APPENDIX 8

Whittier Residential

Energy Analysis

City of Whittier

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TABLE OF CONTENTS

APPENDICES

LIST OF EXHIBITS

LIST OF TABLES

LIST OF ABREVIATED TERMS

%	Percent
(1)	Reference
AQIA	*Air Quality Impact Analysis*
BTU	British Thermal Units
CalEEMod	California Emissions Estimator Model
CARB	California Air Resources Board
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act
City	City of Whittier
CPUC	California Public Utilities Commission
EIA	Energy Information Administration
EPA	Environmental Protection Agency
EMFAC	EMissions FACtor
FERC	Federal Energy Regulatory Commission
GHG	Greenhouse Gas
GWh	Gigawatt Hour
HHDT	Heavy-Heavy Duty Trucks
IEPR	Integrated Energy Policy Report
ISO	Independent Service Operator
ISTEA	Intermodal Surface Transportation Efficiency Act
kWh	Kilowatt Hour
LDA	Light Duty Auto
LDT1/LDT2	Light-Duty Trucks
LHDT1/LHDT2	Light-Heavy Duty Trucks
MDV	Medium Duty Trucks
MHDT	Medium-Heavy Duty Trucks
MMcfd	Million Cubic Feet Per Day
mpg	Miles Per Gallon
PG&E	Pacific Gas and Electric
Project	Whittier Residential
SCE	Southern California Edison
sf	Square Feet
SoCalGas	Southern California Gas
TEA-21	Transportation Equity Act for the 21st Century
VMT	Vehicle Miles Traveled

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EXECUTIVE SUMMARY

The results of this *Whittier Residential Energy Analysis* is summarized below based on the significance criteria in Section 3 of this report consistent with Appendix G of the 2019 California Environmental Quality Act (CEQA) Statute and Guidelines (*CEQA Guidelines*) (1). Table ES-1 shows the findings of significance for potential energy impacts under CEQA.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
Energy Impact #1: Would the Project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	4.6	*Less Than Significant*	*n/a*
Energy Impact #2: Would the Project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	4.6	*Less Than Significant*	*n/a*

ES.2 PROJECT REQUIREMENTS

The Project would be required to comply with regulations imposed by the federal and state agencies that regulate energy use and consumption through various means and programs. Those that are directly and indirectly applicable to the Project and that would assist in the reduction of energy usage include:

- Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA)
- The Transportation Equity Act for the 21st Century (TEA-21)
- Integrated Energy Policy Report (IEPR)
- State of California Energy Plan
- California Code Title 24, Part 6, Energy Efficiency Standards – Energy Code
- California Code Title 24, Part 11, Green Building Standards - CalGreen
- AB 1493 Pavley Regulations and Fuel Efficiency Standards
- California's Renewable Portfolio Standard (RPS)
- Clean Energy and Pollution Reduction Act of 2015 (SB 350)

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1 INTRODUCTION

This report presents the results of the energy analysis prepared by Urban Crossroads, Inc., for the proposed Whittier Residential (Project). The purpose of this report is to ensure that energy implication is considered by the City of Whittier (Lead Agency), as the lead agency, and to quantify anticipated energy usage associated with construction and operation of the proposed Project, determine if the usage amounts are efficient, typical, or wasteful for the land use type, and to emphasize avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy.

1.1 SITE LOCATION

The proposed Whittier Residential ("Project") is located south of Philadelphia Street and west of Comstock Avenue in the City of Whittier. The Project's location in relation to the surrounding area is shown on Exhibit 1-A.

The Project site is generally surrounded by commercial, medical, and residential land uses, with the nearest residential land use is approximately 36 feet west of the Project site and the Whittier Hospital Women's Health Center is located 80 feet north of the Project site.

1.2 PROJECT DESCRIPTION

Exhibit 1-B illustrates the preliminary Project site plan. The proposed Project consists of the development of a 52-unit multifamily development within a single four-story building with units ranging from studios to two bedrooms.

EXHIBIT 1-A: LOCATION MAP

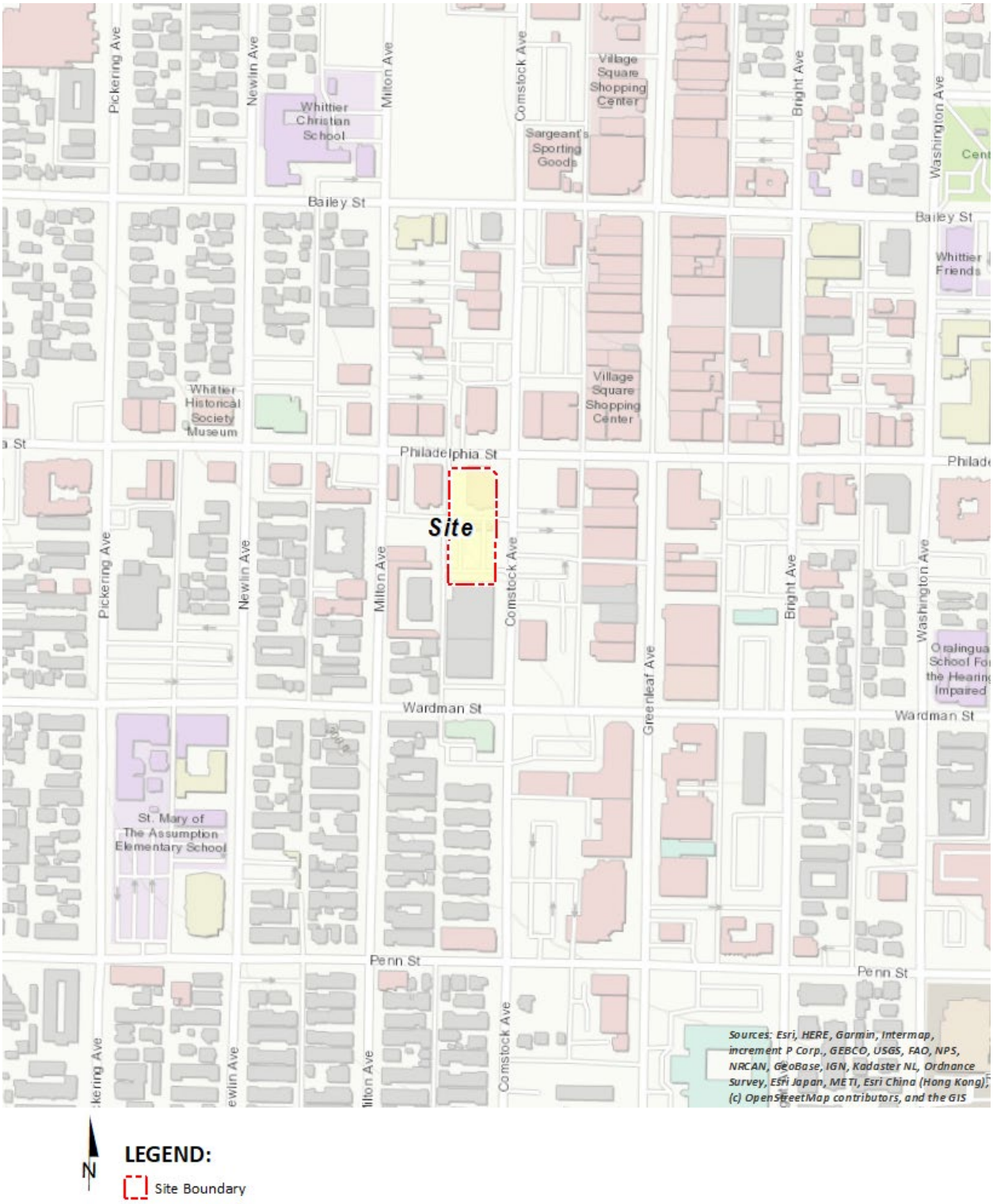
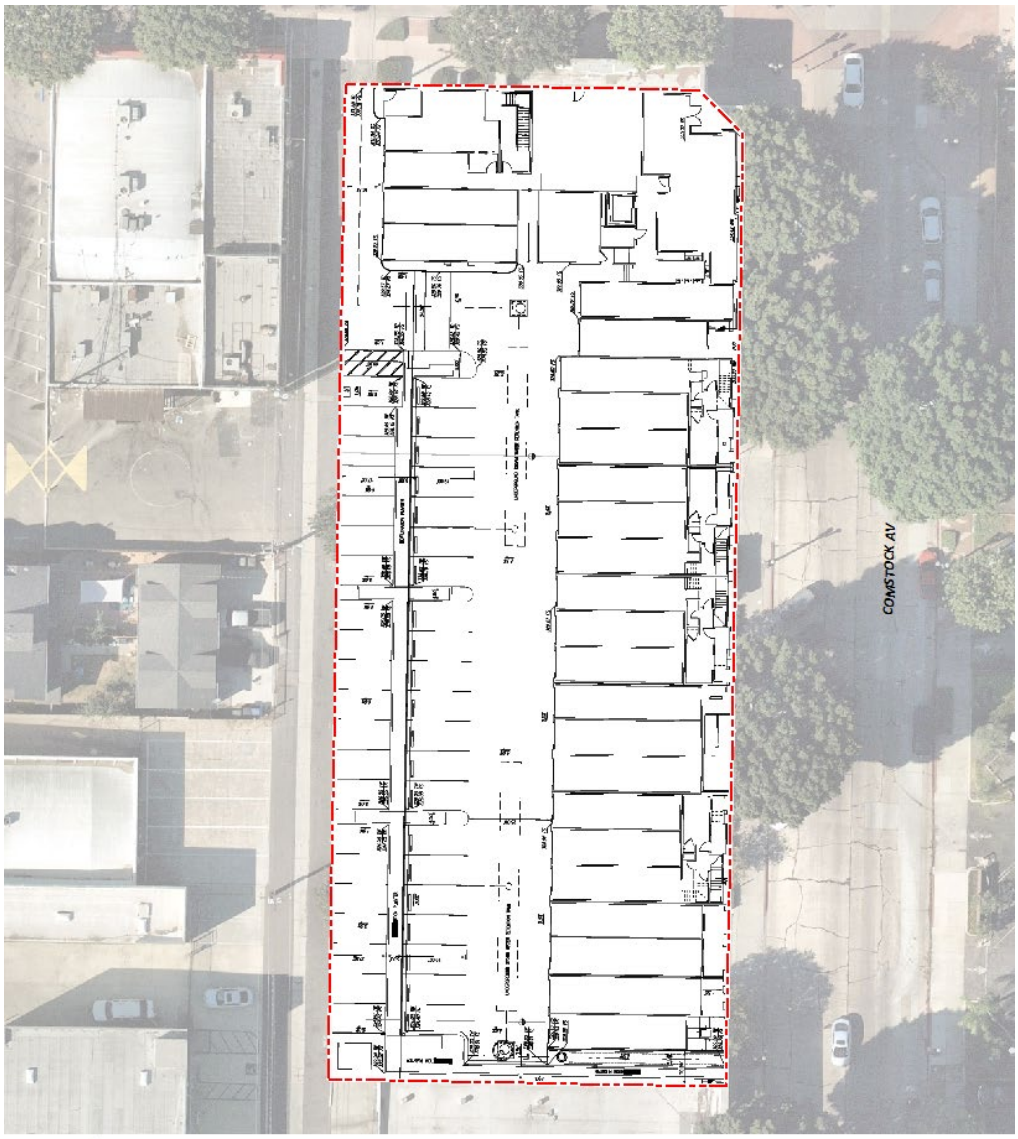


EXHIBIT 1-B: SITE PLAN



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2 EXISTING CONDITIONS

This section provides an overview of the existing energy conditions in the Project region.

2.1 OVERVIEW

The most recent data for California's estimated total energy consumption and natural gas consumption is from 2018, released by the United States (U.S.) Energy Information Administration's (EIA) California State Profile and Energy Estimates in 2020 and included (2):

- Approximately 7,900 trillion British Thermal Unit (BTU) of energy was consumed;
- Approximately 3,444 trillion BTU of petroleum;
- Approximately 2,210 trillion BTU of natural gas;
- Approximately 33.3 trillion BTU coal (2)

The California Energy Commission's (CEC) Transportation Energy Demand Forecast 2018-2030 was released in order to support the 2017 Integrated Energy Policy Report. The Transportation energy Demand Forecast 2018-2030 lays out graphs and data supporting their projections of California's future transportation energy demand. The projected inputs consider expected variable changes in fuel prices, income, population, and other variables. Predictions regarding fuel demand included:

Gasoline demand in the transportation sector is expected to decline from approximately 15.8 billion gallons in 2017 to between 12.3 billion and 12.7 billion gallons in 2030 (3)
Diesel demand in the transportation sector is expected to rise, increasing from approximately 3.7 billion diesel gallons in 2015 to approximately 4.7 billion in 2030 (3)

- Data from the Department of Energy states that approximately 3.9 billion gallons of diesel fuel were consumed in 2017 (4)

The most recent data provided by the EIA for energy use in California by demand sector is from 2017 and is reported as follows:

Approximately 40.3% transportation;
Approximately 23.1% industrial;
Approximately 18.0% residential; and
Approximately 18.7% commercial (5)

The most recent data provided by the EIA for energy use in California by demand sector is from 2018 and is reported as follows:

- Approximately 39.1% transportation;
- Approximately 23.5% industrial;
- Approximately 18.3% residential; and
- Approximately 19.2% commercial (5)

In 2020, total system electric generation for California was 277,704 gigawatt hours (GWh). California's massive electricity in-state generation system generated approximately 200,475 GWh which accounted for approximately 72.2% of the electricity it uses; the rest was imported

from the Pacific Northwest (8.6%) and the U.S. Southwest (19.2%) (6). Natural gas is the main source for electricity generation at 34.23% of the total in-state electric generation system power as shown in Table 2-1. Renewables account for 31.7% of the total electrical system power.

TABLE 2-1: TOTAL ELECTRICITY SYSTEM POWER (CALIFORNIA 2020)

Fuel Type	California In-State Generation (GWh)	Percent of California In-State Generation	Northwest Imports (GWh)	Southwest Imports (GWh)	Total California Energy Mix (GWh)	Total California Power Mix
Coal	317	0.17%	194	6,963	7,474	2.74%
Natural Gas	92,298	48.35%	70	8,654	101,022	37.06%
Oil	30	0.02%	-	-	30	0.01%
Other	384	0.20%	125	9	518	0.19%
Nuclear	16,280	8.53%	672	8,481	25,434	9.33%
Large Hydro	17,938	9.40%	14,078	1,259	33,275	12.21%
Unspecified	0	0.00%	12,870	1,745	14,615	5.36%
Total Non-Renewables and Unspecified Energy	127,248	66.65%	28,009	27,111	182,368	66.91%
Biomass	5,680	2.97%	975	25	6,679	2.45%
Geothermal	11,345	5.94%	166	1,825	13,336	4.89%
Small Hydro	3,476	1.82%	320	2	3,798	1.39%
Solar	29,456	15.43%	284	6,312	36,052	13.23%
Wind	13,708	7.18%	11,438	5,197	30,343	11.13%
Total Renewables	63,665	33.35%	13,184	13,359	90,208	33.09%
Total System Energy	190,913	100.00%	41,193	40,471	272,576	100.00%

Source: CEC, 2020 Total System Electric Generation

An updated 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. (7)
- California's total energy consumption is second highest in the nation, but, in 2018, the state's per capita energy consumption was the fourth-lowest, due in part to its mild climate and its energy efficiency programs. (8)
- 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 photovoltaic (PV) and solar thermal installations provided 19% of California's net electricity generation (9).

