.5264**	**2.2259**	**14.2432**	**0.0190**	**1.7706**	**0.0638**	**1.8344**	**0.4729**	**0.0626**	**0.5355**	**0.0000**	**2,073.5686**	**2,073.5686**	**0.1320**	**0.1219**	**2,113.1775**

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	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	4/1/2024	4/26/2024	5	20	
2	Grading	Grading	4/27/2024	5/6/2024	5	6	
3	Building Construction	Building Construction	5/7/2024	3/10/2025	5	220	
4	Paving	Paving	3/11/2025	3/24/2025	5	10	
5	Architectural Coating	Architectural Coating	3/25/2025	4/7/2025	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 6

Acres of Paving: 1.14

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 3,025 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74

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

Grading	Graders	1	8.00	187	0.41
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45

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	5	13.00	0.00	34.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	65.00	15.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

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

3.2 Demolition - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3798	0.0000	0.3798	0.0575	0.0000	0.0575			0.0000			0.0000
Off-Road	1.4397	13.8867	13.4879	0.0241		0.6311	0.6311		0.5895	0.5895		2,324.9459	2,324.9459	0.5884		2,339.6562
Total	**1.4397**	**13.8867**	**13.4879**	**0.0241**	**0.3798**	**0.6311**	**1.0109**	**0.0575**	**0.5895**	**0.6470**		**2,324.9459**	**2,324.9459**	**0.5884**		**2,339.6562**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.9000e-003	0.2326	0.0500	9.8000e-004	0.0298	2.1500e-003	0.0320	8.1800e-003	2.0600e-003	0.0102		104.0998	104.0998	1.8000e-004	0.0164	108.9803
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
Worker	0.0410	0.0308	0.3260	8.7000e-004	0.1068	5.7000e-004	0.1074	0.0283	5.2000e-004	0.0289		89.2867	89.2867	3.1600e-003	2.9100e-003	90.2316
Total	**0.0449**	**0.2634**	**0.3761**	**1.8500e-003**	**0.1366**	**2.7200e-003**	**0.1393**	**0.0365**	**2.5800e-003**	**0.0391**		**193.3866**	**193.3866**	**3.3400e-003**	**0.0193**	**199.2119**

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

3.2 Demolition - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1481	0.0000	0.1481	0.0224	0.0000	0.0224			0.0000			0.0000
Off-Road	1.4397	13.8867	13.4879	0.0241		0.6311	0.6311		0.5895	0.5895	0.0000	2,324.9459	2,324.9459	0.5884		2,339.6562
Total	**1.4397**	**13.8867**	**13.4879**	**0.0241**	**0.1481**	**0.6311**	**0.7792**	**0.0224**	**0.5895**	**0.6119**	**0.0000**	**2,324.9459**	**2,324.9459**	**0.5884**		**2,339.6562**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.9000e-003	0.2326	0.0500	9.8000e-004	0.0298	2.1500e-003	0.0320	8.1800e-003	2.0600e-003	0.0102		104.0998	104.0998	1.8000e-004	0.0164	108.9803
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
Worker	0.0410	0.0308	0.3260	8.7000e-004	0.1068	5.7000e-004	0.1074	0.0283	5.2000e-004	0.0289		89.2867	89.2867	3.1600e-003	2.9100e-003	90.2316
Total	**0.0449**	**0.2634**	**0.3761**	**1.8500e-003**	**0.1366**	**2.7200e-003**	**0.1393**	**0.0365**	**2.5800e-003**	**0.0391**		**193.3866**	**193.3866**	**3.3400e-003**	**0.0193**	**199.2119**

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

3.3 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0826	0.0000	7.0826	3.4247	0.0000	3.4247			0.0000			0.0000
Off-Road	1.3015	13.8178	8.6998	0.0206		0.5722	0.5722		0.5265	0.5265		1,995.5803	1,995.5803	0.6454		2,011.7155
Total	**1.3015**	**13.8178**	**8.6998**	**0.0206**	**7.0826**	**0.5722**	**7.6548**	**3.4247**	**0.5265**	**3.9512**		**1,995.5803**	**1,995.5803**	**0.6454**		**2,011.7155**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0315	0.0237	0.2508	6.7000e-004	0.0822	4.4000e-004	0.0826	0.0218	4.0000e-004	0.0222		68.6821	68.6821	2.4300e-003	2.2400e-003	69.4089
Total	**0.0315**	**0.0237**	**0.2508**	**6.7000e-004**	**0.0822**	**4.4000e-004**	**0.0826**	**0.0218**	**4.0000e-004**	**0.0222**		**68.6821**	**68.6821**	**2.4300e-003**	**2.2400e-003**	**69.4089**

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

3.3 Grading - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.7622	0.0000	2.7622	1.3357	0.0000	1.3357			0.0000			0.0000
Off-Road	1.3015	13.8178	8.6998	0.0206		0.5722	0.5722		0.5265	0.5265	0.0000	1,995.5803	1,995.5803	0.6454		2,011.7155
Total	**1.3015**	**13.8178**	**8.6998**	**0.0206**	**2.7622**	**0.5722**	**3.3345**	**1.3357**	**0.5265**	**1.8621**	**0.0000**	**1,995.5803**	**1,995.5803**	**0.6454**		**2,011.7155**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0315	0.0237	0.2508	6.7000e-004	0.0822	4.4000e-004	0.0826	0.0218	4.0000e-004	0.0222		68.6821	68.6821	2.4300e-003	2.2400e-003	69.4089
Total	**0.0315**	**0.0237**	**0.2508**	**6.7000e-004**	**0.0822**	**4.4000e-004**	**0.0826**	**0.0218**	**4.0000e-004**	**0.0222**		**68.6821**	**68.6821**	**2.4300e-003**	**2.2400e-003**	**69.4089**

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

3.4 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5971	12.8235	14.1002	0.0250		0.5381	0.5381		0.5153	0.5153		2,289.6541	2,289.6541	0.4265		2,300.3154
Total	**1.5971**	**12.8235**	**14.1002**	**0.0250**		**0.5381**	**0.5381**		**0.5153**	**0.5153**		**2,289.6541**	**2,289.6541**	**0.4265**		**2,300.3154**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0211	0.7664	0.2503	3.0900e-003	0.1017	4.9500e-003	0.1067	0.0293	4.7300e-003	0.0340		325.9821	325.9821	1.1700e-003	0.0474	340.1350
Worker	0.2050	0.1541	1.6302	4.3300e-003	0.5340	2.8500e-003	0.5368	0.1416	2.6200e-003	0.1443		446.4337	446.4337	0.0158	0.0145	451.1579
Total	**0.2261**	**0.9206**	**1.8804**	**7.4200e-003**	**0.6357**	**7.8000e-003**	**0.6435**	**0.1709**	**7.3500e-003**	**0.1783**		**772.4158**	**772.4158**	**0.0170**	**0.0619**	**791.2929**