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

2.2 ELECTRICITY

The usage associated with electricity use were calculated using the California Emissions Estimator Model (CalEEMod) Version 2020.4.0. The Southern California region's electricity reliability has been of concern for the past several years due to the planned retirement of aging facilities that depend upon once-through cooling technologies, as well as the June 2013 retirement of the San Onofre Nuclear Generating Station (San Onofre). While the once-through cooling phase-out has been ongoing since the May 2010 adoption of the State Water Resources Control Board's once-through cooling policy, the retirement of San Onofre complicated the situation. California Independent Service Operator (ISO) studies revealed the extent to which the South California Air Basin and the San Diego Air Basin region were vulnerable to low-voltage and post-transient voltage instability concerns. A preliminary plan to address these issues was detailed in the 2013 Integrative Energy Policy Report (IEPR) after a collaborative process with other energy agencies, utilities, and air districts (10). Similarly, the subsequent 2020 IEPR's identifies broad strategies that are aimed at maintaining electricity system reliability.

Electricity is currently provided to the Project by Southern California Edison (SCE). SCE provides electric power to more than 15 million persons in 15 counties and in 180 incorporated cities, within a service area encompassing approximately 50,000 square miles. Based on SCE's 2019 Power Content Label Mix, SCE derives electricity from varied energy resources including: fossil fuels, hydroelectric generators, nuclear power plants, geothermal power plants, solar power generation, and wind farms (11). SCE also purchases from independent power producers and utilities, including out-of-state suppliers (12).

California's electricity industry is an organization of traditional utilities, private generating companies, and state agencies, each with a variety of roles and responsibilities to ensure that electrical power is provided to consumers. The California Independent Service Operator ISO is a nonprofit public benefit corporation and is the impartial operator of the State's wholesale power grid and is charged with maintaining grid reliability, and to direct uninterrupted electrical energy supplies to California's homes and communities. While utilities still own transmission assets, the ISO routes electrical power along these assets, maximizing the use of the transmission system and its power generation resources. The ISO matches buyers and sellers of electricity to ensure that enough power is available to meet demand. To these ends, every five minutes the ISO forecasts electrical demands, accounts for operating reserves, and assigns the lowest cost power plant unit to meet demands while ensuring adequate system transmission capacities and capabilities (13).

Part of the ISO's charge is to plan and coordinate grid enhancements to ensure that electrical power is provided to California consumers. To this end, transmission file annual transmission expansion/modification plans to accommodate the State's growing electrical needs. The ISO

reviews and either approves or denies the proposed additions. In addition, and perhaps most importantly, the ISO works with other areas in the western United States electrical grid to ensure that adequate power supplies are available to the State. In this manner, continuing reliable and affordable electrical power is assured to existing and new consumers throughout the State.

Table 2-2 identifies SCE's specific proportional shares of electricity sources in 2019. As indicated in Table 2-2, the 2019 SCE Power Mix has renewable energy at 35.1% of the overall energy resources. Geothermal resources are at 5.9%, wind power is at 11.5%, large hydroelectric sources are at 7.9%, solar energy is at 16%, and coal is at 0%. (14).

TABLE 2-2: SCE 2019 POWER CONTENT MIX

Energy Resources	2019 SCE Power Mix
Eligible Renewable	**35.10%**
Biomass & waste	0.60%
Geothermal	5.90%
Small Hydroelectric	1.00%
Solar	16.00%
Wind	11.50%
Coal	**0%**
Large Hydroelectric	**7.90%**
Natural Gas	**16.10%**
Nuclear	**8.20%**
Other	**0.10%**
Unspecified Sources of	32.60%
Total	**100%**

* "Unspecified sources of power" means electricity from transactions that are not traceable to specific generation sources.

2.3 NATURAL GAS

The following summary of natural gas customers & volumes, supplies, delivery of supplies, storage, service options, and operations is excerpted from information provided by the California Public Utilities Commission (CPUC).

"The CPUC regulates natural gas utility service for approximately 10.8 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 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 about 4740 million cubic feet per day (MMcfd) of gas to their customers, on average, under normal weather conditions.

The overwhelming majority of natural gas utility customers in California are residential and small commercials 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%.

A significant amount of gas (about 19%, or 1131 MMcfd, of the total forecasted California consumption in 2018) is also directly delivered to some California large volume consumers, without being transported over the regulated utility pipeline system. Those customers, referred to as "bypass" customers, take service directly from interstate pipelines or directly from California producers.

SDG&E and Southwest Gas' southern division are wholesale customers of SoCalGas, i.e., they receive deliveries of gas from SoCalGas and in turn deliver that gas to their own customers. (Southwest Gas also provides natural gas distribution service in the Lake Tahoe area.) Similarly, West Coast Gas, a small gas utility, is a wholesale customer of PG&E. Some other wholesale customers are municipalities like the cities of Palo Alto, Long Beach, and Vernon, which are not regulated by the CPUC.

Natural gas from out-of-state production basins is delivered into California via the interstate natural gas pipeline system. The major interstate pipelines that deliver out-of-state natural gas to California gas utilities are Gas Transmission Northwest Pipeline, Kern River Pipeline, Transwestern Pipeline, El Paso Pipeline, Ruby Pipeline, Mojave Pipeline, and Tuscarora. Another pipeline, the North Baja - Baja Norte Pipeline takes gas off the El Paso Pipeline at the California/Arizona border, and delivers that gas through California into Mexico. While the Federal Energy Regulatory Commission (FERC) regulates the transportation of natural gas on the interstate pipelines, and authorizes rates for that service, the California Public Utilities Commission may participate in FERC regulatory proceedings to represent the interests of California natural gas consumers.

The gas transported to California gas utilities via the interstate pipelines, as well as some of the California-produced gas, is delivered into the PG&E and SoCalGas intrastate natural gas transmission pipelines systems (commonly referred to as California's "backbone" pipeline system). Natural gas on the utilities' backbone pipeline systems is then delivered to the local transmission and distribution pipeline systems, or to natural gas storage fields. Some large volume noncore customers take natural gas delivery directly off the high-pressure backbone and local transmission pipeline systems, while core customers and other noncore customers take delivery off the utilities' distribution pipeline systems. The state's natural gas utilities operate over 100,000 miles of transmission and distribution pipelines, and thousands more miles of service lines.

Bypass customers take most of their deliveries directly off the Kern/Mojave pipeline system, but they also take a significant amount of gas from California production.

PG&E and SoCalGas own and operate several natural gas storage fields that are located within their service territories in northern and southern California, respectively. These storage fields, and four independently owned storage utilities - Lodi Gas Storage, Wild Goose Storage, Central Valley Storage, and Gill Ranch Storage - help meet peak seasonal and daily natural gas demand and allow California natural gas customers to secure natural gas supplies more efficiently. PG&E is a 25% owner of the Gill Ranch Storage field. These storage fields provide a significant amount of infrastructure capacity to help meet California's natural gas requirements, and without these storage fields, California would need much more pipeline capacity in order to meet peak gas requirements.

Prior to the late 1980s, California regulated utilities provided virtually all natural gas services to all their customers. Since then, the Commission has gradually restructured the California gas industry in order to give customers more options while assuring regulatory protections for those customers that wish to, or are required to, continue receiving utility-provided services.

The option to purchase natural gas from independent suppliers is one of the results of this restructuring process. Although the regulated utilities procure natural gas supplies for most core customers, core customers have the option to purchase natural gas from independent natural gas marketers, called "core transport agents" (CTA). Contact information for core transport agents can be found on the utilities' web sites. Noncore customers, on the other hand, make natural gas supply arrangements directly with producers or with marketers.

Another option resulting from the restructuring process occurred in 1993, when the Commission removed the utilities' storage service responsibility for noncore customers, along with the cost of this service from noncore customers' transportation rates. The Commission also encouraged the development of independent storage fields, and in subsequent years, all the independent storage fields in California were established. Noncore customers and marketers may now take storage service from the utility or from an independent storage provider (if available), and pay for that service, or may opt to take no storage service at all. For core customers, the Commission assures that the utility has adequate storage capacity set aside to meet core requirements, and core customers pay for that service.

In a 1997 decision, the Commission adopted PG&E's "Gas Accord", which unbundled PG&E's backbone transmission costs from noncore transportation rates. This decision gave customers and marketers the opportunity to obtain pipeline capacity rights on PG&E's backbone transmission pipeline system, if desired, and pay for that service at rates authorized by the Commission. The Gas Accord also required PG&E to set aside a certain amount of backbone transmission capacity in order to deliver gas to its core customers. Subsequent Commission decisions modified and extended the initial terms of the Gas Accord. The "Gas Accord" framework is still in place today for PG&E's backbone and storage rates and services and is now simply referred to as PG&E Gas Transmission and Storage (GT&S).

In a 2006 decision, the Commission adopted a similar gas transmission framework for Southern California, called the "firm access rights" system. SoCalGas and SDG&E implemented the firm access rights system in 2008, and it is now referred to as the backbone transmission system framework. As under the PG&E backbone transmission system, SoCalGas backbone transmission

costs are unbundled from noncore transportation rates. Noncore customers and marketers may obtain, and pay for, firm backbone transmission capacity at various receipt points on the SoCalGas system. A certain amount of backbone transmission capacity is obtained for core customers to assure meeting their requirements.

Many if not most noncore customers now use a marketer to provide for several of the services formerly provided by the utility. That is, a noncore customer may simply arrange for a marketer to procure its supplies, and obtain any needed storage and backbone transmission capacity, in order to assure that it will receive its needed deliveries of natural gas supplies. Core customers still mainly rely on the utilities for procurement service, but they have the option to take procurement service from a CTA. Backbone transmission and storage capacity is either set aside or obtained for core customers in amounts to assure very high levels of service.

In order properly operate their natural gas transmission pipeline and storage systems, PG&E and SoCalGas must balance the amount of gas received into the pipeline system and delivered to customers or to storage fields. Some of these utilities' storage capacity is dedicated to this service, and under most circumstances, customers do not need to precisely match their deliveries with their consumption. However, when too much or too little gas is expected to be delivered into the utilities' systems, relative to the amount being consumed, the utilities require customers to more precisely match up their deliveries with their consumption. And, if customers do not meet certain delivery requirements, they could face financial penalties. The utilities do not profit from these financial penalties - the amounts are then returned to customers as a whole. If the utilities find that they are unable to deliver all the gas that is expected to be consumed, they may even call for a curtailment of some gas deliveries. These curtailments are typically required for just the largest, noncore customers. It has been many years since there has been a significant curtailment of core customers in California." (15)

As indicated in the preceding discussions, natural gas is available from a variety of in-state and out-of-state sources and is provided throughout the state in response to market supply and demand. Complementing available natural gas resources, biogas may soon be available via existing delivery systems, thereby increasing the availability and reliability of resources in total. The CPUC oversees utility purchases and transmission of natural gas to ensure reliable and affordable natural gas deliveries to existing and new consumers throughout the State.

2.4 TRANSPORTATION ENERGY RESOURCES

The Project would generate additional vehicle trips with resulting consumption of energy resources, predominantly gasoline and diesel fuel. In March 2019, the Department of Motor Vehicles identified 36.4 million registered vehicles in California (16), and those vehicles consume an estimated 17.8 billion gallons of fuel each year[1]. Gasoline (and other vehicle fuels) are commercially provided commodities and would be available to the Project patrons and employees via commercial outlets.

[1] Fuel consumptions estimated utilizing information from EMFAC2017.

California's on-road transportation system includes 394,383 land miles, more than 27.5 million passenger vehicles and light trucks, and almost 8.1 million medium- and heavy-duty vehicles (16). While gasoline consumption has been declining since 2008 it is still by far the dominant fuel. Petroleum comprises about 91% of all transportation energy use, excluding fuel consumed for aviation and most marine vessels (17). Nearly 17.8 billion gallons of on-highway fuel are burned each year, including 14.6 billion gallons of gasoline (including ethanol) and 3.2 billion gallons of diesel fuel (including biodiesel and renewable diesel). In 2019, Californians also used 194 million cubic feet of natural gas as a transportation fuel (18), or the equivalent of 183 billion gallons of gasoline.

3 REGULATORY BACKGROUND

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

3.1 FEDERAL REGULATIONS

3.1.1 INTERMODAL SURFACE TRANSPORTATION EFFICIENCY ACT OF 1991 (ISTEA)

The 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.

3.1.2 THE TRANSPORTATION EQUITY ACT FOR THE 21ST CENTURY (TEA-21)

The 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.

3.2 CALIFORNIA REGULATIONS

3.2.1 INTEGRATED ENERGY POLICY REPORT (IEPR)

Senate Bill 1389 (Bowen, Chapter 568, Statutes of 2002) requires the CEC to prepare a biennial integrated energy policy report that assesses major energy trends and issues facing the state's electricity, natural gas, and 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 (Public Resources Code § 25301a]). 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 IEPR was adopted January 31, 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 including the environmental performance of the electricity generation system, landscape-scale planning, the response to the gas leak at the Aliso Canyon natural gas storage facility, transportation fuel supply reliability issues, updates on Southern California electricity reliability, methane leakage, climate adaptation activities for the energy sector, climate and sea level rise scenarios, and the California Energy Demand Forecast (19). The 2020 IEPR Update is currently in progress but is not anticipated to be adopted until February 2021.

3.2.2 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 several strategies, including assistance to public agencies and fleet operators and encouragement of urban designs that reduce vehicle miles traveled (VMT) and accommodate pedestrian and bicycle access.

3.2.3 CALIFORNIA CODE TITLE 24, PART 6, ENERGY EFFICIENCY STANDARDS

California Code of Regulations (CCR) Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings (Energy Code), was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas (GHG) emissions. The 2019 version of Title 24 was adopted by the CEC and became effective on January 1, 2020. The 2019 Energy Code is applicable to building permit applications submitted on or after January 1, 2020. The 2019 Energy Code requires solar PV systems for new homes, establishes requirements for newly constructed healthcare facilities, encourages demand responsive technologies for residential buildings, and updates indoor and outdoor lighting standards for nonresidential buildings. The CEC anticipates that single-family homes built with the 2019 standards use approximately 7% less energy compared to the residential homes built under the 2016 Energy Code and 53% more efficient with the installation of solar PV systems. Nonresidential buildings are approximately 30% less energy due to lighting upgrades compared to the 2016 Energy Code (20).

3.2.4 AB 1493 PAVLEY REGULATIONS AND FUEL EFFICIENCY STANDARDS

California AB 1493, enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. Under this legislation, CARB adopted regulations to reduce GHG emissions from non-commercial passenger vehicles (cars and light-duty trucks). Although aimed at reducing GHG emissions, specifically, a co-benefit

of the Pavley standards is an improvement in fuel efficiency and consequently a reduction in fuel consumption.

3.2.5 CALIFORNIA'S RENEWABLE PORTFOLIO STANDARD (RPS)

First established in 2002 under Senate Bill (SB) 1078, California's Renewable Portfolio Standards (RPS) requires retail sellers of electric services to increase procurement from eligible renewable resources to 33% of total retail sales by 2020 (21).