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

3.4 Building Construction - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5971	12.8235	14.1002	0.0250		0.5381	0.5381		0.5153	0.5153	0.0000	2,289.6541	2,289.6541	0.4265		2,300.3154
Total	**1.5971**	**12.8235**	**14.1002**	**0.0250**		**0.5381**	**0.5381**		**0.5153**	**0.5153**	**0.0000**	**2,289.6541**	**2,289.6541**	**0.4265**		**2,300.3154**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0211	0.7664	0.2503	3.0900e-003	0.1017	4.9500e-003	0.1067	0.0293	4.7300e-003	0.0340		325.9821	325.9821	1.1700e-003	0.0474	340.1350
Worker	0.2050	0.1541	1.6302	4.3300e-003	0.5340	2.8500e-003	0.5368	0.1416	2.6200e-003	0.1443		446.4337	446.4337	0.0158	0.0145	451.1579
Total	**0.2261**	**0.9206**	**1.8804**	**7.4200e-003**	**0.6357**	**7.8000e-003**	**0.6435**	**0.1709**	**7.3500e-003**	**0.1783**		**772.4158**	**772.4158**	**0.0170**	**0.0619**	**791.2929**

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

3.4 Building Construction - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4897	12.0233	14.0072	0.0250		0.4700	0.4700		0.4498	0.4498		2,289.8898	2,289.8898	0.4200		2,300.3887
Total	**1.4897**	**12.0233**	**14.0072**	**0.0250**		**0.4700**	**0.4700**		**0.4498**	**0.4498**		**2,289.8898**	**2,289.8898**	**0.4200**		**2,300.3887**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0203	0.7547	0.2438	3.0400e-003	0.1017	4.8600e-003	0.1066	0.0293	4.6500e-003	0.0339		320.2234	320.2234	1.1200e-003	0.0464	334.0755
Worker	0.1909	0.1373	1.5164	4.1800e-003	0.5340	2.7000e-003	0.5367	0.1416	2.4900e-003	0.1441		435.5943	435.5943	0.0143	0.0135	439.9747
Total	**0.2112**	**0.8920**	**1.7602**	**7.2200e-003**	**0.6357**	**7.5600e-003**	**0.6433**	**0.1709**	**7.1400e-003**	**0.1781**		**755.8177**	**755.8177**	**0.0154**	**0.0599**	**774.0502**

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

3.4 Building Construction - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4897	12.0233	14.0072	0.0250		0.4700	0.4700		0.4498	0.4498	0.0000	2,289.8898	2,289.8898	0.4200		2,300.3887
Total	**1.4897**	**12.0233**	**14.0072**	**0.0250**		**0.4700**	**0.4700**		**0.4498**	**0.4498**	**0.0000**	**2,289.8898**	**2,289.8898**	**0.4200**		**2,300.3887**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0203	0.7547	0.2438	3.0400e-003	0.1017	4.8600e-003	0.1066	0.0293	4.6500e-003	0.0339		320.2234	320.2234	1.1200e-003	0.0464	334.0755
Worker	0.1909	0.1373	1.5164	4.1800e-003	0.5340	2.7000e-003	0.5367	0.1416	2.4900e-003	0.1441		435.5943	435.5943	0.0143	0.0135	439.9747
Total	**0.2112**	**0.8920**	**1.7602**	**7.2200e-003**	**0.6357**	**7.5600e-003**	**0.6433**	**0.1709**	**7.1400e-003**	**0.1781**		**755.8177**	**755.8177**	**0.0154**	**0.0599**	**774.0502**

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

3.5 Paving - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7854	7.4371	11.6737	0.0179		0.3503	0.3503		0.3234	0.3234		1,710.0067	1,710.0067	0.5420		1,723.5556
Paving	0.2096					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9950**	**7.4371**	**11.6737**	**0.0179**		**0.3503**	**0.3503**		**0.3234**	**0.3234**		**1,710.0067**	**1,710.0067**	**0.5420**		**1,723.5556**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0441	0.0317	0.3499	9.6000e-004	0.1232	6.2000e-004	0.1239	0.0327	5.7000e-004	0.0333		100.5218	100.5218	3.3000e-003	3.1200e-003	101.5326
Total	**0.0441**	**0.0317**	**0.3499**	**9.6000e-004**	**0.1232**	**6.2000e-004**	**0.1239**	**0.0327**	**5.7000e-004**	**0.0333**		**100.5218**	**100.5218**	**3.3000e-003**	**3.1200e-003**	**101.5326**

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

3.5 Paving - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7854	7.4371	11.6737	0.0179		0.3503	0.3503		0.3234	0.3234	0.0000	1,710.0067	1,710.0067	0.5420		1,723.5556
Paving	0.2096					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9950**	**7.4371**	**11.6737**	**0.0179**		**0.3503**	**0.3503**		**0.3234**	**0.3234**	**0.0000**	**1,710.0067**	**1,710.0067**	**0.5420**		**1,723.5556**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0441	0.0317	0.3499	9.6000e-004	0.1232	6.2000e-004	0.1239	0.0327	5.7000e-004	0.0333		100.5218	100.5218	3.3000e-003	3.1200e-003	101.5326
Total	**0.0441**	**0.0317**	**0.3499**	**9.6000e-004**	**0.1232**	**6.2000e-004**	**0.1239**	**0.0327**	**5.7000e-004**	**0.0333**		**100.5218**	**100.5218**	**3.3000e-003**	**3.1200e-003**	**101.5326**

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

3.6 Architectural Coating - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515		281.4481	281.4481	0.0154		281.8319
Total	**0.1709**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**		**281.4481**	**281.4481**	**0.0154**		**281.8319**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0382	0.0275	0.3033	8.4000e-004	0.1068	5.4000e-004	0.1073	0.0283	5.0000e-004	0.0288		87.1189	87.1189	2.8600e-003	2.7000e-003	87.9949
Total	**0.0382**	**0.0275**	**0.3033**	**8.4000e-004**	**0.1068**	**5.4000e-004**	**0.1073**	**0.0283**	**5.0000e-004**	**0.0288**		**87.1189**	**87.1189**	**2.8600e-003**	**2.7000e-003**	**87.9949**

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

3.6 Architectural Coating - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515	0.0000	281.4481	281.4481	0.0154		281.8319
Total	**0.1709**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**	**0.0000**	**281.4481**	**281.4481**	**0.0154**		**281.8319**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0382	0.0275	0.3033	8.4000e-004	0.1068	5.4000e-004	0.1073	0.0283	5.0000e-004	0.0288		87.1189	87.1189	2.8600e-003	2.7000e-003	87.9949
Total	**0.0382**	**0.0275**	**0.3033**	**8.4000e-004**	**0.1068**	**5.4000e-004**	**0.1073**	**0.0283**	**5.0000e-004**	**0.0288**		**87.1189**	**87.1189**	**2.8600e-003**	**2.7000e-003**	**87.9949**

4.0 Operational Detail - Mobile

Red Bluff Apartments - Tehama County, Winter

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	lb/day										lb/day					
Mitigated	0.9217	1.9864	9.1291	0.0176	1.7706	0.0212	1.7918	0.4729	0.0200	0.4929		1,832.8645	1,832.8645	0.1188	0.1176	1,870.8788
Unmitigated	0.9217	1.9864	9.1291	0.0176	1.7706	0.0212	1.7918	0.4729	0.0200	0.4929		1,832.8645	1,832.8645	0.1188	0.1176	1,870.8788

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	293.41	293.41	293.41	835,443	835,443
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	293.41	293.41	293.41	835,443	835,443

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
Apartments Mid Rise	10.80	7.30	7.50	41.00	21.20	37.80	86	11	3
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