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

In October 2015, the legislature approved, and the Governor signed SB 350, which reaffirms California's commitment to reducing its GHG emissions and addressing climate change. Key provisions include an increase in the renewables portfolio standard (RPS), higher energy efficiency requirements for buildings, initial strategies towards a regional electricity grid, and improved infrastructure for electric vehicle charging stations. Specifically, SB 350 requires the following to reduce statewide GHG emissions:

Increase the amount of electricity procured from renewable energy sources from 33% to 50% by 2030, with interim targets of 40% by 2024, and 25% by 2027.
Double the energy efficiency in existing buildings by 2030. This target will be achieved through the California Public Utility Commission (CPUC), the California Energy Commission (CEC), and local publicly owned utilities.
Reorganize the Independent System Operator (ISO) to develop more regional electrify transmission markets and to improve accessibility in these markets, which will facilitate the growth of renewable energy markets in the western United States (California Leginfo 2015).

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4 PROJECT ENERGY DEMANDS AND ENERGY EFFICIENCY MEASURES

4.1 EVALUATION CRITERIA

In compliance with Appendix G of the *State CEQA Guidelines* (22), this report analyzes the project's anticipated energy use during construction and operations to determine if the Project would:

- Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation; or
- Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

4.2 METHODOLOGY

Information from the CalEEMod Version 2020.4.0 outputs for the *Whittier Residential Air Quality Impact Analysis* (Urban Crossroads, Inc.) (AQIA) (23) was utilized in this analysis, detailing Project related construction equipment, transportation energy demands, and facility energy demands.

4.2.1 CALEEMOD

In June 2021, the California Air Pollution Control Officers Association, in conjunction with the California air districts, released the latest version of the CalEEMod Version 2020.4.0. The purpose of this model is to calculate construction-source and operational-source criteria pollutants and GHG emissions from direct and indirect sources as well as energy usage. (24). Accordingly, the latest version of CalEEMod has been used to determine the proposed Project's anticipated transportation and facility energy demands. Output from the annual CalEEMod runs is provided in Appendix 4.1.

4.2.2 EMISSION FACTORS MODEL

On August 19, 2019, the EPA approved the 2017 version of the EMissions FACtor model (EMFAC) web database for use in State Implementation Plan and transportation conformity analyses. EMFAC2017 is a mathematical model that was developed to calculate emission rates, fuel consumption, VMT from motor vehicles that operate on highways, freeways, and local roads in California and is commonly used by the CARB to project changes in future emissions from on-road mobile sources (25). This energy study utilizes the different fuel types for each vehicle class from the annual EMFAC2017 emission inventory in order to derive the average vehicle fuel economy which is then used to determine the estimated annual fuel consumption associated with vehicle usage during Project construction and operational activities. For purposes of analysis, the 2022 and 2023 analysis years were utilized to determine the average vehicle fuel economy for construction and operation the Project, respectively. These are conservative years as fuel efficiencies improve each year over the previous year and energy consumption lowers.

4.3 CONSTRUCTION ENERGY DEMANDS

4.3.1 CONSTRUCTION POWER COST AND ELECTRICITY USAGE

The focus within this section is the energy implications of the construction process, specifically the power cost from on-site electricity consumption during construction of the proposed Project.

CONSTRUCTION DURATION

Construction is expected to commence in November 2022 and will last through April 2023. The construction schedule utilized in the analysis, shown in Table 4-1, represents a "worst-case" analysis scenario should construction occur any time after the respective dates since emission factors for construction decrease as time passes and the analysis year increases due to emission regulations becoming more stringent.[2] The duration of construction activity and associated equipment represents a reasonable approximation of the expected construction fleet as required per CEQA Guidelines. The duration of construction activities was based on the Project Applicant's schedule.

TABLE 4-1: CONSTRUCTION DURATION

Phase Name	Start Date	End Date	Days
Demolition	11/1/2022	11/14/2022	10
Site Preparation	11/15/2022	11/15/2022	1
Grading	11/16/2022	11/17/2022	2
Building Construction	11/18/2022	4/6/2023	100
Paving	3/31/2023	4/6/2023	5
Architectural Coating	3/31/2023	4/6/2023	5

Source: CalEEMod, Appendix 4.1.

Based on the *2021 National Construction Estimator*, Richard Pray (2021) (26), the typical power cost per 1,000 sf of construction per month is estimated to be $2.37. Based on the Project plans, the proposed Project includes the development of approximately 52,000 sf residential land uses. Based on information provided in the AQIA, construction activities are anticipated to occur over the course of 5 months (23). Based on Table 4-2, the total power cost of the on-site electricity usage during the construction of the Project is estimated to be approximately $616.20.

TABLE 4-2: CONSTRUCTION POWER COST

Land Use	Power Cost (per 1,000 SF of building per month of construction)	Total Building Size (1,000 SF)	Construction Duration (months)	Total Project Construction Power Cost
Apartment	$2.37	52.000	5	$616.20
			TOTAL PROJECT CONSTRUCTION COST	***$616.20***

[2] As shown in the CalEEMod User's Guide Version 2020.4.0, Section 4.3 "Offroad Equipment" as the analysis year increases, emission factors for the same equipment pieces decrease due to the natural turnover of older equipment being replaced by newer less polluting equipment and new regulatory requirements.

The SCE's general service rate schedule were used to determine the Project's electrical usage. As of June 1, 2021, SCE's general service rate is $0.13 per kilowatt hours (kWh) of electricity for residential services (27). As shown on Table 4-3, the total electricity usage from on-site Project construction related activities is estimated to be approximately 4,930 kWh.

TABLE 4-3: CONSTRUCTION ELECTRICITY USAGE

Land Use	Cost per kWh	Total Project Construction Electricity Usage (kWh)
Apartment	$0.13	4,930
TOTAL PROJECT CONSTRUCTION ELECTRICTY USAGE (kWh)		***4,930***

4.3.2 CONSTRUCTION EQUIPMENT FUEL ESTIMATES

Fuel consumed by construction equipment would be the primary energy resource expended over the course of Project construction.

CONSTRUCTION EQUIPMENT

Consistent with industry standards and typical construction practices, each piece of equipment listed in Table 4-4 will operate up to a total of eight (8) hours per day, or more than two-thirds of the period during which construction activities are allowed pursuant to the code. It should be noted that most pieces of equipment would likely operate for fewer hours per day. A summary of construction equipment assumptions by phase is provided at Table 4-4.

Project construction activity timeline estimates, construction equipment schedules, equipment power ratings, load factors, and associated fuel consumption estimates are presented in Table 4-5. Eight-hour daily use of all equipment is assumed. The aggregate fuel consumption rate for all equipment is estimated at 49.5 horsepower hour per gallon (hp-hr-gal.), obtained from CARB's Offroad emissions model fleetwide average fuel consumption for the South Coast Air Basin.

TABLE 4-4: CONSTRUCTION EQUIPMENT ASSUMPTIONS

Phase Name	Equipment	Amount	Hours Per Day
Demolition	Concrete/Industrial Saws	1	8
	Rubber Tired Dozers	1	8
	Tractors/Loaders/Backhoes	2	8
Site Preparation	Crawler Tractors	1	8
	Graders	1	8
Grading	Crawler Tractors	1	8
	Graders	1	8
	Rubber Tired Dozers	1	8
Building Construction	Cranes	1	8
	Forklifts	2	8
	Tractors/Loaders/Backhoes	2	8
Paving	Cement and Mortar Mixers	4	8
	Pavers	1	8
	Rollers	1	8
	Tractors/Loaders/Backhoes	1	8
Architectural Coating	Air Compressors	1	8

Source: CalEEMod, Appendix 4.1

Calculations assume all construction equipment is diesel-powered consistent with industry standards. Diesel fuel would be supplied by existing commercial fuel providers serving the City and region. As presented in Table 4-5, Project construction activities would consume an estimated 3,420 gallons of diesel fuel. Project construction would represent a “single-event” diesel fuel demand and would not require on-going or permanent commitment of diesel fuel resources for this purpose.

TABLE 4-5: CONSTRUCTION EQUIPMENT FUEL CONSUMPTION ESTIMATES

Activity/Duration	Duration (Days)	Equipment	HP Rating	Quantity	Usage Hours	Load Factor	HP-hrs/day	Total Fuel Consumption (gal. diesel fuel)
Demolition	10	Concrete/Industrial Saws	81	1	8	0.73	473	96
		Rubber Tired Dozers	247	1	8	0.40	790	160
		Tractors/Loaders/Backhoes	97	2	8	0.37	574	116
Site Preparation	1	Crawler Tractors	97	1	8	0.37	287	6
		Graders	187	1	8	0.41	613	12
Grading	2	Crawler Tractors	97	1	8	0.37	287	12
		Graders	187	1	8	0.41	613	25
		Rubber Tired Dozers	247	1	8	0.40	790	32
Building Construction	100	Cranes	231	1	8	0.29	536	1,083
		Forklifts	89	2	8	0.20	285	575
		Tractors/Loaders/Backhoes	97	2	8	0.37	574	1,160
Paving	5	Cement and Mortar Mixers	9	4	8	0.56	161	16
		Pavers	130	1	8	0.42	437	44
		Rollers	80	1	8	0.38	243	25
		Tractors/Loaders/Backhoes	97	1	8	0.37	287	29
Architectural Coating	5	Air Compressors	78	1	8	0.48	300	30
CONSTRUCTION FUEL DEMAND (GALLONS DIESEL FUEL)								***3,420***

4.3.3 CONSTRUCTION TRIPS AND VMT

Based on the CalEEMod, the Trip and VMT are the number and length (in terms VMT[3]) of on-road vehicle trips for workers and vendors for each construction phase. The trips identified in Table 4-6 are based on information taken from CalEEMod and adjusted to the overall length of each phase with a completion year of 2023.

TABLE 4-6: CONSTRUCTION TRIPS AND VMT

Phase Name	Worker Trips / Day	Vendor Trips / Day	Hauling Trips / Day	Worker Trip Length	Vendor Trip Length	Hauling Trip Length
Demolition	10	0	33	14.7	6.9	20
Site Preparation	5	0	0	14.7	6.9	20
Grading	8	0	66	14.7	6.9	20
Building Construction	37	6	0	14.7	6.9	20
Paving	18	0	0	14.7	6.9	20
Architectural Coating	7	0	0	14.7	6.9	20

Source: CalEEMod, Appendix 4.1.

4.3.4 CONSTRUCTION WORKER FUEL ESTIMATES

With respect to estimated VMT for the Project, the construction worker trips would generate an estimated 60,197 VMT during the 5 months of construction (23). Based on CalEEMod methodology, emissions from construction worker trips are generated by light-duty-auto vehicles (LDA), light-duty-trucks 1 (LDT1[4]), and light-duty-trucks 2 (LDT2[5]). Based on EMFAC2017 vehicle population data for Year 2022, 68.6% of these vehicles would be LDA, 7.8% would be LDT1, and 23.6% would be LDT2. Data regarding Project related construction worker trips were based on EMFAC2017 inputs utilized within the AQIA.

Vehicle fuel efficiencies for LDA, LDT1, and LDT2 were estimated using information generated within the 2017 version of the EMFAC developed by CARB. EMFAC2017 is a mathematical model that was developed to calculate emission rates, fuel consumption, and VMT from motor vehicles that operate on highways, freeways, and local roads in California and is commonly used by the CARB to project changes in future emissions from on-road mobile sources (25). EMFAC2017 was run for the LDA, LDT1, and LDT2 vehicle class within the Los Angeles-South Coast sub-area for the 2022 calendar years. Data from EMFAC2017 is shown in Appendix 4.2. Using the static year 2022 is considered conservative for estimating fuel consumption as it does not account for fuel efficiency improvements each year.

As generated by EMFAC2017, an aggregated fuel economy of LDAs are estimated to have a fuel efficiency of 31.02 miles per gallon (mpg). Table 4-7 provides an estimated annual fuel

[3] For purposes of analysis, VMT is calculated by multiplying to number of trips by the trip length.

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

[5] Vehicles under the LDT2 category have a GVWR of less than 6,000 lbs. and ETW between 3,751 lbs. and 5,750 lbs.

consumption resulting from LDAs related to the Project construction worker trips. Based on Table 4-7, it is estimated that 1,315 gallons of fuel will be consumed related to construction worker trips during full construction of the Project.

TABLE 4-7: CONSTRUCTION WORKER FUEL CONSUMPTION ESTIMATES (LDA)

Construction Activity	Duration (Days)	Worker LDA Trips / Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Demolition	10	7	14.7	1,029	31.02	33
Site Preparation	1	4	14.7	59	31.02	2
Grading	2	6	14.7	176	31.02	6
Building Construction	100	26	14.7	38,220	31.02	1,232
Paving	5	13	14.7	956	31.02	31
Architectural Coating	5	5	14.7	368	31.02	12
TOTAL CONSTRUCTION WORKER (LDA) FUEL CONSUMPTION						***1,315***

The EMFAC2017 aggregated fuel economy of LDT1s are estimated to have a fuel efficiency 26.34 mpg. Table 4-8 provides an estimated annual fuel consumption resulting from LDT1s related to the Project construction worker trips. Based on Table 4-8, it is estimated that 194 gallons of fuel will be consumed related to construction worker trips during full construction of the Project.

TABLE 4-8: CONSTRUCTION WORKER FUEL CONSUMPTION ESTIMATES (LDT1)

Construction Activity	Duration (Days)	Worker LDT1 Trips / Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Demolition	10	1	14.7	441	26.34	17
Site Preparation	1	1	14.7	15	26.34	1
Grading	2	1	14.7	29	26.34	1
Building Construction	100	3	14.7	4,410	26.34	167
Paving	5	2	14.7	147	26.34	6
Architectural Coating	5	1	14.7	74	26.34	3
TOTAL CONSTRUCTION WORKER (LDT1) FUEL CONSUMPTION						***194***

The EMFAC2017 aggregated fuel economy of LDT2s are estimated to have a fuel efficiency of 24.6 mpg. Table 4-9 provides an estimated annual fuel consumption resulting from LDT2s related to the Project construction worker trips. Based on Table 4-9, it is estimated that 580 gallons of fuel will be consumed related to construction worker trips during full construction of the Project.

TABLE 4-9: CONSTRUCTION WORKER FUEL CONSUMPTION ESTIMATES (LDT2)

Construction Activity	Duration (Days)	Worker LDT2 Trips / Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Demolition	10	3	14.7	441	24.60	18
Site Preparation	1	2	14.7	29	24.60	1
Grading	2	2	14.7	59	24.60	2
Building Construction	100	9	14.7	13,230	24.60	538
Paving	5	5	14.7	368	24.60	15
Architectural Coating	5	2	14.7	147	24.60	6
TOTAL CONSTRUCTION WORKER (LDT2) FUEL CONSUMPTION						***580***

It should be noted that construction worker trips would represent a "single-event" gasoline fuel demand and would not require on-going or permanent commitment of fuel resources for this purpose.

4.3.5 CONSTRUCTION VENDOR AND HAULING FUEL ESTIMATES

Construction vendor trips (vehicles that deliver materials to the site during construction) are estimated to generate 4,830 VMT and hauling is anticipated to generate in 1,980 VMT along area roadways for the Project over the duration of construction activity (23). Based on CalEEMod standard inputs, vehicles associated with vendor trips are limited to medium-heavy duty trucks (MHDT) and heavy-heavy duty trucks (HHDT) (23). Similar to LDA, LDT1, and LDT fuel estimates, vehicle fuel efficiencies for MHDTs and HHDTs for vending trips were estimated using information generated within EMFAC2017. Based on EMFAC2017 vehicle population data for Year 2022, 57.2% of the heavy-duty vehicles would be HHDTs and 42.8% would be MDHTs. For debris and soil hauling all trucks were assumed to be HHDT constituent with CalEEMod standard settings. Data from EMFAC2017 is shown in Appendix 4.2.

As generated by EMFAC2017, an aggregated fuel economy of MHDTs are estimated to have a fuel efficiency of 8.96 mpg. Based on Table 4-10, it is estimated that 308 gallons of fuel will be consumed related to construction vendor trips (MHDTs) during full construction of the Project.

TABLE 4-10: CONSTRUCTION VENDOR FUEL CONSUMPTION ESTIMATES (MHDT)

Construction Activity	Duration (Days)	Vendor Trips / Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Building Construction	100	4	6.9	2,760	8.96	308
TOTAL CONSTRUCTION VENDOR (MHDT) FUEL CONSUMPTION						***308***

Table 4-11 shows the estimated fuel economy of HHDTs accessing the Project site. As generated by EMFAC2017, an aggregated fuel economy of HHDTs are estimated to have a fuel efficiency of

6.37 mpg. Based on Table 4-11, fuel consumption from construction vendor trips (HHDTs) will total approximately 325 gallons.

TABLE 4-11: CONSTRUCTION VENDOR FUEL CONSUMPTION ESTIMATES (HHDT)

Construction Activity	Duration (Days)	Vendor Trips / Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Building Construction	100	3	6.9	2,070	6.37	325
TOTAL CONSTRUCTION VENDOR (HHDT) FUEL CONSUMPTION						***325***

As generated by EMFAC2017, HHDTs are estimated to have a fuel efficiency of 6.37 mpg in 2022. Based on Table 4-12, it is estimated that 104 gallons of fuel will be consumed related to demolition debris hauling trips (HHDTs) during construction of the Project.

TABLE 4-12: DEMOLITION HAULING FUEL CONSUMPTION ESTIMATES (HHDT)

Construction Activity	Duration (Days)	Hauling Trips / Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Demolition	10	3	20	660	6.37	104
TOTAL CONSTRUCTION HAULING (HHDT) FUEL CONSUMPTION						***104***

As generated by EMFAC2017, HHDTs are estimated to have a fuel efficiency of 6.37 mpg in 2022. Based on Table 4-13, it is estimated that 207 gallons of fuel will be consumed related to soil debris hauling trips (HHDTs) during construction of the Project.

TABLE 4-13: SOIL HAULING FUEL CONSUMPTION ESTIMATES (HHDT)

Construction Activity	Duration (Days)	Hauling Trips / Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Grading	2	33	20	1,320	6.37	207
TOTAL CONSTRUCTION HAULING (HHDT) FUEL CONSUMPTION						***207***

It should be noted that Project construction vendor trips would represent a "single-event" diesel fuel demand and would not require on-going or permanent commitment of diesel fuel resources for this purpose.

4.3.6 CONSTRUCTION ENERGY EFFICIENCY/CONSERVATION MEASURES

Starting in 2014, CARB adopted the nation's first regulation aimed at cleaning up off-road construction equipment such as bulldozers, graders, and backhoes. These requirements ensure fleets gradually turnover the oldest and dirtiest equipment to newer, cleaner models and prevent fleets from adding older, dirtier equipment. As such, the equipment used for Project construction would conform to CARB regulations and California emissions standards. It should also be noted

that 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.

Construction contractors would be required to comply with applicable CARB regulation regarding retrofitting, repowering, or replacement of diesel off-road construction equipment. Additionally, CARB has adopted the Airborne Toxic Control Measure to limit heavy-duty diesel motor vehicle idling in order to reduce public exposure to diesel particulate matter and other Toxic Air Contaminants. Compliance with anti-idling and emissions regulations would result in a more efficient use of construction-related energy and the minimization or elimination of wasteful or unnecessary consumption of energy. Idling restrictions and the use of newer engines and equipment would result in less fuel combustion and energy consumption.

Additional construction-source energy efficiencies would occur due to required California regulations and best available control measures. For example, CCR Title 13, Motor Vehicles, section 2449(d)(3) Idling, limits idling times of construction vehicles to no more than five minutes, thereby precluding unnecessary and wasteful consumption of fuel due to unproductive idling of construction equipment. Section 2449(d)(3) requires that "grading plans shall reference the requirement that a sign shall be posted on-site stating that construction workers need to shut off engines at or before five minutes of idling." In this manner, construction equipment operators are required to be informed that engines are to be turned off at or prior to five minutes of idling. Enforcement of idling limitations is realized through periodic site inspections conducted by County building officials, and/or in response to citizen complaints.

A full analysis related to the energy needed to form construction materials is not included in this analysis due to a lack of detailed Project-specific information on construction materials. At this time, an analysis of the energy needed to create Project-related construction materials would be extremely speculative and thus has not been prepared.

In general, the construction processes promote conservation and efficient use of energy by reducing raw materials demands, with related reduction in energy demands associated with raw materials extraction, transportation, processing, and refinement. Use of materials in bulk reduces energy demands associated with preparation and transport of construction materials as well as the transport and disposal of construction waste and solid waste in general, with corollary reduced demands on area landfill capacities and energy consumed by waste transport and landfill operations.

4.4 OPERATIONAL ENERGY DEMANDS

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

4.4.1 TRANSPORTATION ENERGY DEMANDS

Energy that would be consumed by Project-generated traffic is a function of total VMT and estimated vehicle fuel economies of vehicles accessing the Project site. As shown in Table 4-14, the Project will result in 766,866 annual VMT and an estimated annual fuel consumption of 30,022 gallons of fuel. These calculations are conservative as they do not include any TDM measures, which are designed to reduce VMT from vehicles.

TABLE 4-14: TOTAL PROJECT-GENERATED TRAFFIC ANNUAL FUEL CONSUMPTION (ALL VEHICLES)

Vehicle Type	Annual Miles Traveled[1]	Average Vehicle Fuel Economy (mpg)	Estimated Annual Fuel Consumption (gallons)
LDA	416,515	32.0	13,010
LDT1	46,586	27.1	1,719
LDT2	141,686	25.5	5,548
MDV	99,891	20.8	4,801
LHD1	18,274	13.7	1,339
LHD2	4,872	14.1	346
MHD	8,986	9.3	966
HHD	7,007	6.7	1,038
OBUS	623	6.7	92
UBUS	390	4.5	86
MCY	18,553	35.7	520
SBUS	575	8.2	70
MH	2,907	6.0	486
Total (All Vehicles)	766,866	NA	**30,022**

[1] Total VMT may not match CalEEMod output due to rounding.

4.4.2 FACILITY ENERGY DEMANDS

Project building operations activities would result in the consumption of natural gas and electricity. Natural gas would be supplied to the Project by SoCalGas; electricity would be supplied to the Project by SCE. As previously stated, the analysis herein assumes compliance with the 2019 Title 24 Standards. Annual natural gas and electricity demands of the Project are summarized in Tables 4-15 and 4-16 and provided in Appendices 4.1.

TABLE 4-15: PROJECT ANNUAL OPERATIONAL NATURAL GAS DEMAND SUMMARY

Natural Gas Demand	kBTU/year
Residential	679,463
TOTAL PROJECT NATURAL GAS DEMAND	***679,463***

kBTU – kilo-British Thermal Units

TABLE 4-16: PROJECT ANNUAL OPERATIONAL ELECTRICITY DEMAND SUMMARY

Electricity Demand	kWh/year
Residential	200,166
TOTAL PROJECT ELECTRICITY DEMAND	***200,166***

kWh – Kilo Watt Hours

4.4.3 OPERATIONAL ENERGY EFFICIENCY/CONSERVATION MEASURES

Energy efficiency/energy conservation attributes of the Project would be complemented by increasingly stringent state and federal regulatory actions addressing vehicle fuel economies and vehicle emissions standards; and enhanced building/utilities energy efficiencies mandated under California building codes (e.g., Title24, California Green Building Standards Code).

ENHANCED VEHICLE FUEL EFFICIENCIES

Project annual fuel consumption estimates presented previously in Table 4-14 represent likely potential maximums that would occur for the Project. Under subsequent future conditions, average fuel economies of vehicles accessing the Project site can be expected to improve as older, less fuel-efficient vehicles are removed from circulation, and in response to fuel economy and emissions standards imposed on newer vehicles entering the circulation system.

Enhanced fuel economies realized pursuant to federal and state regulatory actions, and related transition of vehicles to alternative energy sources (e.g., electricity, natural gas, biofuels, hydrogen cells) would likely decrease future gasoline fuel demands per VMT. Location of the Project proximate to regional and local roadway systems tends to reduce VMT within the region, acting to reduce regional vehicle energy demands.

4.5 SUMMARY

4.5.1 CONSTRUCTION ENERGY DEMANDS

The estimated power cost of on-site electricity usage during the construction of the Project is assumed to be approximately $616.20 Additionally, based on the assumed power cost, it is estimated that the total electricity usage during construction, after full Project build-out, is calculated to be approximately 4,930 kWh.

Construction equipment used by the Project would result in single event consumption of approximately 3,420 gallons of diesel fuel. Construction equipment use of fuel would not be atypical for the type of construction proposed because there are no aspects of the Project's proposed construction process that are unusual or energy-intensive, and Project construction equipment would conform to the applicable CARB emissions standards, acting to promote equipment fuel efficiencies.

CCR Title 13, Title 13, Motor Vehicles, section 2449(d)(3) Idling, limits idling times of construction vehicles to no more than 5 minutes, thereby precluding unnecessary and wasteful consumption of fuel due to unproductive idling of construction equipment. Best available control measure inform construction equipment operators of this requirement. Enforcement of idling limitations

is realized through periodic site inspections conducted by County building officials, and/or in response to citizen complaints.

Construction worker trips for full construction of the Project would result in the estimated fuel consumption of 2,090 gallons of fuel. Additionally, fuel consumption from construction vendor and hauling trips (MHDTs and HHDTs) will total approximately 944 gallons. Diesel fuel would be supplied by regional commercial vendors. Indirectly, construction energy efficiencies and energy conservation would be achieved using bulk purchases, transport and use of construction materials. The 2020 IEPR released by the CEC has shown that fuel efficiencies are getting better within on and off-road vehicle engines due to more stringent government requirements (19). As supported by the preceding discussions, Project construction energy consumption would not be considered inefficient, wasteful, or otherwise unnecessary.

4.5.2 Operational Energy Demands

Transportation Energy Demands

Annual vehicular trips and related VMT generated by the operation of the Project would result in a fuel demand of 30,022 gallons of fuel.

Fuel would be provided by current and future commercial vendors. Trip generation and VMT generated by the Project are consistent with other mixed residential and commercial uses of similar scale and configuration, as reflected respectively in the Institute of Transportation Engineers Trip Generation Manual (11th Ed., 2021); and CalEEMod. As such, Project operations would not result in excessive and wasteful vehicle trips and VMT, nor excess and wasteful vehicle energy consumption compared to other residential developments of similar size.

In addition, enhanced fuel economies realized pursuant to federal and state regulatory actions, and related transition of vehicles to alternative energy sources (e.g., electricity, natural gas, biofuels, hydrogen cells) would likely decrease future gasoline fuel demands per VMT in the future. Location of the Project proximate to regional and local roadway systems tends to reduce VMT within the region, acting to reduce regional vehicle energy demands. The Project would implement sidewalks, facilitating and encouraging pedestrian access. Facilitating pedestrian and bicycle access would reduce VMT and associated energy consumption. In compliance with the California Green Building Standards Code and City requirements, the Project would promote the use of bicycles as an alternative mean of transportation by providing short-term and/or long-term bicycle parking accommodations. As supported by the preceding discussions, Project transportation energy consumption would not be considered inefficient, wasteful, or otherwise unnecessary.

Facility Energy Demands

Project facility operational energy demands are estimated at: 679,463 kBTU/year of natural gas; and 200,166 kWh/year of electricity. Natural gas would be supplied to the Project by SoCalGas; electricity would be supplied by SCE. The Project proposes conventional residences that reflect contemporary energy efficient/energy conserving designs and operational programs. The Project

does not propose uses that are inherently energy intensive and the energy demands in total would be comparable to other residential developments of similar scale and configuration.

Lastly, the Project will comply with the applicable Title 24 standards. Compliance itself with applicable Title 24 standards will ensure that the Project energy demands would not be inefficient, wasteful, or otherwise unnecessary.

4.6 ENERGY FINDINGS AND RECOMMENDATIONS

4.6.1 ENERGY IMPACT 1

Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.

As supported by the preceding analyses, Project construction and operations would not result in the inefficient, wasteful, or unnecessary consumption of energy. The Project would therefore not cause or result in the need for additional energy producing or transmission facilities. The Project would not engage in wasteful or inefficient uses of energy and aims to achieve energy conservations goals within the State of California.

4.6.2 ENERGY IMPACT 2

Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

The Project's consistency with the applicable state and local plans is discussed below.

CONSISTENCY WITH ISTEA

Transportation and access to the Project site is provided by the local and regional roadway systems. The Project would not interfere with, nor otherwise obstruct intermodal transportation plans or projects that may be realized pursuant to the ISTEA because Southern California Association of Governments is not planning for intermodal facilities on or through the Project site.

CONSISTENCY WITH TEA-21

The Project site is located near major transportation corridors with proximate access to the Interstate freeway system. The site selected for the Project facilitates access acts to reduce vehicle miles traveled, takes advantage of existing infrastructure systems, and promotes land use compatibilities through collocation of similar uses. The Project supports the strong planning processes emphasized under TEA-21. The Project is therefore consistent with, and would not otherwise interfere with, nor obstruct implementation of TEA-21.

CONSISTENCY WITH IEPR

Electricity may be provided to the Project by SCE. SCE's *Clean Power and Electrification Pathway* white paper builds on existing state programs and policies. As such, the Project is consistent with, and would not otherwise interfere with, nor obstruct implementation the goals presented in the 2020 IEPR.

CONSISTENCY WITH STATE OF CALIFORNIA ENERGY PLAN

The Project site is located proximate to transportation corridors with access to the Interstate freeway system. The site selected for the Project facilitates access and takes advantage of existing infrastructure systems. The Project therefore supports urban design and planning processes identified under the State of California Energy Plan, is consistent with, and would not otherwise interfere with, nor obstruct implementation of the State of California Energy Plan.

CONSISTENCY WITH CALIFORNIA CODE TITLE 24, PART 6, ENERGY EFFICIENCY STANDARDS

The 2019 version of Title 24 was adopted by the California Energy Commission (CEC) and became effective on January 1, 2020. It should be noted that the analysis herein assumes compliance with the 2019 Title 24 Standards. It should be noted that according to the CEC non-residential buildings and residential buildings over four stories high are approximately 30% more energy efficient (20).