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

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.504547	0.051683	0.175019	0.141516	0.044240	0.010664	0.006436	0.029741	0.000646	0.000000	0.029297	0.001351	0.004860
Other Non-Asphalt Surfaces	0.504547	0.051683	0.175019	0.141516	0.044240	0.010664	0.006436	0.029741	0.000646	0.000000	0.029297	0.001351	0.004860
Parking Lot	0.504547	0.051683	0.175019	0.141516	0.044240	0.010664	0.006436	0.029741	0.000646	0.000000	0.029297	0.001351	0.004860

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	lb/day										lb/day					
NaturalGas Mitigated	0.0212	0.1814	0.0772	1.1600e-003		0.0147	0.0147		0.0147	0.0147		231.6229	231.6229	4.4400e-003	4.2500e-003	232.9993
NaturalGas Unmitigated	0.0212	0.1814	0.0772	1.1600e-003		0.0147	0.0147		0.0147	0.0147		231.6229	231.6229	4.4400e-003	4.2500e-003	232.9993

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	lb/day										lb/day					
Apartments Mid Rise	1968.79	0.0212	0.1814	0.0772	1.1600e-003		0.0147	0.0147		0.0147	0.0147		231.6229	231.6229	4.4400e-003	4.2500e-003	232.9993
Other Non-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
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
Total		**0.0212**	**0.1814**	**0.0772**	**1.1600e-003**		**0.0147**	**0.0147**		**0.0147**	**0.0147**		**231.6229**	**231.6229**	**4.4400e-003**	**4.2500e-003**	**232.9993**

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	lb/day										lb/day					
Apartments Mid Rise	1.96879	0.0212	0.1814	0.0772	1.1600e-003		0.0147	0.0147		0.0147	0.0147		231.6229	231.6229	4.4400e-003	4.2500e-003	232.9993
Other Non-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
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
Total		**0.0212**	**0.1814**	**0.0772**	**1.1600e-003**		**0.0147**	**0.0147**		**0.0147**	**0.0147**		**231.6229**	**231.6229**	**4.4400e-003**	**4.2500e-003**	**232.9993**

6.0 Area Detail

6.1 Mitigation Measures Area

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	lb/day										lb/day					
Mitigated	1.5835	0.0580	5.0369	2.7000e-004		0.0279	0.0279		0.0279	0.0279	0.0000	9.0812	9.0812	8.7300e-003	0.0000	9.2995
Unmitigated	1.5835	0.0580	5.0369	2.7000e-004		0.0279	0.0279		0.0279	0.0279	0.0000	9.0812	9.0812	8.7300e-003	0.0000	9.2995

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1084					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.3233					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1518	0.0580	5.0369	2.7000e-004		0.0279	0.0279		0.0279	0.0279		9.0812	9.0812	8.7300e-003		9.2995
Total	**1.5835**	**0.0580**	**5.0369**	**2.7000e-004**		**0.0279**	**0.0279**		**0.0279**	**0.0279**	**0.0000**	**9.0812**	**9.0812**	**8.7300e-003**	**0.0000**	**9.2995**

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	lb/day										lb/day					
Architectural Coating	0.1084					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.3233					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1518	0.0580	5.0369	2.7000e-004		0.0279	0.0279		0.0279	0.0279		9.0812	9.0812	8.7300e-003		9.2995
Total	**1.5835**	**0.0580**	**5.0369**	**2.7000e-004**		**0.0279**	**0.0279**		**0.0279**	**0.0279**	**0.0000**	**9.0812**	**9.0812**	**8.7300e-003**	**0.0000**	**9.2995**

7.0 Water Detail

7.1 Mitigation Measures Water

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

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 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

11.0 Vegetation

Appendix B:

CalEEMod Annual Emission Output

Red Bluff Apartments - Tehama County, Annual

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

Red Bluff Apartments

Tehama County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Mid Rise	61.00	Dwelling Unit	1.61	61,000.00	159
Other Non-Asphalt Surfaces	0.34	Acre	0.34	14,810.40	0
Parking Lot	89.00	Space	0.80	35,600.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.1	**Precipitation Freq (Days)**	68
Climate Zone	3			**Operational Year**	2025
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 2.75-acre infill site with three 3-story apartment buildings, one 2-story community building, and one 1-story maintenance building as well as outdoor recreation areas and 89 parking spaces.

Construction Phase -

Architectural Coating - Rule 1113

Demolition - Estimated via Google Earth

Vehicle Trips - Per trip generation analysis, 4.81 trips generated per day per unit or 293 total trips per day.

Woodstoves - No hearths

Area Coating - SCAQMD Rule 1113

Construction Off-road Equipment Mitigation - SCAQMD Rule 403

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

Sequestration - Per landscape plan

Waste Mitigation -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Nonresidential_Exterior	0	50
tblAreaCoating	Area_EF_Nonresidential_Interior	0	50
tblAreaCoating	Area_EF_Parking	0	100
tblAreaCoating	Area_EF_Residential_Exterior	0	50
tblAreaCoating	Area_EF_Residential_Interior	0	50
tblFireplaces	FireplaceDayYear	82.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	4,558.40	0.00
tblFireplaces	NumberGas	12.20	0.00
tblFireplaces	NumberNoFireplace	36.60	0.00
tblFireplaces	NumberWood	12.20	0.00
tblSequestration	NumberOfNewTrees	0.00	4.00
tblSequestration	NumberOfNewTrees	0.00	25.00
tblSequestration	NumberOfNewTrees	0.00	67.00
tblVehicleTrips	ST_TR	4.91	4.81
tblVehicleTrips	SU_TR	4.09	4.81
tblVehicleTrips	WD_TR	5.44	4.81
tblWoodstoves	NumberCatalytic	18.30	0.00
tblWoodstoves	NumberNoncatalytic	18.30	0.00
tblWoodstoves	WoodstoveDayYear	82.00	0.00
tblWoodstoves	WoodstoveWoodMass	4,558.40	0.00

2.0 Emissions Summary

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					
2024	0.1738	1.3547	1.5270	3.1100e-003	0.0788	0.0547	0.1335	0.0254	0.0522	0.0775	0.0000	266.6477	266.6477	0.0414	4.8800e-003	269.1389
2025	0.0476	0.3587	0.4556	9.1000e-004	0.0161	0.0137	0.0298	4.3300e-003	0.0131	0.0174	0.0000	77.7784	77.7784	0.0122	1.3300e-003	78.4797
Maximum	**0.1738**	**1.3547**	**1.5270**	**3.1100e-003**	**0.0788**	**0.0547**	**0.1335**	**0.0254**	**0.0522**	**0.0775**	**0.0000**	**266.6477**	**266.6477**	**0.0414**	**4.8800e-003**	**269.1389**

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					
2024	0.1738	1.3547	1.5270	3.1100e-003	0.0635	0.0547	0.1183	0.0187	0.0522	0.0709	0.0000	266.6474	266.6474	0.0414	4.8800e-003	269.1387
2025	0.0476	0.3587	0.4556	9.1000e-004	0.0161	0.0137	0.0298	4.3300e-003	0.0131	0.0174	0.0000	77.7783	77.7783	0.0122	1.3300e-003	78.4796
Maximum	**0.1738**	**1.3547**	**1.5270**	**3.1100e-003**	**0.0635**	**0.0547**	**0.1183**	**0.0187**	**0.0522**	**0.0709**	**0.0000**	**266.6474**	**266.6474**	**0.0414**	**4.8800e-003**	**269.1387**

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	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**16.10**	**0.00**	**9.35**	**22.27**	**0.00**	**6.97**	**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	**4-1-2024**	**6-30-2024**	0.5036	0.5036
2	**7-1-2024**	**9-30-2024**	0.5092	0.5092
3	**10-1-2024**	**12-31-2024**	0.5115	0.5115
4	**1-1-2025**	**3-31-2025**	0.4062	0.4062
5	**4-1-2025**	**6-30-2025**	0.0034	0.0034
		Highest	0.5115	0.5115

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2749	5.2200e-003	0.4533	2.0000e-005		2.5100e-003	2.5100e-003		2.5100e-003	2.5100e-003	0.0000	0.7415	0.7415	7.1000e-004	0.0000	0.7593
Energy	3.8700e-003	0.0331	0.0141	2.1000e-004		2.6800e-003	2.6800e-003		2.6800e-003	2.6800e-003	0.0000	61.7648	61.7648	4.5200e-003	1.1600e-003	62.2242
Mobile	0.1700	0.3421	1.5404	3.2400e-003	0.3094	3.8500e-003	0.3132	0.0829	3.6300e-003	0.0865	0.0000	306.0574	306.0574	0.0181	0.0187	312.0762
Waste						0.0000	0.0000		0.0000	0.0000	5.6959	0.0000	5.6959	0.3366	0.0000	14.1114
Water						0.0000	0.0000		0.0000	0.0000	0.4640	2.8012	3.2652	0.6069	3.1100e-003	19.3640
Total	**0.4488**	**0.3804**	**2.0078**	**3.4700e-003**	**0.3094**	**9.0400e-003**	**0.3184**	**0.0829**	**8.8200e-003**	**0.0917**	**6.1600**	**371.3648**	**377.5248**	**0.9668**	**0.0230**	**408.5351**

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

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2749	5.2200e-003	0.4533	2.0000e-005		2.5100e-003	2.5100e-003		2.5100e-003	2.5100e-003	0.0000	0.7415	0.7415	7.1000e-004	0.0000	0.7593
Energy	3.8700e-003	0.0331	0.0141	2.1000e-004		2.6800e-003	2.6800e-003		2.6800e-003	2.6800e-003	0.0000	61.7648	61.7648	4.5200e-003	1.1600e-003	62.2242
Mobile	0.1700	0.3421	1.5404	3.2400e-003	0.3094	3.8500e-003	0.3132	0.0829	3.6300e-003	0.0865	0.0000	306.0574	306.0574	0.0181	0.0187	312.0762
Waste						0.0000	0.0000		0.0000	0.0000	1.4240	0.0000	1.4240	0.0842	0.0000	3.5279
Water						0.0000	0.0000		0.0000	0.0000	0.4640	2.8012	3.2652	0.6069	3.1100e-003	19.3640
Total	**0.4488**	**0.3804**	**2.0078**	**3.4700e-003**	**0.3094**	**9.0400e-003**	**0.3184**	**0.0829**	**8.8200e-003**	**0.0917**	**1.8880**	**371.3648**	**373.2528**	**0.7144**	**0.0230**	**397.9516**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**69.35**	**0.00**	**1.13**	**26.11**	**0.00**	**2.59**

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

2.3 Vegetation

Vegetation

	CO2e
Category	MT
New Trees	56.0380
Total	**56.0380**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	4/1/2024	4/26/2024	5	20	
2	Grading	Grading	4/27/2024	5/6/2024	5	6	
3	Building Construction	Building Construction	5/7/2024	3/10/2025	5	220	
4	Paving	Paving	3/11/2025	3/24/2025	5	10	
5	Architectural Coating	Architectural Coating	3/25/2025	4/7/2025	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 6

Acres of Paving: 1.14

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 3,025 (Architectural Coating – sqft)

Red Bluff Apartments - Tehama County, Annual

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45

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	5	13.00	0.00	34.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	65.00	15.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

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

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2024

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					3.8000e-003	0.0000	3.8000e-003	5.8000e-004	0.0000	5.8000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0144	0.1389	0.1349	2.4000e-004		6.3100e-003	6.3100e-003		5.8900e-003	5.8900e-003	0.0000	21.0916	21.0916	5.3400e-003	0.0000	21.2250
Total	**0.0144**	**0.1389**	**0.1349**	**2.4000e-004**	**3.8000e-003**	**6.3100e-003**	**0.0101**	**5.8000e-004**	**5.8900e-003**	**6.4700e-003**	**0.0000**	**21.0916**	**21.0916**	**5.3400e-003**	**0.0000**	**21.2250**

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

3.2 Demolition - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-005	2.2700e-003	4.9000e-004	1.0000e-005	2.9000e-004	2.0000e-005	3.1000e-004	8.0000e-005	2.0000e-005	1.0000e-004	0.0000	0.9435	0.9435	0.0000	1.5000e-004	0.9878
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	2.7000e-004	3.1600e-003	1.0000e-005	1.0200e-003	1.0000e-005	1.0300e-003	2.7000e-004	1.0000e-005	2.8000e-004	0.0000	0.8261	0.8261	3.0000e-005	2.0000e-005	0.8340
Total	**4.3000e-004**	**2.5400e-003**	**3.6500e-003**	**2.0000e-005**	**1.3100e-003**	**3.0000e-005**	**1.3400e-003**	**3.5000e-004**	**3.0000e-005**	**3.8000e-004**	**0.0000**	**1.7697**	**1.7697**	**3.0000e-005**	**1.7000e-004**	**1.8218**

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					1.4800e-003	0.0000	1.4800e-003	2.2000e-004	0.0000	2.2000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0144	0.1389	0.1349	2.4000e-004		6.3100e-003	6.3100e-003		5.8900e-003	5.8900e-003	0.0000	21.0915	21.0915	5.3400e-003	0.0000	21.2250
Total	**0.0144**	**0.1389**	**0.1349**	**2.4000e-004**	**1.4800e-003**	**6.3100e-003**	**7.7900e-003**	**2.2000e-004**	**5.8900e-003**	**6.1100e-003**	**0.0000**	**21.0915**	**21.0915**	**5.3400e-003**	**0.0000**	**21.2250**

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

3.2 Demolition - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-005	2.2700e-003	4.9000e-004	1.0000e-005	2.9000e-004	2.0000e-005	3.1000e-004	8.0000e-005	2.0000e-005	1.0000e-004	0.0000	0.9435	0.9435	0.0000	1.5000e-004	0.9878
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	2.7000e-004	3.1600e-003	1.0000e-005	1.0200e-003	1.0000e-005	1.0300e-003	2.7000e-004	1.0000e-005	2.8000e-004	0.0000	0.8261	0.8261	3.0000e-005	2.0000e-005	0.8340
Total	**4.3000e-004**	**2.5400e-003**	**3.6500e-003**	**2.0000e-005**	**1.3100e-003**	**3.0000e-005**	**1.3400e-003**	**3.5000e-004**	**3.0000e-005**	**3.8000e-004**	**0.0000**	**1.7697**	**1.7697**	**3.0000e-005**	**1.7000e-004**	**1.8218**

3.3 Grading - 2024

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					0.0213	0.0000	0.0213	0.0103	0.0000	0.0103	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.9000e-003	0.0415	0.0261	6.0000e-005		1.7200e-003	1.7200e-003		1.5800e-003	1.5800e-003	0.0000	5.4311	5.4311	1.7600e-003	0.0000	5.4750
Total	**3.9000e-003**	**0.0415**	**0.0261**	**6.0000e-005**	**0.0213**	**1.7200e-003**	**0.0230**	**0.0103**	**1.5800e-003**	**0.0119**	**0.0000**	**5.4311**	**5.4311**	**1.7600e-003**	**0.0000**	**5.4750**