CONSISTENCY WITH AB 1493

AB 1493 is not applicable to the Project as it is a statewide measure establishing vehicle emissions standards. No feature of the Project would interfere with implementation of the requirements under AB 1493.

CONSISTENCY WITH RPS

California's Renewable Portfolio Standard is not applicable to the Project as it is a statewide measure that establishes a renewable energy mix. No feature of the Project would interfere with implementation of the requirements under RPS.

CONSISTENCY WITH SB 350

The proposed Project would use energy from SCE, which have committed to diversify their portfolio of energy sources by increasing energy from wind and solar sources. No feature of the Project would interfere with implementation of SB 350. Additionally, the Project would be designed and constructed to implement the energy efficiency measures for new residential developments and would include several measures designed to reduce energy consumption.

As shown above, the Project would not conflict with any of the state or local plans. As such, a less than significant impact is expected.

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7 CERTIFICATIONS

The contents of this energy analysis report represent an accurate depiction of the environmental impacts associated with the proposed Whittier Residential. The information contained in this energy analysis report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at hqureshi@urbanxroads.com

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EDUCATION

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

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

PROFESSIONAL AFFILIATIONS

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

PROFESSIONAL CERTIFICATIONS

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

Air Dispersion Modeling – Lakes Environmental • June 2006

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APPENDIX 4.1:

CALEEMOD PROJECT MODEL OUTPUTS

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14480 Whittier Resdiential - South Coast AQMD Air District, Annual

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

14480 Whittier Resdiential

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Mid Rise	52.00	Dwelling Unit	0.82	52,000.00	149

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	9			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Taken from Project Description

Construction Phase -

Off-road Equipment - Standard 8-hour work day

Off-road Equipment - Standard 8-hour work day

Off-road Equipment - Standard 8-hour work day

Off-road Equipment - T/L/B replaced with Crawler Tractor to accuretly calculate distrubance
Standard 8-hour work day

Off-road Equipment - Standard 8-hour work day

Off-road Equipment - T/L/B replaced with Crawler Tractor to accuretly calculate distrubance

Trips and VMT -

Demolition - Medical Office Building is 7,172 sf

14480 Whittier Resdiential - South Coast AQMD Air District, Annual

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

Grading - 689 CY of Cut and 1219 CY of Fill with a Total import of 530 CY

Vehicle Trips - Total trips from TIA report is 236

Vehicle Emission Factors - ex

Vehicle Emission Factors -

Vehicle Emission Factors -

Woodstoves - Per SCAQMD Rule 445 no wood burning devices

Water And Wastewater - Per CalGreen title 24 2013 20% reduction over year 2000 data

Construction Off-road Equipment Mitigation - Per SCAQMD Rule 403 Water 3 x a day, install tractout devices or sweep streets daily. Rule 403 Implementaion handbook = 46% for tractout devices.

Table Name	Column Name	Default Value	New Value
tblFireplaces	NumberGas	44.20	46.80
tblFireplaces	NumberWood	2.60	0.00
tblGrading	MaterialImported	0.00	530.00
tblLandUse	LotAcreage	1.37	0.82
tblOffRoadEquipment	HorsePower	212.00	97.00
tblOffRoadEquipment	HorsePower	212.00	97.00
tblOffRoadEquipment	LoadFactor	0.43	0.37
tblOffRoadEquipment	LoadFactor	0.43	0.37
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	4.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	1.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00

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

tblVehicleTrips	ST_TR	4.91	4.10
tblVehicleTrips	SU_TR	4.09	3.41
tblVehicleTrips	WD_TR	5.44	4.54
tblWater	IndoorWaterUseRate	3,388,009.33	2,710,407.46
tblWoodstoves	NumberCatalytic	2.60	0.00
tblWoodstoves	NumberNoncatalytic	2.60	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

14480 Whittier Resdiential - South Coast AQMD Air District, Annual

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

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0266	0.2602	0.2288	4.7000e-004	0.0201	0.0126	0.0327	6.3300e-003	0.0117	0.0180	0.0000	42.0756	42.0756	9.9000e-003	8.8000e-004	42.5845
2023	0.1992	0.3355	0.3696	7.3000e-004	0.0160	0.0160	0.0320	4.2800e-003	0.0147	0.0190	0.0000	64.5600	64.5600	0.0160	8.3000e-004	65.2077
Maximum	**0.1992**	**0.3355**	**0.3696**	**7.3000e-004**	**0.0201**	**0.0160**	**0.0327**	**6.3300e-003**	**0.0147**	**0.0190**	**0.0000**	**64.5600**	**64.5600**	**0.0160**	**8.8000e-004**	**65.2077**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0266	0.2602	0.2288	4.7000e-004	0.0130	0.0126	0.0256	3.8400e-003	0.0117	0.0155	0.0000	42.0756	42.0756	9.9000e-003	8.8000e-004	42.5844
2023	0.1992	0.3355	0.3696	7.3000e-004	0.0160	0.0160	0.0320	4.2800e-003	0.0147	0.0190	0.0000	64.5600	64.5600	0.0160	8.3000e-004	65.2076
Maximum	**0.1992**	**0.3355**	**0.3696**	**7.3000e-004**	**0.0160**	**0.0160**	**0.0320**	**4.2800e-003**	**0.0147**	**0.0190**	**0.0000**	**64.5600**	**64.5600**	**0.0160**	**8.8000e-004**	**65.2076**

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**	**19.78**	**0.00**	**11.04**	**23.47**	**0.00**	**6.71**	**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	**11-1-2022**	**1-31-2023**	0.3928	0.3928
2	**2-1-2023**	**4-30-2023**	0.4208	0.4208
		Highest	0.4208	0.4208

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	0.2215	0.0159	0.5405	9.0000e-005		3.7500e-003	3.7500e-003		3.7500e-003	3.7500e-003	0.0000	12.1144	12.1144	1.0600e-003	2.1000e-004	12.2022
Energy	3.6600e-003	0.0313	0.0133	2.0000e-004		2.5300e-003	2.5300e-003		2.5300e-003	2.5300e-003	0.0000	71.7573	71.7573	3.6900e-003	1.0300e-003	72.1559
Mobile	0.1186	0.1484	1.2509	2.7800e-003	0.2887	2.0400e-003	0.2907	0.0770	1.9000e-003	0.0789	0.0000	259.4032	259.4032	0.0165	0.0114	263.2254
Waste						0.0000	0.0000		0.0000	0.0000	4.8555	0.0000	4.8555	0.2870	0.0000	12.0294
Water						0.0000	0.0000		0.0000	0.0000	0.8599	10.4673	11.3272	0.0892	2.1900e-003	14.2106
Total	**0.3437**	**0.1956**	**1.8047**	**3.0700e-003**	**0.2887**	**8.3200e-003**	**0.2970**	**0.0770**	**8.1800e-003**	**0.0852**	**5.7154**	**353.7422**	**359.4576**	**0.3974**	**0.0149**	**373.8236**

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	0.2215	0.0159	0.5405	9.0000e-005		3.7500e-003	3.7500e-003		3.7500e-003	3.7500e-003	0.0000	12.1144	12.1144	1.0600e-003	2.1000e-004	12.2022
Energy	3.6600e-003	0.0313	0.0133	2.0000e-004		2.5300e-003	2.5300e-003		2.5300e-003	2.5300e-003	0.0000	71.7573	71.7573	3.6900e-003	1.0300e-003	72.1559
Mobile	0.1186	0.1484	1.2509	2.7800e-003	0.2887	2.0400e-003	0.2907	0.0770	1.9000e-003	0.0789	0.0000	259.4032	259.4032	0.0165	0.0114	263.2254
Waste						0.0000	0.0000		0.0000	0.0000	4.8555	0.0000	4.8555	0.2870	0.0000	12.0294
Water						0.0000	0.0000		0.0000	0.0000	0.8599	10.4673	11.3272	0.0892	2.1900e-003	14.2106
Total	**0.3437**	**0.1956**	**1.8047**	**3.0700e-003**	**0.2887**	**8.3200e-003**	**0.2970**	**0.0770**	**8.1800e-003**	**0.0852**	**5.7154**	**353.7422**	**359.4576**	**0.3974**	**0.0149**	**373.8236**

	ROG	NOx	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	11/1/2022	11/14/2022	5	10	
2	Site Preparation	Site Preparation	11/15/2022	11/15/2022	5	1	
3	Grading	Grading	11/16/2022	11/17/2022	5	2	

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

4	Building Construction	Building Construction	11/18/2022	4/6/2023	5	100	
5	Paving	Paving	3/31/2023	4/6/2023	5	5	
6	Architectural Coating	Architectural Coating	3/31/2023	4/6/2023	5	5	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 3

Acres of Paving: 0

Residential Indoor: 105,300; Residential Outdoor: 35,100; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Crawler Tractors	1	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Grading	Crawler Tractors	1	8.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	8.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Rollers	1	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	8.00	78	0.48

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

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	4	10.00	0.00	33.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	66.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	37.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	7.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.5300e-003	0.0000	3.5300e-003	5.3000e-004	0.0000	5.3000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.6200e-003	0.0747	0.0586	1.1000e-004		3.7400e-003	3.7400e-003		3.5000e-003	3.5000e-003	0.0000	9.1724	9.1724	2.2400e-003	0.0000	9.2285
Total	**7.6200e-003**	**0.0747**	**0.0586**	**1.1000e-004**	**3.5300e-003**	**3.7400e-003**	**7.2700e-003**	**5.3000e-004**	**3.5000e-003**	**4.0300e-003**	**0.0000**	**9.1724**	**9.1724**	**2.2400e-003**	**0.0000**	**9.2285**

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

3.2 Demolition - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.0000e-005	2.7100e-003	6.2000e-004	1.0000e-005	2.8000e-004	2.0000e-005	3.1000e-004	8.0000e-005	2.0000e-005	1.0000e-004	0.0000	0.9938	0.9938	5.0000e-005	1.6000e-004	1.0422
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	1.7000e-004	1.4000e-004	1.7700e-003	0.0000	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4464	0.4464	1.0000e-005	1.0000e-005	0.4503
Total	**2.4000e-004**	**2.8500e-003**	**2.3900e-003**	**1.0000e-005**	**8.3000e-004**	**2.0000e-005**	**8.6000e-004**	**2.3000e-004**	**2.0000e-005**	**2.5000e-004**	**0.0000**	**1.4403**	**1.4403**	**6.0000e-005**	**1.7000e-004**	**1.4925**

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					1.3800e-003	0.0000	1.3800e-003	2.1000e-004	0.0000	2.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.6200e-003	0.0747	0.0586	1.1000e-004		3.7400e-003	3.7400e-003		3.5000e-003	3.5000e-003	0.0000	9.1724	9.1724	2.2400e-003	0.0000	9.2285
Total	**7.6200e-003**	**0.0747**	**0.0586**	**1.1000e-004**	**1.3800e-003**	**3.7400e-003**	**5.1200e-003**	**2.1000e-004**	**3.5000e-003**	**3.7100e-003**	**0.0000**	**9.1724**	**9.1724**	**2.2400e-003**	**0.0000**	**9.2285**

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

3.2 Demolition - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.0000e-005	2.7100e-003	6.2000e-004	1.0000e-005	2.8000e-004	2.0000e-005	3.1000e-004	8.0000e-005	2.0000e-005	1.0000e-004	0.0000	0.9938	0.9938	5.0000e-005	1.6000e-004	1.0422
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	1.7000e-004	1.4000e-004	1.7700e-003	0.0000	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4464	0.4464	1.0000e-005	1.0000e-005	0.4503
Total	**2.4000e-004**	**2.8500e-003**	**2.3900e-003**	**1.0000e-005**	**8.3000e-004**	**2.0000e-005**	**8.6000e-004**	**2.3000e-004**	**2.0000e-005**	**2.5000e-004**	**0.0000**	**1.4403**	**1.4403**	**6.0000e-005**	**1.7000e-004**	**1.4925**

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.3000e-004	0.0000	5.3000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.0000e-004	4.2400e-003	2.1000e-003	0.0000		2.1000e-004	2.1000e-004		2.0000e-004	2.0000e-004	0.0000	0.4276	0.4276	1.4000e-004	0.0000	0.4310
Total	**4.0000e-004**	**4.2400e-003**	**2.1000e-003**	**0.0000**	**5.3000e-004**	**2.1000e-004**	**7.4000e-004**	**6.0000e-005**	**2.0000e-004**	**2.6000e-004**	**0.0000**	**0.4276**	**0.4276**	**1.4000e-004**	**0.0000**	**0.4310**

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

3.3 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	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	1.0000e-005	1.0000e-005	9.0000e-005	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0223	0.0223	0.0000	0.0000	0.0225
Total	**1.0000e-005**	**1.0000e-005**	**9.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0223**	**0.0223**	**0.0000**	**0.0000**	**0.0225**

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					2.1000e-004	0.0000	2.1000e-004	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.0000e-004	4.2400e-003	2.1000e-003	0.0000		2.1000e-004	2.1000e-004		2.0000e-004	2.0000e-004	0.0000	0.4276	0.4276	1.4000e-004	0.0000	0.4310
Total	**4.0000e-004**	**4.2400e-003**	**2.1000e-003**	**0.0000**	**2.1000e-004**	**2.1000e-004**	**4.2000e-004**	**2.0000e-005**	**2.0000e-004**	**2.2000e-004**	**0.0000**	**0.4276**	**0.4276**	**1.4000e-004**	**0.0000**	**0.4310**

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

3.3 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	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	1.0000e-005	1.0000e-005	9.0000e-005	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0223	0.0223	0.0000	0.0000	0.0225
Total	**1.0000e-005**	**1.0000e-005**	**9.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0223**	**0.0223**	**0.0000**	**0.0000**	**0.0225**

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.6400e-003	0.0000	7.6400e-003	3.4900e-003	0.0000	3.4900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6300e-003	0.0173	7.7900e-003	2.0000e-005		8.4000e-004	8.4000e-004		7.8000e-004	7.8000e-004	0.0000	1.6054	1.6054	5.2000e-004	0.0000	1.6184
Total	**1.6300e-003**	**0.0173**	**7.7900e-003**	**2.0000e-005**	**7.6400e-003**	**8.4000e-004**	**8.4800e-003**	**3.4900e-003**	**7.8000e-004**	**4.2700e-003**	**0.0000**	**1.6054**	**1.6054**	**5.2000e-004**	**0.0000**	**1.6184**

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

3.4 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.4000e-004	5.4200e-003	1.2400e-003	2.0000e-005	5.7000e-004	4.0000e-005	6.1000e-004	1.6000e-004	4.0000e-005	2.0000e-004	0.0000	1.9877	1.9877	1.1000e-004	3.2000e-004	2.0844
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	3.0000e-005	2.0000e-005	2.8000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0714	0.0714	0.0000	0.0000	0.0721
Total	**1.7000e-004**	**5.4400e-003**	**1.5200e-003**	**2.0000e-005**	**6.6000e-004**	**4.0000e-005**	**7.0000e-004**	**1.8000e-004**	**4.0000e-005**	**2.2000e-004**	**0.0000**	**2.0591**	**2.0591**	**1.1000e-004**	**3.2000e-004**	**2.1564**