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

3.3 Grading - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.0000e-005	6.0000e-005	7.3000e-004	0.0000	2.4000e-004	0.0000	2.4000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1906	0.1906	1.0000e-005	1.0000e-005	0.1925
Total	**9.0000e-005**	**6.0000e-005**	**7.3000e-004**	**0.0000**	**2.4000e-004**	**0.0000**	**2.4000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.1906**	**0.1906**	**1.0000e-005**	**1.0000e-005**	**0.1925**

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					8.2900e-003	0.0000	8.2900e-003	4.0100e-003	0.0000	4.0100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.9000e-003	0.0415	0.0261	6.0000e-005		1.7200e-003	1.7200e-003		1.5800e-003	1.5800e-003	0.0000	5.4311	5.4311	1.7600e-003	0.0000	5.4750
Total	**3.9000e-003**	**0.0415**	**0.0261**	**6.0000e-005**	**8.2900e-003**	**1.7200e-003**	**0.0100**	**4.0100e-003**	**1.5800e-003**	**5.5900e-003**	**0.0000**	**5.4311**	**5.4311**	**1.7600e-003**	**0.0000**	**5.4750**

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

3.3 Grading - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.0000e-005	6.0000e-005	7.3000e-004	0.0000	2.4000e-004	0.0000	2.4000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1906	0.1906	1.0000e-005	1.0000e-005	0.1925
Total	**9.0000e-005**	**6.0000e-005**	**7.3000e-004**	**0.0000**	**2.4000e-004**	**0.0000**	**2.4000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.1906**	**0.1906**	**1.0000e-005**	**1.0000e-005**	**0.1925**

3.4 Building Construction - 2024

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	0.1366	1.0964	1.2056	2.1400e-003		0.0460	0.0460		0.0441	0.0441	0.0000	177.5954	177.5954	0.0331	0.0000	178.4223
Total	**0.1366**	**1.0964**	**1.2056**	**2.1400e-003**		**0.0460**	**0.0460**		**0.0441**	**0.0441**	**0.0000**	**177.5954**	**177.5954**	**0.0331**	**0.0000**	**178.4223**

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

3.4 Building Construction - 2024

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	1.8300e-003	0.0637	0.0209	2.6000e-004	8.4100e-003	4.2000e-004	8.8300e-003	2.4300e-003	4.0000e-004	2.8400e-003	0.0000	25.2532	25.2532	9.0000e-005	3.6700e-003	26.3487
Worker	0.0166	0.0117	0.1352	3.8000e-004	0.0438	2.4000e-004	0.0441	0.0117	2.2000e-004	0.0119	0.0000	35.3162	35.3162	1.1200e-003	1.0400e-003	35.6536
Total	**0.0184**	**0.0754**	**0.1560**	**6.4000e-004**	**0.0522**	**6.6000e-004**	**0.0529**	**0.0141**	**6.2000e-004**	**0.0147**	**0.0000**	**60.5693**	**60.5693**	**1.2100e-003**	**4.7100e-003**	**62.0023**

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	0.1366	1.0964	1.2056	2.1400e-003		0.0460	0.0460		0.0441	0.0441	0.0000	177.5952	177.5952	0.0331	0.0000	178.4221
Total	**0.1366**	**1.0964**	**1.2056**	**2.1400e-003**		**0.0460**	**0.0460**		**0.0441**	**0.0441**	**0.0000**	**177.5952**	**177.5952**	**0.0331**	**0.0000**	**178.4221**

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

3.4 Building Construction - 2024

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	1.8300e-003	0.0637	0.0209	2.6000e-004	8.4100e-003	4.2000e-004	8.8300e-003	2.4300e-003	4.0000e-004	2.8400e-003	0.0000	25.2532	25.2532	9.0000e-005	3.6700e-003	26.3487
Worker	0.0166	0.0117	0.1352	3.8000e-004	0.0438	2.4000e-004	0.0441	0.0117	2.2000e-004	0.0119	0.0000	35.3162	35.3162	1.1200e-003	1.0400e-003	35.6536
Total	**0.0184**	**0.0754**	**0.1560**	**6.4000e-004**	**0.0522**	**6.6000e-004**	**0.0529**	**0.0141**	**6.2000e-004**	**0.0147**	**0.0000**	**60.5693**	**60.5693**	**1.2100e-003**	**4.7100e-003**	**62.0023**

3.4 Building Construction - 2025

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	0.0365	0.2946	0.3432	6.1000e-004		0.0115	0.0115		0.0110	0.0110	0.0000	50.8952	50.8952	9.3300e-003	0.0000	51.1285
Total	**0.0365**	**0.2946**	**0.3432**	**6.1000e-004**		**0.0115**	**0.0115**		**0.0110**	**0.0110**	**0.0000**	**50.8952**	**50.8952**	**9.3300e-003**	**0.0000**	**51.1285**

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

3.4 Building Construction - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.1000e-004	0.0180	5.8300e-003	7.0000e-005	2.4100e-003	1.2000e-004	2.5300e-003	7.0000e-004	1.1000e-004	8.1000e-004	0.0000	7.1084	7.1084	3.0000e-005	1.0300e-003	7.4156
Worker	4.4200e-003	2.9800e-003	0.0360	1.0000e-004	0.0126	7.0000e-005	0.0126	3.3400e-003	6.0000e-005	3.4000e-003	0.0000	9.8737	9.8737	2.9000e-004	2.8000e-004	9.9634
Total	**4.9300e-003**	**0.0210**	**0.0418**	**1.7000e-004**	**0.0150**	**1.9000e-004**	**0.0152**	**4.0400e-003**	**1.7000e-004**	**4.2100e-003**	**0.0000**	**16.9821**	**16.9821**	**3.2000e-004**	**1.3100e-003**	**17.3790**

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	0.0365	0.2946	0.3432	6.1000e-004		0.0115	0.0115		0.0110	0.0110	0.0000	50.8951	50.8951	9.3300e-003	0.0000	51.1284
Total	**0.0365**	**0.2946**	**0.3432**	**6.1000e-004**		**0.0115**	**0.0115**		**0.0110**	**0.0110**	**0.0000**	**50.8951**	**50.8951**	**9.3300e-003**	**0.0000**	**51.1284**

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

3.4 Building Construction - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.1000e-004	0.0180	5.8300e-003	7.0000e-005	2.4100e-003	1.2000e-004	2.5300e-003	7.0000e-004	1.1000e-004	8.1000e-004	0.0000	7.1084	7.1084	3.0000e-005	1.0300e-003	7.4156
Worker	4.4200e-003	2.9800e-003	0.0360	1.0000e-004	0.0126	7.0000e-005	0.0126	3.3400e-003	6.0000e-005	3.4000e-003	0.0000	9.8737	9.8737	2.9000e-004	2.8000e-004	9.9634
Total	**4.9300e-003**	**0.0210**	**0.0418**	**1.7000e-004**	**0.0150**	**1.9000e-004**	**0.0152**	**4.0400e-003**	**1.7000e-004**	**4.2100e-003**	**0.0000**	**16.9821**	**16.9821**	**3.2000e-004**	**1.3100e-003**	**17.3790**

3.5 Paving - 2025

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	3.9300e-003	0.0372	0.0584	9.0000e-005		1.7500e-003	1.7500e-003		1.6200e-003	1.6200e-003	0.0000	7.7565	7.7565	2.4600e-003	0.0000	7.8179
Paving	1.0500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.9800e-003**	**0.0372**	**0.0584**	**9.0000e-005**		**1.7500e-003**	**1.7500e-003**		**1.6200e-003**	**1.6200e-003**	**0.0000**	**7.7565**	**7.7565**	**2.4600e-003**	**0.0000**	**7.8179**

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

3.5 Paving - 2025

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	2.1000e-004	1.4000e-004	1.6900e-003	0.0000	5.9000e-004	0.0000	5.9000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.4650	0.4650	1.0000e-005	1.0000e-005	0.4692
Total	**2.1000e-004**	**1.4000e-004**	**1.6900e-003**	**0.0000**	**5.9000e-004**	**0.0000**	**5.9000e-004**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**0.4650**	**0.4650**	**1.0000e-005**	**1.0000e-005**	**0.4692**

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	3.9300e-003	0.0372	0.0584	9.0000e-005		1.7500e-003	1.7500e-003		1.6200e-003	1.6200e-003	0.0000	7.7565	7.7565	2.4600e-003	0.0000	7.8179
Paving	1.0500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.9800e-003**	**0.0372**	**0.0584**	**9.0000e-005**		**1.7500e-003**	**1.7500e-003**		**1.6200e-003**	**1.6200e-003**	**0.0000**	**7.7565**	**7.7565**	**2.4600e-003**	**0.0000**	**7.8179**

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

3.5 Paving - 2025

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	2.1000e-004	1.4000e-004	1.6900e-003	0.0000	5.9000e-004	0.0000	5.9000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.4650	0.4650	1.0000e-005	1.0000e-005	0.4692
Total	**2.1000e-004**	**1.4000e-004**	**1.6900e-003**	**0.0000**	**5.9000e-004**	**0.0000**	**5.9000e-004**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**0.4650**	**0.4650**	**1.0000e-005**	**1.0000e-005**	**0.4692**

3.6 Architectural Coating - 2025

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	8.5000e-004	5.7300e-003	9.0500e-003	1.0000e-005		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004	0.0000	1.2766	1.2766	7.0000e-005	0.0000	1.2784
Total	**8.5000e-004**	**5.7300e-003**	**9.0500e-003**	**1.0000e-005**		**2.6000e-004**	**2.6000e-004**		**2.6000e-004**	**2.6000e-004**	**0.0000**	**1.2766**	**1.2766**	**7.0000e-005**	**0.0000**	**1.2784**

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

3.6 Architectural Coating - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8000e-004	1.2000e-004	1.4700e-003	0.0000	5.1000e-004	0.0000	5.2000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.4030	0.4030	1.0000e-005	1.0000e-005	0.4067
Total	**1.8000e-004**	**1.2000e-004**	**1.4700e-003**	**0.0000**	**5.1000e-004**	**0.0000**	**5.2000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**0.4030**	**0.4030**	**1.0000e-005**	**1.0000e-005**	**0.4067**

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	8.5000e-004	5.7300e-003	9.0500e-003	1.0000e-005		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004	0.0000	1.2766	1.2766	7.0000e-005	0.0000	1.2784
Total	**8.5000e-004**	**5.7300e-003**	**9.0500e-003**	**1.0000e-005**		**2.6000e-004**	**2.6000e-004**		**2.6000e-004**	**2.6000e-004**	**0.0000**	**1.2766**	**1.2766**	**7.0000e-005**	**0.0000**	**1.2784**

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

3.6 Architectural Coating - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8000e-004	1.2000e-004	1.4700e-003	0.0000	5.1000e-004	0.0000	5.2000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.4030	0.4030	1.0000e-005	1.0000e-005	0.4067
Total	**1.8000e-004**	**1.2000e-004**	**1.4700e-003**	**0.0000**	**5.1000e-004**	**0.0000**	**5.2000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**0.4030**	**0.4030**	**1.0000e-005**	**1.0000e-005**	**0.4067**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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	0.1700	0.3421	1.5404	3.2400e-003	0.3094	3.8500e-003	0.3132	0.0829	3.6300e-003	0.0865	0.0000	306.0574	306.0574	0.0181	0.0187	312.0762
Unmitigated	0.1700	0.3421	1.5404	3.2400e-003	0.3094	3.8500e-003	0.3132	0.0829	3.6300e-003	0.0865	0.0000	306.0574	306.0574	0.0181	0.0187	312.0762

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	293.41	293.41	293.41	835,443	835,443
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	293.41	293.41	293.41	835,443	835,443

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
Apartments Mid Rise	10.80	7.30	7.50	41.00	21.20	37.80	86	11	3
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	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
Apartments Mid Rise	0.504547	0.051683	0.175019	0.141516	0.044240	0.010664	0.006436	0.029741	0.000646	0.000000	0.029297	0.001351	0.004860
Other Non-Asphalt Surfaces	0.504547	0.051683	0.175019	0.141516	0.044240	0.010664	0.006436	0.029741	0.000646	0.000000	0.029297	0.001351	0.004860

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

Parking Lot	0.504547	0.051683	0.175019	0.141516	0.044240	0.010664	0.006436	0.029741	0.000646	0.000000	0.029297	0.001351	0.004860

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	23.4170	23.4170	3.7900e-003	4.6000e-004	23.6486
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	23.4170	23.4170	3.7900e-003	4.6000e-004	23.6486
NaturalGas Mitigated	3.8700e-003	0.0331	0.0141	2.1000e-004		2.6800e-003	2.6800e-003		2.6800e-003	2.6800e-003	0.0000	38.3478	38.3478	7.3000e-004	7.0000e-004	38.5756
NaturalGas Unmitigated	3.8700e-003	0.0331	0.0141	2.1000e-004		2.6800e-003	2.6800e-003		2.6800e-003	2.6800e-003	0.0000	38.3478	38.3478	7.3000e-004	7.0000e-004	38.5756

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					
Apartments Mid Rise	718610	3.8700e-003	0.0331	0.0141	2.1000e-004		2.6800e-003	2.6800e-003		2.6800e-003	2.6800e-003	0.0000	38.3478	38.3478	7.3000e-004	7.0000e-004	38.5756
Other Non-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
Total		**3.8700e-003**	**0.0331**	**0.0141**	**2.1000e-004**		**2.6800e-003**	**2.6800e-003**		**2.6800e-003**	**2.6800e-003**	**0.0000**	**38.3478**	**38.3478**	**7.3000e-004**	**7.0000e-004**	**38.5756**

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					
Apartments Mid Rise	718610	3.8700e-003	0.0331	0.0141	2.1000e-004		2.6800e-003	2.6800e-003		2.6800e-003	2.6800e-003	0.0000	38.3478	38.3478	7.3000e-004	7.0000e-004	38.5756
Other Non-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
Total		**3.8700e-003**	**0.0331**	**0.0141**	**2.1000e-004**		**2.6800e-003**	**2.6800e-003**		**2.6800e-003**	**2.6800e-003**	**0.0000**	**38.3478**	**38.3478**	**7.3000e-004**	**7.0000e-004**	**38.5756**