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					2.9800e-003	0.0000	2.9800e-003	1.3600e-003	0.0000	1.3600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6300e-003	0.0173	7.7900e-003	2.0000e-005		8.4000e-004	8.4000e-004		7.8000e-004	7.8000e-004	0.0000	1.6054	1.6054	5.2000e-004	0.0000	1.6184
Total	**1.6300e-003**	**0.0173**	**7.7900e-003**	**2.0000e-005**	**2.9800e-003**	**8.4000e-004**	**3.8200e-003**	**1.3600e-003**	**7.8000e-004**	**2.1400e-003**	**0.0000**	**1.6054**	**1.6054**	**5.2000e-004**	**0.0000**	**1.6184**

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

3.4 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.4000e-004	5.4200e-003	1.2400e-003	2.0000e-005	5.7000e-004	4.0000e-005	6.1000e-004	1.6000e-004	4.0000e-005	2.0000e-004	0.0000	1.9877	1.9877	1.1000e-004	3.2000e-004	2.0844
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	3.0000e-005	2.0000e-005	2.8000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0714	0.0714	0.0000	0.0000	0.0721
Total	**1.7000e-004**	**5.4400e-003**	**1.5200e-003**	**2.0000e-005**	**6.6000e-004**	**4.0000e-005**	**7.0000e-004**	**1.8000e-004**	**4.0000e-005**	**2.2000e-004**	**0.0000**	**2.0591**	**2.0591**	**1.1000e-004**	**3.2000e-004**	**2.1564**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0144	0.1495	0.1345	2.3000e-004		7.6500e-003	7.6500e-003		7.0400e-003	7.0400e-003	0.0000	20.4926	20.4926	6.6300e-003	0.0000	20.6583
Total	**0.0144**	**0.1495**	**0.1345**	**2.3000e-004**		**7.6500e-003**	**7.6500e-003**		**7.0400e-003**	**7.0400e-003**	**0.0000**	**20.4926**	**20.4926**	**6.6300e-003**	**0.0000**	**20.6583**

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

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.7000e-004	4.5400e-003	1.5100e-003	2.0000e-005	5.9000e-004	5.0000e-005	6.3000e-004	1.7000e-004	4.0000e-005	2.1000e-004	0.0000	1.7356	1.7356	6.0000e-005	2.5000e-004	1.8121
Worker	1.9300e-003	1.5600e-003	0.0204	6.0000e-005	6.2900e-003	4.0000e-005	6.3300e-003	1.6700e-003	4.0000e-005	1.7100e-003	0.0000	5.1204	5.1204	1.4000e-004	1.4000e-004	5.1648
Total	**2.1000e-003**	**6.1000e-003**	**0.0219**	**8.0000e-005**	**6.8800e-003**	**9.0000e-005**	**6.9600e-003**	**1.8400e-003**	**8.0000e-005**	**1.9200e-003**	**0.0000**	**6.8560**	**6.8560**	**2.0000e-004**	**3.9000e-004**	**6.9769**

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	0.0144	0.1495	0.1345	2.3000e-004		7.6500e-003	7.6500e-003		7.0400e-003	7.0400e-003	0.0000	20.4926	20.4926	6.6300e-003	0.0000	20.6583
Total	**0.0144**	**0.1495**	**0.1345**	**2.3000e-004**		**7.6500e-003**	**7.6500e-003**		**7.0400e-003**	**7.0400e-003**	**0.0000**	**20.4926**	**20.4926**	**6.6300e-003**	**0.0000**	**20.6583**

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

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.7000e-004	4.5400e-003	1.5100e-003	2.0000e-005	5.9000e-004	5.0000e-005	6.3000e-004	1.7000e-004	4.0000e-005	2.1000e-004	0.0000	1.7356	1.7356	6.0000e-005	2.5000e-004	1.8121
Worker	1.9300e-003	1.5600e-003	0.0204	6.0000e-005	6.2900e-003	4.0000e-005	6.3300e-003	1.6700e-003	4.0000e-005	1.7100e-003	0.0000	5.1204	5.1204	1.4000e-004	1.4000e-004	5.1648
Total	**2.1000e-003**	**6.1000e-003**	**0.0219**	**8.0000e-005**	**6.8800e-003**	**9.0000e-005**	**6.9600e-003**	**1.8400e-003**	**8.0000e-005**	**1.9200e-003**	**0.0000**	**6.8560**	**6.8560**	**2.0000e-004**	**3.9000e-004**	**6.9769**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0296	0.3038	0.2962	5.2000e-004		0.0148	0.0148		0.0136	0.0136	0.0000	45.6334	45.6334	0.0148	0.0000	46.0023
Total	**0.0296**	**0.3038**	**0.2962**	**5.2000e-004**		**0.0148**	**0.0148**		**0.0136**	**0.0136**	**0.0000**	**45.6334**	**45.6334**	**0.0148**	**0.0000**	**46.0023**

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

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.2000e-004	7.8900e-003	3.0000e-003	4.0000e-005	1.3100e-003	4.0000e-005	1.3500e-003	3.8000e-004	4.0000e-005	4.2000e-004	0.0000	3.6840	3.6840	1.2000e-004	5.3000e-004	3.8462
Worker	3.9800e-003	3.0600e-003	0.0418	1.2000e-004	0.0140	8.0000e-005	0.0141	3.7200e-003	7.0000e-005	3.7900e-003	0.0000	11.0972	11.0972	2.8000e-004	2.8000e-004	11.1883
Total	**4.2000e-003**	**0.0110**	**0.0448**	**1.6000e-004**	**0.0153**	**1.2000e-004**	**0.0154**	**4.1000e-003**	**1.1000e-004**	**4.2100e-003**	**0.0000**	**14.7813**	**14.7813**	**4.0000e-004**	**8.1000e-004**	**15.0345**

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	0.0296	0.3038	0.2962	5.2000e-004		0.0148	0.0148		0.0136	0.0136	0.0000	45.6333	45.6333	0.0148	0.0000	46.0023
Total	**0.0296**	**0.3038**	**0.2962**	**5.2000e-004**		**0.0148**	**0.0148**		**0.0136**	**0.0136**	**0.0000**	**45.6333**	**45.6333**	**0.0148**	**0.0000**	**46.0023**

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

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.2000e-004	7.8900e-003	3.0000e-003	4.0000e-005	1.3100e-003	4.0000e-005	1.3500e-003	3.8000e-004	4.0000e-005	4.2000e-004	0.0000	3.6840	3.6840	1.2000e-004	5.3000e-004	3.8462
Worker	3.9800e-003	3.0600e-003	0.0418	1.2000e-004	0.0140	8.0000e-005	0.0141	3.7200e-003	7.0000e-005	3.7900e-003	0.0000	11.0972	11.0972	2.8000e-004	2.8000e-004	11.1883
Total	**4.2000e-003**	**0.0110**	**0.0448**	**1.6000e-004**	**0.0153**	**1.2000e-004**	**0.0154**	**4.1000e-003**	**1.1000e-004**	**4.2100e-003**	**0.0000**	**14.7813**	**14.7813**	**4.0000e-004**	**8.1000e-004**	**15.0345**

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.8300e-003	0.0163	0.0205	3.0000e-005		7.8000e-004	7.8000e-004		7.2000e-004	7.2000e-004	0.0000	2.7510	2.7510	7.9000e-004	0.0000	2.7707
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.8300e-003**	**0.0163**	**0.0205**	**3.0000e-005**		**7.8000e-004**	**7.8000e-004**		**7.2000e-004**	**7.2000e-004**	**0.0000**	**2.7510**	**2.7510**	**7.9000e-004**	**0.0000**	**2.7707**

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

3.6 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-004	1.1000e-004	1.4700e-003	0.0000	4.9000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.3912	0.3912	1.0000e-005	1.0000e-005	0.3944
Total	**1.4000e-004**	**1.1000e-004**	**1.4700e-003**	**0.0000**	**4.9000e-004**	**0.0000**	**5.0000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.3912**	**0.3912**	**1.0000e-005**	**1.0000e-005**	**0.3944**

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	1.8300e-003	0.0163	0.0205	3.0000e-005		7.8000e-004	7.8000e-004		7.2000e-004	7.2000e-004	0.0000	2.7510	2.7510	7.9000e-004	0.0000	2.7707
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.8300e-003**	**0.0163**	**0.0205**	**3.0000e-005**		**7.8000e-004**	**7.8000e-004**		**7.2000e-004**	**7.2000e-004**	**0.0000**	**2.7510**	**2.7510**	**7.9000e-004**	**0.0000**	**2.7707**

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

3.6 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-004	1.1000e-004	1.4700e-003	0.0000	4.9000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.3912	0.3912	1.0000e-005	1.0000e-005	0.3944
Total	**1.4000e-004**	**1.1000e-004**	**1.4700e-003**	**0.0000**	**4.9000e-004**	**0.0000**	**5.0000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.3912**	**0.3912**	**1.0000e-005**	**1.0000e-005**	**0.3944**

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1627					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.4000e-004	4.3400e-003	6.0400e-003	1.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	0.8511	0.8511	5.0000e-005	0.0000	0.8524
Total	**0.1633**	**4.3400e-003**	**6.0400e-003**	**1.0000e-005**		**2.4000e-004**	**2.4000e-004**		**2.4000e-004**	**2.4000e-004**	**0.0000**	**0.8511**	**0.8511**	**5.0000e-005**	**0.0000**	**0.8524**

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

3.7 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	4.0000e-005	5.7000e-004	0.0000	1.9000e-004	0.0000	1.9000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1521	0.1521	0.0000	0.0000	0.1534
Total	**5.0000e-005**	**4.0000e-005**	**5.7000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1521**	**0.1521**	**0.0000**	**0.0000**	**0.1534**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1627					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.4000e-004	4.3400e-003	6.0400e-003	1.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	0.8511	0.8511	5.0000e-005	0.0000	0.8524
Total	**0.1633**	**4.3400e-003**	**6.0400e-003**	**1.0000e-005**		**2.4000e-004**	**2.4000e-004**		**2.4000e-004**	**2.4000e-004**	**0.0000**	**0.8511**	**0.8511**	**5.0000e-005**	**0.0000**	**0.8524**

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

3.7 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	4.0000e-005	5.7000e-004	0.0000	1.9000e-004	0.0000	1.9000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1521	0.1521	0.0000	0.0000	0.1534
Total	**5.0000e-005**	**4.0000e-005**	**5.7000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1521**	**0.1521**	**0.0000**	**0.0000**	**0.1534**

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

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1186	0.1484	1.2509	2.7800e-003	0.2887	2.0400e-003	0.2907	0.0770	1.9000e-003	0.0789	0.0000	259.4032	259.4032	0.0165	0.0114	263.2254
Unmitigated	0.1186	0.1484	1.2509	2.7800e-003	0.2887	2.0400e-003	0.2907	0.0770	1.9000e-003	0.0789	0.0000	259.4032	259.4032	0.0165	0.0114	263.2254

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	236.08	213.20	177.32	766,867	766,867
Total	236.08	213.20	177.32	766,867	766,867

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	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.543139	0.060749	0.184760	0.130258	0.023830	0.006353	0.011718	0.009137	0.000812	0.000509	0.024193	0.000750	0.003791

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

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	35.4986	35.4986	3.0000e-003	3.6000e-004	35.6817
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	35.4986	35.4986	3.0000e-003	3.6000e-004	35.6817
NaturalGas Mitigated	3.6600e-003	0.0313	0.0133	2.0000e-004		2.5300e-003	2.5300e-003		2.5300e-003	2.5300e-003	0.0000	36.2587	36.2587	6.9000e-004	6.6000e-004	36.4742
NaturalGas Unmitigated	3.6600e-003	0.0313	0.0133	2.0000e-004		2.5300e-003	2.5300e-003		2.5300e-003	2.5300e-003	0.0000	36.2587	36.2587	6.9000e-004	6.6000e-004	36.4742

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	679463	3.6600e-003	0.0313	0.0133	2.0000e-004		2.5300e-003	2.5300e-003		2.5300e-003	2.5300e-003	0.0000	36.2587	36.2587	6.9000e-004	6.6000e-004	36.4742
Total		**3.6600e-003**	**0.0313**	**0.0133**	**2.0000e-004**		**2.5300e-003**	**2.5300e-003**		**2.5300e-003**	**2.5300e-003**	**0.0000**	**36.2587**	**36.2587**	**6.9000e-004**	**6.6000e-004**	**36.4742**

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	679463	3.6600e-003	0.0313	0.0133	2.0000e-004		2.5300e-003	2.5300e-003		2.5300e-003	2.5300e-003	0.0000	36.2587	36.2587	6.9000e-004	6.6000e-004	36.4742
Total		**3.6600e-003**	**0.0313**	**0.0133**	**2.0000e-004**		**2.5300e-003**	**2.5300e-003**		**2.5300e-003**	**2.5300e-003**	**0.0000**	**36.2587**	**36.2587**	**6.9000e-004**	**6.6000e-004**	**36.4742**

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	200166	35.4986	3.0000e-003	3.6000e-004	35.6817
Total		**35.4986**	**3.0000e-003**	**3.6000e-004**	**35.6817**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	200166	35.4986	3.0000e-003	3.6000e-004	35.6817
Total		**35.4986**	**3.0000e-003**	**3.6000e-004**	**35.6817**

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	0.2215	0.0159	0.5405	9.0000e-005		3.7500e-003	3.7500e-003		3.7500e-003	3.7500e-003	0.0000	12.1144	12.1144	1.0600e-003	2.1000e-004	12.2022
Unmitigated	0.2215	0.0159	0.5405	9.0000e-005		3.7500e-003	3.7500e-003		3.7500e-003	3.7500e-003	0.0000	12.1144	12.1144	1.0600e-003	2.1000e-004	12.2022

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	0.0163					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1879					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.1400e-003	9.7000e-003	4.1300e-003	6.0000e-005		7.8000e-004	7.8000e-004		7.8000e-004	7.8000e-004	0.0000	11.2384	11.2384	2.2000e-004	2.1000e-004	11.3052
Landscaping	0.0162	6.1800e-003	0.5364	3.0000e-005		2.9700e-003	2.9700e-003		2.9700e-003	2.9700e-003	0.0000	0.8760	0.8760	8.4000e-004	0.0000	0.8970
Total	**0.2215**	**0.0159**	**0.5405**	**9.0000e-005**		**3.7500e-003**	**3.7500e-003**		**3.7500e-003**	**3.7500e-003**	**0.0000**	**12.1144**	**12.1144**	**1.0600e-003**	**2.1000e-004**	**12.2022**

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	0.0163					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1879					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.1400e-003	9.7000e-003	4.1300e-003	6.0000e-005		7.8000e-004	7.8000e-004		7.8000e-004	7.8000e-004	0.0000	11.2384	11.2384	2.2000e-004	2.1000e-004	11.3052
Landscaping	0.0162	6.1800e-003	0.5364	3.0000e-005		2.9700e-003	2.9700e-003		2.9700e-003	2.9700e-003	0.0000	0.8760	0.8760	8.4000e-004	0.0000	0.8970
Total	**0.2215**	**0.0159**	**0.5405**	**9.0000e-005**		**3.7500e-003**	**3.7500e-003**		**3.7500e-003**	**3.7500e-003**	**0.0000**	**12.1144**	**12.1144**	**1.0600e-003**	**2.1000e-004**	**12.2022**