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			
Apartments Mid Rise	240632	22.2642	3.6000e-003	4.4000e-004	22.4844
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	12460	1.1529	1.9000e-004	2.0000e-005	1.1643
Total		**23.4171**	**3.7900e-003**	**4.6000e-004**	**23.6486**

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			
Apartments Mid Rise	240632	22.2642	3.6000e-003	4.4000e-004	22.4844
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	12460	1.1529	1.9000e-004	2.0000e-005	1.1643
Total		**23.4171**	**3.7900e-003**	**4.6000e-004**	**23.6486**

6.0 Area Detail

6.1 Mitigation Measures Area

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	0.2749	5.2200e-003	0.4533	2.0000e-005		2.5100e-003	2.5100e-003		2.5100e-003	2.5100e-003	0.0000	0.7415	0.7415	7.1000e-004	0.0000	0.7593
Unmitigated	0.2749	5.2200e-003	0.4533	2.0000e-005		2.5100e-003	2.5100e-003		2.5100e-003	2.5100e-003	0.0000	0.7415	0.7415	7.1000e-004	0.0000	0.7593

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	0.0198					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2415					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0137	5.2200e-003	0.4533	2.0000e-005		2.5100e-003	2.5100e-003		2.5100e-003	2.5100e-003	0.0000	0.7415	0.7415	7.1000e-004	0.0000	0.7593
Total	**0.2749**	**5.2200e-003**	**0.4533**	**2.0000e-005**		**2.5100e-003**	**2.5100e-003**		**2.5100e-003**	**2.5100e-003**	**0.0000**	**0.7415**	**0.7415**	**7.1000e-004**	**0.0000**	**0.7593**

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	0.0198					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2415					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0137	5.2200e-003	0.4533	2.0000e-005		2.5100e-003	2.5100e-003		2.5100e-003	2.5100e-003	0.0000	0.7415	0.7415	7.1000e-004	0.0000	0.7593
Total	**0.2749**	**5.2200e-003**	**0.4533**	**2.0000e-005**		**2.5100e-003**	**2.5100e-003**		**2.5100e-003**	**2.5100e-003**	**0.0000**	**0.7415**	**0.7415**	**7.1000e-004**	**0.0000**	**0.7593**

7.0 Water Detail

7.1 Mitigation Measures Water

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

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	3.2652	0.6069	3.1100e-003	19.3640
Unmitigated	3.2652	0.6069	3.1100e-003	19.3640

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	3.9744 / 2.5056	3.2652	0.6069	3.1100e-003	19.3640
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**3.2652**	**0.6069**	**3.1100e-003**	**19.3640**

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			
Apartments Mid Rise	3.9744 / 2.5056	3.2652	0.6069	3.1100e-003	19.3640
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**3.2652**	**0.6069**	**3.1100e-003**	**19.3640**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

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	1.4240	0.0842	0.0000	3.5279
Unmitigated	5.6959	0.3366	0.0000	14.1114

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	28.06	5.6959	0.3366	0.0000	14.1114
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**5.6959**	**0.3366**	**0.0000**	**14.1114**

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			
Apartments Mid Rise	7.015	1.4240	0.0842	0.0000	3.5279
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**1.4240**	**0.0842**	**0.0000**	**3.5279**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

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

11.0 Vegetation

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	56.0380	0.0000	0.0000	56.0380

11.2 Net New Trees

Species Class

	Number of Trees	Total CO2	CH4	N2O	CO2e
		MT			
Juniper	25	6.0500	0.0000	0.0000	6.0500
Miscellaneous	67	47.4360	0.0000	0.0000	47.4360
Pine	4	2.5520	0.0000	0.0000	2.5520
Total		**56.0380**	**0.0000**	**0.0000**	**56.0380**

Appendix C:

EMFAC 2017 Output

Calendar Year: 2022
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	Calendar Year	Vehicle Ca	Model Year	Speed	Fuel	Population	Trips	Fuel Consumption	Fuel Consumption	Total Fuel Consumption	VMT	Total VMT	Miles Per Gallon	Vehicle Class
South Coast AQMD	2022	HHDT	Aggregate	Aggregate	Gasoline	77.82251	1557.073	1.914672095	1914.672095	1984478.157	7970.981	13381402.09	**6.74**	HHD
South Coast AQMD	2022	HHDT	Aggregate	Aggregate	Diesel	108362	1118617	1982.563485	1982563.485		13373431			
South Coast AQMD	2022	LDA	Aggregate	Aggregate	Gasoline	6542832	30915701	8178.144259	8178144.259	8226568.36	2.52E+08	254602375.4	**30.95**	LDA
South Coast AQMD	2022	LDA	Aggregate	Aggregate	Diesel	58937.5	279973.4	48.42410045	48424.10045		2358230			
South Coast AQMD	2022	LDA	Aggregate	Aggregate	Electricity	127532.6	637025.4	0	0		5177709			
South Coast AQMD	2022	LDT1	Aggregate	Aggregate	Gasoline	736905.6	3399512	1031.447408	1031447.408	1031847.287	27300896	27309932.68	**26.47**	LDT1
South Coast AQMD	2022	LDT1	Aggregate	Aggregate	Diesel	387.1571	1348.408	0.39987912	399.8791198		9037.122			
South Coast AQMD	2022	LDT1	Aggregate	Aggregate	Electricity	5339.042	26794.47	0	0		221507.4			
South Coast AQMD	2022	LDT2	Aggregate	Aggregate	Gasoline	2246303	10535910	3436.155557	3436155.557	3453207.618	84740129	85348125.78	**24.72**	LDT2
South Coast AQMD	2022	LDT2	Aggregate	Aggregate	Diesel	14234.59	70193.22	17.05206088	17052.06088		607996.5			
South Coast AQMD	2022	LDT2	Aggregate	Aggregate	Electricity	22589.96	114302.6	0	0		734756.1			
South Coast AQMD	2022	LHDT1	Aggregate	Aggregate	Gasoline	175903.1	2620694	598.0685493	598068.5493	821513.5103	6298251	11115258.37	**13.53**	LHDT1
South Coast AQMD	2022	LHDT1	Aggregate	Aggregate	Diesel	119380.7	1501659	223.444961	223444.961		4817007			
South Coast AQMD	2022	LHDT2	Aggregate	Aggregate	Gasoline	30009.92	447103.1	113.5150695	113515.0695	209067.0531	1040649	2902289.397	**13.88**	LHDT2
South Coast AQMD	2022	LHDT2	Aggregate	Aggregate	Diesel	47335.63	595422.7	95.55198358	95551.98358		1861640			
South Coast AQMD	2022	MCY	Aggregate	Aggregate	Gasoline	295960.1	591920.2	56.92214589	56922.14589	56922.14589	2072370	2072370.126	**36.41**	MCY
South Coast AQMD	2022	MDV	Aggregate	Aggregate	Gasoline	1579640	7302407	2793.799561	2793799.561	2842944.316	55888916	57233722.8	**20.13**	MDV
South Coast AQMD	2022	MDV	Aggregate	Aggregate	Diesel	33348.92	163526.3	49.14475473	49144.75473		1344806			
South Coast AQMD	2022	MDV	Aggregate	Aggregate	Electricity	11658.48	59625.3	0	0		391944.3			
South Coast AQMD	2022	MH	Aggregate	Aggregate	Gasoline	35097.75	3511.179	64.70410395	64704.10395	76270.38211	333282.4	455641.5746	**5.97**	MH
South Coast AQMD	2022	MH	Aggregate	Aggregate	Diesel	12758.81	1275.881	11.56627815	11566.27815		122359.2			
South Coast AQMD	2022	MHDT	Aggregate	Aggregate	Gasoline	25445.41	509111.8	269.2842176	269284.2176	1009568.488	1367743	9307083.084	**9.22**	MHDT
South Coast AQMD	2022	MHDT	Aggregate	Aggregate	Diesel	123310	1231988	740.28427	740284.27		7939340			
South Coast AQMD	2022	OBUS	Aggregate	Aggregate	Gasoline	5959.443	119236.5	49.67589796	49675.89796	88138.04214	250653.5	576603.5972	**6.54**	OBUS
South Coast AQMD	2022	OBUS	Aggregate	Aggregate	Diesel	4274.499	41607.39	38.46214418	38462.14418		325950.1			
South Coast AQMD	2022	SBUS	Aggregate	Aggregate	Gasoline	2630.829	10523.32	11.7605267	11760.5267	39328.1885	107369.8	316915.9173	**8.06**	SBUS
South Coast AQMD	2022	SBUS	Aggregate	Aggregate	Diesel	6631.313	76524.43	27.5676618	27567.6618		209546.1			
South Coast AQMD	2022	UBUS	Aggregate	Aggregate	Gasoline	952.146	3808.584	18.40085629	18400.85629	18647.65249	89256	90734.08386	**4.87**	UBUS
South Coast AQMD	2022	UBUS	Aggregate	Aggregate	Diesel	14.14142	56.56567	0.246796198	246.7961984		1478.086			
South Coast AQMD	2022	UBUS	Aggregate	Aggregate	Electricity	17.11694	68.46776	0			1343.185			

Source: EMFAC2017 (v1.0.3) Emissions Inventory
Region Type: Air District
Region: South Coast AQMD
Calendar Year: 2023
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	Calendar Y	Vehicle Cat	Model Year	Speed	Fuel	Population	VMT	Trips	Fuel Consumption	Fuel Consumption	Total Fuel Consumption	VMT	Total VMT	Miles Per Gallon	Vehicle Class
South Coas	2023	HHDT	Aggregate	Aggregate	Gasoline	75.10442936	8265.097	1502.689	1.936286145	1936.286145	1913466.474	8265.097	13656273.03	7.14	**HHD**
South Coas	2023	HHDT	Aggregate	Aggregate	Diesel	109818.6753	13648008	1133618	1911.530188	1911530.188		13648008			
South Coas	2023	LDA	Aggregate	Aggregate	Gasoline	6635002.295	2.53E+08	31352477	7971.24403	7971244.03	8020635.698	2.53E+08	255180358.3	31.82	**LDA**
South Coas	2023	LDA	Aggregate	Aggregate	Diesel	62492.97958	2469816	297086.6	49.3916685	49391.6685		2469816			
South Coas	2023	LDA	Aggregate	Aggregate	Electricity	150700.3971	6237106	751566	0	0		6237106			
South Coas	2023	LDT1	Aggregate	Aggregate	Gasoline	758467.6481	27812996	3504563	1023.913006	1023913.006	1024279.466	27812996	27821405.09	27.16	**LDT1**
South Coas	2023	LDT1	Aggregate	Aggregate	Diesel	360.7799144	8408.618	1256.88	0.366459477	366.4594769		8408.618			
South Coas	2023	LDT1	Aggregate	Aggregate	Electricity	7122.93373	303507.5	35798.19	0	0		303507.5			
South Coas	2023	LDT2	Aggregate	Aggregate	Gasoline	2285150.139	85272416	10723315	3338.798312	3338798.312	3356536.438	85272416	85922778.34	25.60	**LDT2**
South Coas	2023	LDT2	Aggregate	Aggregate	Diesel	15594.68309	650362.8	76635.83	17.73812611	17738.12611		650362.8			
South Coas	2023	LDT2	Aggregate	Aggregate	Electricity	28809.63735	917592.8	145405.4	0	0		917592.8			
South Coas	2023	LHDT1	Aggregate	Aggregate	Gasoline	174910.3847	6216643	2605904	583.3851736	583385.1736	811563.1022	6216643	11211395.79	13.81	**LHDT1**
South Coas	2023	LHDT1	Aggregate	Aggregate	Diesel	125545.0822	4994753	1579199	228.1779285	228177.9285		4994753			
South Coas	2023	LHDT2	Aggregate	Aggregate	Gasoline	30102.75324	1034569	448486.2	111.5753864	111575.3864	209423.5025	1034569	2969599.008	14.18	**LHDT2**
South Coas	2023	LHDT2	Aggregate	Aggregate	Diesel	50003.13116	1935030	628976.5	97.84811618	97848.11618		1935030			
South Coas	2023	MCY	Aggregate	Aggregate	Gasoline	305044.5141	2104624	610089	57.849018	57849.018	57849.018	2104624	2104623.657	36.38	**MCY**
South Coas	2023	MDV	Aggregate	Aggregate	Gasoline	1589862.703	55684188	7354860	2693.883526	2693883.526	2744536.341	55684188	57109879.73	20.81	**MDV**
South Coas	2023	MDV	Aggregate	Aggregate	Diesel	36128.1019	1425691	176566.9	50.65281491	50652.81491		1425691			
South Coas	2023	MDV	Aggregate	Aggregate	Electricity	16376.67653	537591.7	83475.95	0	0		537591.7			
South Coas	2023	MH	Aggregate	Aggregate	Gasoline	34679.50542	330042.9	3469.338	63.26295123	63262.95123	74893.26955	330042.9	454344.9436	6.07	**MH**
South Coas	2023	MH	Aggregate	Aggregate	Diesel	13122.69387	124302	1312.269	11.63031832	11630.31832		124302			
South Coas	2023	MHDT	Aggregate	Aggregate	Gasoline	25624.3151	1363694	512691.3	265.2060557	265206.0557	989975.6425	1363694	9484317.768	9.58	**MHDT**
South Coas	2023	MHDT	Aggregate	Aggregate	Diesel	122124.488	8120623	1221858	724.7695868	724769.5868		8120623			
South Coas	2023	OBUS	Aggregate	Aggregate	Gasoline	5955.291639	245774	119153.5	48.07750689	48077.50689	86265.88761	245774	579743.8353	6.72	**OBUS**
South Coas	2023	OBUS	Aggregate	Aggregate	Diesel	4286.940093	333969.8	41558.29	38.18838072	38188.38072		333969.8			
South Coas	2023	SBUS	Aggregate	Aggregate	Gasoline	2783.643068	112189.6	11134.57	12.19474692	12194.74692	39638.85935	112189.6	323043.5203	8.15	**SBUS**
South Coas	2023	SBUS	Aggregate	Aggregate	Diesel	6671.825716	210853.9	76991.94	27.44411242	27444.11242		210853.9			
South Coas	2023	UBUS	Aggregate	Aggregate	Gasoline	957.7686184	89782.63	3831.074	17.62416327	17624.16327	17863.66378	89782.63	91199.2533	5.11	**UBUS**
South Coas	2023	UBUS	Aggregate	Aggregate	Diesel	13.00046095	1416.622	52.00184	0.239500509	239.5005093		1416.622			
South Coas	2023	UBUS	Aggregate	Aggregate	Electricity	16.11693886	1320.163	64.46776	0			1320.163			