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	11.3272	0.0892	2.1900e-003	14.2106
Unmitigated	11.3272	0.0892	2.1900e-003	14.2106

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	2.71041 / 2.13592	11.3272	0.0892	2.1900e-003	14.2106
Total		**11.3272**	**0.0892**	**2.1900e-003**	**14.2106**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	2.71041 / 2.13592	11.3272	0.0892	2.1900e-003	14.2106
Total		**11.3272**	**0.0892**	**2.1900e-003**	**14.2106**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	4.8555	0.2870	0.0000	12.0294
Unmitigated	4.8555	0.2870	0.0000	12.0294

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

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	23.92	4.8555	0.2870	0.0000	12.0294
Total		**4.8555**	**0.2870**	**0.0000**	**12.0294**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	23.92	4.8555	0.2870	0.0000	12.0294
Total		**4.8555**	**0.2870**	**0.0000**	**12.0294**

9.0 Operational Offroad

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

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

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

14480 Whittier Resdiential - South Coast AQMD Air District, Summer

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

14480 Whittier Resdiential

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Mid Rise	52.00	Dwelling Unit	0.82	52,000.00	149

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	9			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Taken from Project Description

Construction Phase -

Off-road Equipment - Standard 8-hour work day

Off-road Equipment - Standard 8-hour work day

Off-road Equipment - Standard 8-hour work day

Off-road Equipment - T/L/B replaced with Crawler Tractor to accuretly calculate distrubance
Standard 8-hour work day

Off-road Equipment - Standard 8-hour work day

Off-road Equipment - T/L/B replaced with Crawler Tractor to accuretly calculate distrubance

Trips and VMT -

Demolition - Medical Office Building is 7,172 sf

14480 Whittier Resdiential - South Coast AQMD Air District, Summer

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

Grading - 689 CY of Cut and 1219 CY of Fill with a Total import of 530 CY

Vehicle Trips - Total trips from TIA report is 236

Vehicle Emission Factors - ex

Vehicle Emission Factors -

Vehicle Emission Factors -

Woodstoves - Per SCAQMD Rule 445 no wood burning devices

Water And Wastewater - Per CalGreen title 24 2013 20% reduction over year 2000 data

Construction Off-road Equipment Mitigation - Per SCAQMD Rule 403 Water 3 x a day, install tractout devices or sweep streets daily. Rule 403 Implementaion handbook = 46% for tractout devices.

Table Name	Column Name	Default Value	New Value
tblFireplaces	NumberGas	44.20	46.80
tblFireplaces	NumberWood	2.60	0.00
tblGrading	MaterialImported	0.00	530.00
tblLandUse	LotAcreage	1.37	0.82
tblOffRoadEquipment	HorsePower	212.00	97.00
tblOffRoadEquipment	HorsePower	212.00	97.00
tblOffRoadEquipment	LoadFactor	0.43	0.37
tblOffRoadEquipment	LoadFactor	0.43	0.37
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	4.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	1.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00

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

tblVehicleTrips	ST_TR	4.91	4.10
tblVehicleTrips	SU_TR	4.09	3.41
tblVehicleTrips	WD_TR	5.44	4.54
tblWater	IndoorWaterUseRate	3,388,009.33	2,710,407.46
tblWoodstoves	NumberCatalytic	2.60	0.00
tblWoodstoves	NumberNoncatalytic	2.60	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

14480 Whittier Resdiential - South Coast AQMD Air District, 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					
2022	1.7990	22.4482	12.2273	0.0390	8.3095	0.8864	9.1958	3.6685	0.8170	4.4855	0.0000	4,042.6381	4,042.6381	0.6921	0.3497	4,164.1585
2023	67.1269	17.3956	21.4681	0.0395	0.7314	0.8394	1.5708	0.1949	0.7844	0.9793	0.0000	3,785.1228	3,785.1228	0.8608	0.0310	3,815.8920
Maximum	**67.1269**	**22.4482**	**21.4681**	**0.0395**	**8.3095**	**0.8864**	**9.1958**	**3.6685**	**0.8170**	**4.4855**	**0.0000**	**4,042.6381**	**4,042.6381**	**0.8608**	**0.3497**	**4,164.1585**

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					
2022	1.7990	22.4482	12.2273	0.0390	3.6473	0.8864	4.5337	1.5417	0.8170	2.3587	0.0000	4,042.6381	4,042.6381	0.6921	0.3497	4,164.1585
2023	67.1269	17.3956	21.4681	0.0395	0.7314	0.8394	1.5708	0.1949	0.7844	0.9793	0.0000	3,785.1228	3,785.1228	0.8608	0.0310	3,815.8920
Maximum	**67.1269**	**22.4482**	**21.4681**	**0.0395**	**3.6473**	**0.8864**	**4.5337**	**1.5417**	**0.8170**	**2.3587**	**0.0000**	**4,042.6381**	**4,042.6381**	**0.8608**	**0.3497**	**4,164.1585**

14480 Whittier Resdiential - South Coast AQMD Air District, 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	51.57	0.00	43.30	55.05	0.00	38.92	0.00	0.00	0.00	0.00	0.00	0.00

14480 Whittier Resdiential - South Coast AQMD Air District, Summer

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	1.3389	0.8258	4.6214	5.1800e-003		0.0865	0.0865		0.0865	0.0865	0.0000	998.7835	998.7835	0.0264	0.0182	1,004.8586
Energy	0.0201	0.1716	0.0730	1.1000e-003		0.0139	0.0139		0.0139	0.0139		219.0049	219.0049	4.2000e-003	4.0200e-003	220.3063
Mobile	0.7210	0.7876	7.4215	0.0167	1.6997	0.0118	1.7115	0.4529	0.0110	0.4639		1,714.9519	1,714.9519	0.1028	0.0697	1,738.2794
Total	**2.0799**	**1.7849**	**12.1159**	**0.0229**	**1.6997**	**0.1122**	**1.8119**	**0.4529**	**0.1114**	**0.5643**	**0.0000**	**2,932.7403**	**2,932.7403**	**0.1335**	**0.0918**	**2,963.4444**

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	1.3389	0.8258	4.6214	5.1800e-003		0.0865	0.0865		0.0865	0.0865	0.0000	998.7835	998.7835	0.0264	0.0182	1,004.8586
Energy	0.0201	0.1716	0.0730	1.1000e-003		0.0139	0.0139		0.0139	0.0139		219.0049	219.0049	4.2000e-003	4.0200e-003	220.3063
Mobile	0.7210	0.7876	7.4215	0.0167	1.6997	0.0118	1.7115	0.4529	0.0110	0.4639		1,714.9519	1,714.9519	0.1028	0.0697	1,738.2794
Total	**2.0799**	**1.7849**	**12.1159**	**0.0229**	**1.6997**	**0.1122**	**1.8119**	**0.4529**	**0.1114**	**0.5643**	**0.0000**	**2,932.7403**	**2,932.7403**	**0.1335**	**0.0918**	**2,963.4444**

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	11/1/2022	11/14/2022	5	10	
2	Site Preparation	Site Preparation	11/15/2022	11/15/2022	5	1	
3	Grading	Grading	11/16/2022	11/17/2022	5	2	
4	Building Construction	Building Construction	11/18/2022	4/6/2023	5	100	
5	Paving	Paving	3/31/2023	4/6/2023	5	5	
6	Architectural Coating	Architectural Coating	3/31/2023	4/6/2023	5	5	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 3

Acres of Paving: 0

Residential Indoor: 105,300; Residential Outdoor: 35,100; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Crawler Tractors	1	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41

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

Grading	Crawler Tractors	1	8.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	8.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Rollers	1	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	8.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	33.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	66.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	37.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	7.00	0.00	0.00	14.70	6.90	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 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7060	0.0000	0.7060	0.1069	0.0000	0.1069			0.0000			0.0000
Off-Road	1.5242	14.9461	11.7226	0.0210		0.7478	0.7478		0.7000	0.7000		2,022.1779	2,022.1779	0.4947		2,034.5445
Total	**1.5242**	**14.9461**	**11.7226**	**0.0210**	**0.7060**	**0.7478**	**1.4538**	**0.1069**	**0.7000**	**0.8069**		**2,022.1779**	**2,022.1779**	**0.4947**		**2,034.5445**

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	0.0139	0.5149	0.1231	2.0000e-003	0.0577	4.3000e-003	0.0620	0.0158	4.1200e-003	0.0199		219.0674	219.0674	0.0118	0.0348	229.7250
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	0.0344	0.0242	0.3817	1.0100e-003	0.1118	6.7000e-004	0.1124	0.0296	6.1000e-004	0.0303		102.9147	102.9147	2.6700e-003	2.4500e-003	103.7106
Total	**0.0484**	**0.5391**	**0.5048**	**3.0100e-003**	**0.1695**	**4.9700e-003**	**0.1745**	**0.0455**	**4.7300e-003**	**0.0502**		**321.9822**	**321.9822**	**0.0144**	**0.0372**	**333.4356**

14480 Whittier Resdiential - South Coast AQMD Air District, Summer

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

3.2 Demolition - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2753	0.0000	0.2753	0.0417	0.0000	0.0417			0.0000			0.0000
Off-Road	1.5242	14.9461	11.7226	0.0210		0.7478	0.7478		0.7000	0.7000	0.0000	2,022.1779	2,022.1779	0.4947		2,034.5445
Total	**1.5242**	**14.9461**	**11.7226**	**0.0210**	**0.2753**	**0.7478**	**1.0231**	**0.0417**	**0.7000**	**0.7417**	**0.0000**	**2,022.1779**	**2,022.1779**	**0.4947**		**2,034.5445**

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	0.0139	0.5149	0.1231	2.0000e-003	0.0577	4.3000e-003	0.0620	0.0158	4.1200e-003	0.0199		219.0674	219.0674	0.0118	0.0348	229.7250
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	0.0344	0.0242	0.3817	1.0100e-003	0.1118	6.7000e-004	0.1124	0.0296	6.1000e-004	0.0303		102.9147	102.9147	2.6700e-003	2.4500e-003	103.7106
Total	**0.0484**	**0.5391**	**0.5048**	**3.0100e-003**	**0.1695**	**4.9700e-003**	**0.1745**	**0.0455**	**4.7300e-003**	**0.0502**		**321.9822**	**321.9822**	**0.0144**	**0.0372**	**333.4356**

14480 Whittier Resdiential - South Coast AQMD Air District, Summer

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

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.0605	0.0000	1.0605	0.1145	0.0000	0.1145			0.0000			0.0000
Off-Road	0.7949	8.4865	4.2062	9.7300e-003		0.4254	0.4254		0.3914	0.3914		942.5966	942.5966	0.3049		950.2180
Total	**0.7949**	**8.4865**	**4.2062**	**9.7300e-003**	**1.0605**	**0.4254**	**1.4859**	**0.1145**	**0.3914**	**0.5059**		**942.5966**	**942.5966**	**0.3049**		**950.2180**

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	0.0172	0.0121	0.1909	5.1000e-004	0.0559	3.3000e-004	0.0562	0.0148	3.1000e-004	0.0151		51.4574	51.4574	1.3400e-003	1.2200e-003	51.8553
Total	**0.0172**	**0.0121**	**0.1909**	**5.1000e-004**	**0.0559**	**3.3000e-004**	**0.0562**	**0.0148**	**3.1000e-004**	**0.0151**		**51.4574**	**51.4574**	**1.3400e-003**	**1.2200e-003**	**51.8553**

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

3.3 Site Preparation - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4136	0.0000	0.4136	0.0447	0.0000	0.0447			0.0000			0.0000
Off-Road	0.7949	8.4865	4.2062	9.7300e-003		0.4254	0.4254		0.3914	0.3914	0.0000	942.5966	942.5966	0.3049		950.2180
Total	**0.7949**	**8.4865**	**4.2062**	**9.7300e-003**	**0.4136**	**0.4254**	**0.8390**	**0.0447**	**0.3914**	**0.4360**	**0.0000**	**942.5966**	**942.5966**	**0.3049**		**950.2180**

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	0.0172	0.0121	0.1909	5.1000e-004	0.0559	3.3000e-004	0.0562	0.0148	3.1000e-004	0.0151		51.4574	51.4574	1.3400e-003	1.2200e-003	51.8553
Total	**0.0172**	**0.0121**	**0.1909**	**5.1000e-004**	**0.0559**	**3.3000e-004**	**0.0562**	**0.0148**	**3.1000e-004**	**0.0151**		**51.4574**	**51.4574**	**1.3400e-003**	**1.2200e-003**	**51.8553**

14480 Whittier Resdiential - South Coast AQMD Air District, Summer

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

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.6428	0.0000	7.6428	3.4865	0.0000	3.4865			0.0000			0.0000
Off-Road	1.6320	17.2802	7.7882	0.0183		0.8428	0.8428		0.7754	0.7754		1,769.6320	1,769.6320	0.5723		1,783.9403
Total	**1.6320**	**17.2802**	**7.7882**	**0.0183**	**7.6428**	**0.8428**	**8.4856**	**3.4865**	**0.7754**	**4.2619**		**1,769.6320**	**1,769.6320**	**0.5723**		**1,783.9403**

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	0.1394	5.1487	1.2305	0.0200	0.5772	0.0431	0.6203	0.1582	0.0412	0.1994		2,190.6744	2,190.6744	0.1177	0.3478	2,297.2498
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	0.0276	0.0194	0.3054	8.1000e-004	0.0894	5.3000e-004	0.0900	0.0237	4.9000e-004	0.0242		82.3318	82.3318	2.1400e-003	1.9600e-003	82.9685
Total	**0.1670**	**5.1681**	**1.5358**	**0.0208**	**0.6667**	**0.0436**	**0.7102**	**0.1819**	**0.0417**	**0.2236**		**2,273.0061**	**2,273.0061**	**0.1198**	**0.3497**	**2,380.2182**

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

3.4 Grading - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.9807	0.0000	2.9807	1.3598	0.0000	1.3598			0.0000			0.0000
Off-Road	1.6320	17.2802	7.7882	0.0183		0.8428	0.8428		0.7754	0.7754	0.0000	1,769.6320	1,769.6320	0.5723		1,783.9403
Total	**1.6320**	**17.2802**	**7.7882**	**0.0183**	**2.9807**	**0.8428**	**3.8235**	**1.3598**	**0.7754**	**2.1351**	**0.0000**	**1,769.6320**	**1,769.6320**	**0.5723**		**1,783.9403**

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	0.1394	5.1487	1.2305	0.0200	0.5772	0.0431	0.6203	0.1582	0.0412	0.1994		2,190.6744	2,190.6744	0.1177	0.3478	2,297.2498
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	0.0276	0.0194	0.3054	8.1000e-004	0.0894	5.3000e-004	0.0900	0.0237	4.9000e-004	0.0242		82.3318	82.3318	2.1400e-003	1.9600e-003	82.9685
Total	**0.1670**	**5.1681**	**1.5358**	**0.0208**	**0.6667**	**0.0436**	**0.7102**	**0.1819**	**0.0417**	**0.2236**		**2,273.0061**	**2,273.0061**	**0.1198**	**0.3497**	**2,380.2182**

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

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9296	9.6454	8.6757	0.0151		0.4937	0.4937		0.4542	0.4542		1,457.3699	1,457.3699	0.4713		1,469.1535
Total	**0.9296**	**9.6454**	**8.6757**	**0.0151**		**0.4937**	**0.4937**		**0.4542**	**0.4542**		**1,457.3699**	**1,457.3699**	**0.4713**		**1,469.1535**

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	0.0109	0.2792	0.0957	1.1500e-003	0.0384	2.9200e-003	0.0413	0.0111	2.7900e-003	0.0139		123.4016	123.4016	4.1400e-003	0.0179	128.8364
Worker	0.1274	0.0897	1.4123	3.7400e-003	0.4136	2.4700e-003	0.4160	0.1097	2.2800e-003	0.1120		380.7845	380.7845	9.8900e-003	9.0500e-003	383.7291
Total	**0.1384**	**0.3688**	**1.5080**	**4.8900e-003**	**0.4520**	**5.3900e-003**	**0.4574**	**0.1207**	**5.0700e-003**	**0.1258**		**504.1861**	**504.1861**	**0.0140**	**0.0269**	**512.5655**

14480 Whittier Resdiential - South Coast AQMD Air District, Summer

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

3.5 Building Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9296	9.6454	8.6757	0.0151		0.4937	0.4937		0.4542	0.4542	0.0000	1,457.3699	1,457.3699	0.4713		1,469.1535
Total	**0.9296**	**9.6454**	**8.6757**	**0.0151**		**0.4937**	**0.4937**		**0.4542**	**0.4542**	**0.0000**	**1,457.3699**	**1,457.3699**	**0.4713**		**1,469.1535**

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	0.0109	0.2792	0.0957	1.1500e-003	0.0384	2.9200e-003	0.0413	0.0111	2.7900e-003	0.0139		123.4016	123.4016	4.1400e-003	0.0179	128.8364
Worker	0.1274	0.0897	1.4123	3.7400e-003	0.4136	2.4700e-003	0.4160	0.1097	2.2800e-003	0.1120		380.7845	380.7845	9.8900e-003	9.0500e-003	383.7291
Total	**0.1384**	**0.3688**	**1.5080**	**4.8900e-003**	**0.4520**	**5.3900e-003**	**0.4574**	**0.1207**	**5.0700e-003**	**0.1258**		**504.1861**	**504.1861**	**0.0140**	**0.0269**	**512.5655**

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

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8592	8.8062	8.5866	0.0151		0.4296	0.4296		0.3952	0.3952		1,458.0339	1,458.0339	0.4716		1,469.8228
Total	**0.8592**	**8.8062**	**8.5866**	**0.0151**		**0.4296**	**0.4296**		**0.3952**	**0.3952**		**1,458.0339**	**1,458.0339**	**0.4716**		**1,469.8228**

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	6.6300e-003	0.2178	0.0858	1.0900e-003	0.0384	1.2700e-003	0.0397	0.0111	1.2100e-003	0.0123		117.6186	117.6186	3.9500e-003	0.0170	122.7916
Worker	0.1182	0.0793	1.3014	3.6200e-003	0.4136	2.3300e-003	0.4159	0.1097	2.1400e-003	0.1118		370.7397	370.7397	8.8800e-003	8.3600e-003	373.4537
Total	**0.1248**	**0.2971**	**1.3872**	**4.7100e-003**	**0.4520**	**3.6000e-003**	**0.4556**	**0.1207**	**3.3500e-003**	**0.1241**		**488.3582**	**488.3582**	**0.0128**	**0.0254**	**496.2453**

14480 Whittier Resdiential - South Coast AQMD Air District, Summer

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

3.5 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8592	8.8062	8.5866	0.0151		0.4296	0.4296		0.3952	0.3952	0.0000	1,458.0339	1,458.0339	0.4716		1,469.8228
Total	**0.8592**	**8.8062**	**8.5866**	**0.0151**		**0.4296**	**0.4296**		**0.3952**	**0.3952**	**0.0000**	**1,458.0339**	**1,458.0339**	**0.4716**		**1,469.8228**

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	6.6300e-003	0.2178	0.0858	1.0900e-003	0.0384	1.2700e-003	0.0397	0.0111	1.2100e-003	0.0123		117.6186	117.6186	3.9500e-003	0.0170	122.7916
Worker	0.1182	0.0793	1.3014	3.6200e-003	0.4136	2.3300e-003	0.4159	0.1097	2.1400e-003	0.1118		370.7397	370.7397	8.8800e-003	8.3600e-003	373.4537
Total	**0.1248**	**0.2971**	**1.3872**	**4.7100e-003**	**0.4520**	**3.6000e-003**	**0.4556**	**0.1207**	**3.3500e-003**	**0.1241**		**488.3582**	**488.3582**	**0.0128**	**0.0254**	**496.2453**

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

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7320	6.5013	8.2001	0.0133		0.3102	0.3102		0.2900	0.2900		1,212.9668	1,212.9668	0.3479		1,221.6649
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7320**	**6.5013**	**8.2001**	**0.0133**		**0.3102**	**0.3102**		**0.2900**	**0.2900**		**1,212.9668**	**1,212.9668**	**0.3479**		**1,221.6649**

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	0.0575	0.0386	0.6331	1.7600e-003	0.2012	1.1300e-003	0.2023	0.0534	1.0400e-003	0.0544		180.3599	180.3599	4.3200e-003	4.0700e-003	181.6802
Total	**0.0575**	**0.0386**	**0.6331**	**1.7600e-003**	**0.2012**	**1.1300e-003**	**0.2023**	**0.0534**	**1.0400e-003**	**0.0544**		**180.3599**	**180.3599**	**4.3200e-003**	**4.0700e-003**	**181.6802**

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

3.6 Paving - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7320	6.5013	8.2001	0.0133		0.3102	0.3102		0.2900	0.2900	0.0000	1,212.9668	1,212.9668	0.3479		1,221.6649
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7320**	**6.5013**	**8.2001**	**0.0133**		**0.3102**	**0.3102**		**0.2900**	**0.2900**	**0.0000**	**1,212.9668**	**1,212.9668**	**0.3479**		**1,221.6649**

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	0.0575	0.0386	0.6331	1.7600e-003	0.2012	1.1300e-003	0.2023	0.0534	1.0400e-003	0.0544		180.3599	180.3599	4.3200e-003	4.0700e-003	181.6802
Total	**0.0575**	**0.0386**	**0.6331**	**1.7600e-003**	**0.2012**	**1.1300e-003**	**0.2023**	**0.0534**	**1.0400e-003**	**0.0544**		**180.3599**	**180.3599**	**4.3200e-003**	**4.0700e-003**	**181.6802**

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

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	65.0754					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2556	1.7373	2.4148	3.9600e-003		0.0944	0.0944		0.0944	0.0944		375.2641	375.2641	0.0225		375.8253
Total	**65.3310**	**1.7373**	**2.4148**	**3.9600e-003**		**0.0944**	**0.0944**		**0.0944**	**0.0944**		**375.2641**	**375.2641**	**0.0225**		**375.8253**

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	0.0224	0.0150	0.2462	6.9000e-004	0.0782	4.4000e-004	0.0787	0.0208	4.1000e-004	0.0212		70.1399	70.1399	1.6800e-003	1.5800e-003	70.6534
Total	**0.0224**	**0.0150**	**0.2462**	**6.9000e-004**	**0.0782**	**4.4000e-004**	**0.0787**	**0.0208**	**4.1000e-004**	**0.0212**		**70.1399**	**70.1399**	**1.6800e-003**	**1.5800e-003**	**70.6534**

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

3.7 Architectural Coating - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	65.0754					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2556	1.7373	2.4148	3.9600e-003		0.0944	0.0944		0.0944	0.0944	0.0000	375.2641	375.2641	0.0225		375.8253
Total	**65.3310**	**1.7373**	**2.4148**	**3.9600e-003**		**0.0944**	**0.0944**		**0.0944**	**0.0944**	**0.0000**	**375.2641**	**375.2641**	**0.0225**		**375.8253**

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	0.0224	0.0150	0.2462	6.9000e-004	0.0782	4.4000e-004	0.0787	0.0208	4.1000e-004	0.0212		70.1399	70.1399	1.6800e-003	1.5800e-003	70.6534
Total	**0.0224**	**0.0150**	**0.2462**	**6.9000e-004**	**0.0782**	**4.4000e-004**	**0.0787**	**0.0208**	**4.1000e-004**	**0.0212**		**70.1399**	**70.1399**	**1.6800e-003**	**1.5800e-003**	**70.6534**

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

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.7210	0.7876	7.4215	0.0167	1.6997	0.0118	1.7115	0.4529	0.0110	0.4639		1,714.9519	1,714.9519	0.1028	0.0697	1,738.2794
Unmitigated	0.7210	0.7876	7.4215	0.0167	1.6997	0.0118	1.7115	0.4529	0.0110	0.4639		1,714.9519	1,714.9519	0.1028	0.0697	1,738.2794

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	236.08	213.20	177.32	766,867	766,867
Total	236.08	213.20	177.32	766,867	766,867

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	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.543139	0.060749	0.184760	0.130258	0.023830	0.006353	0.011718	0.009137	0.000812	0.000509	0.024193	0.000750	0.003791

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

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	0.0201	0.1716	0.0730	1.1000e-003		0.0139	0.0139		0.0139	0.0139		219.0049	219.0049	4.2000e-003	4.0200e-003	220.3063
NaturalGas Unmitigated	0.0201	0.1716	0.0730	1.1000e-003		0.0139	0.0139		0.0139	0.0139		219.0049	219.0049	4.2000e-003	4.0200e-003	220.3063

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	1861.54	0.0201	0.1716	0.0730	1.1000e-003		0.0139	0.0139		0.0139	0.0139		219.0049	219.0049	4.2000e-003	4.0200e-003	220.3063
Total		**0.0201**	**0.1716**	**0.0730**	**1.1000e-003**		**0.0139**	**0.0139**		**0.0139**	**0.0139**		**219.0049**	**219.0049**	**4.2000e-003**	**4.0200e-003**	**220.3063**

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	1.86154	0.0201	0.1716	0.0730	1.1000e-003		0.0139	0.0139		0.0139	0.0139		219.0049	219.0049	4.2000e-003	4.0200e-003	220.3063
Total		**0.0201**	**0.1716**	**0.0730**	**1.1000e-003**		**0.0139**	**0.0139**		**0.0139**	**0.0139**		**219.0049**	**219.0049**	**4.2000e-003**	**4.0200e-003**	**220.3063**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	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	1.3389	0.8258	4.6214	5.1800e-003		0.0865	0.0865		0.0865	0.0865	0.0000	998.7835	998.7835	0.0264	0.0182	1,004.8586
Unmitigated	1.3389	0.8258	4.6214	5.1800e-003		0.0865	0.0865		0.0865	0.0865	0.0000	998.7835	998.7835	0.0264	0.0182	1,004.8586

14480 Whittier Resdiential - South Coast AQMD Air District, Summer

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

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	0.0891					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.0296					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0909	0.7763	0.3304	4.9600e-003		0.0628	0.0628		0.0628	0.0628	0.0000	991.0588	991.0588	0.0190	0.0182	996.9482
Landscaping	0.1293	0.0495	4.2910	2.3000e-004		0.0238	0.0238		0.0238	0.0238		7.7247	7.7247	7.4300e-003		7.9104
Total	**1.3389**	**0.8258**	**4.6214**	**5.1900e-003**		**0.0865**	**0.0865**		**0.0865**	**0.0865**	**0.0000**	**998.7835**	**998.7835**	**0.0264**	**0.0182**	**1,004.8586**

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	0.0891					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.0296					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0909	0.7763	0.3304	4.9600e-003		0.0628	0.0628		0.0628	0.0628	0.0000	991.0588	991.0588	0.0190	0.0182	996.9482
Landscaping	0.1293	0.0495	4.2910	2.3000e-004		0.0238	0.0238		0.0238	0.0238		7.7247	7.7247	7.4300e-003		7.9104
Total	**1.3389**	**0.8258**	**4.6214**	**5.1900e-003**		**0.0865**	**0.0865**		**0.0865**	**0.0865**	**0.0000**	**998.7835**	**998.7835**	**0.0264**	**0.0182**	**1,004.8586**

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

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

14480 Whittier Resdiential - South Coast AQMD Air District, Winter

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

14480 Whittier Resdiential

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Mid Rise	52.00	Dwelling Unit	0.82	52,000.00	149

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	9			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Taken from Project Description

Construction Phase -

Off-road Equipment - Standard 8-hour work day

Off-road Equipment - Standard 8-hour work day

Off-road Equipment - Standard 8-hour work day

Off-road Equipment - T/L/B replaced with Crawler Tractor to accuretly calculate distrubance
Standard 8-hour work day

Off-road Equipment - Standard 8-hour work day

Off-road Equipment - T/L/B replaced with Crawler Tractor to accuretly calculate distrubance

Trips and VMT -

Demolition - Medical Office Building is 7,172 sf

14480 Whittier Resdiential - South Coast AQMD Air District, Winter

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

Grading - 689 CY of Cut and 1219 CY of Fill with a Total import of 530 CY

Vehicle Trips - Total trips from TIA report is 236

Vehicle Emission Factors - ex

Vehicle Emission Factors -

Vehicle Emission Factors -

Woodstoves - Per SCAQMD Rule 445 no wood burning devices

Water And Wastewater - Per CalGreen title 24 2013 20% reduction over year 2000 data

Construction Off-road Equipment Mitigation - Per SCAQMD Rule 403 Water 3 x a day, install tractout devices or sweep streets daily. Rule 403 Implementaion handbook = 46% for tractout devices.

Table Name	Column Name	Default Value	New Value
tblFireplaces	NumberGas	44.20	46.80
tblFireplaces	NumberWood	2.60	0.00
tblGrading	MaterialImported	0.00	530.00
tblLandUse	LotAcreage	1.37	0.82
tblOffRoadEquipment	HorsePower	212.00	97.00
tblOffRoadEquipment	HorsePower	212.00	97.00
tblOffRoadEquipment	LoadFactor	0.43	0.37
tblOffRoadEquipment	LoadFactor	0.43	0.37
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	4.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	1.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00

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

tblVehicleTrips	ST_TR	4.91	4.10
tblVehicleTrips	SU_TR	4.09	3.41
tblVehicleTrips	WD_TR	5.44	4.54
tblWater	IndoorWaterUseRate	3,388,009.33	2,710,407.46
tblWoodstoves	NumberCatalytic	2.60	0.00
tblWoodstoves	NumberNoncatalytic	2.60	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

14480 Whittier Resdiential - South Coast AQMD Air District, 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					
2022	1.7966	22.6763	12.1930	0.0390	8.3095	0.8864	9.1959	3.6685	0.8171	4.4856	0.0000	4,038.6577	4,038.6577	0.6920	0.3500	4,160.2498
2023	67.1376	17.4188	21.2636	0.0391	0.7314	0.8394	1.5708	0.1949	0.7844	0.9793	0.0000	3,749.2823	3,749.2823	0.8609	0.0319	3,780.3233
Maximum	**67.1376**	**22.6763**	**21.2636**	**0.0391**	**8.3095**	**0.8864**	**9.1959**	**3.6685**	**0.8171**	**4.4856**	**0.0000**	**4,038.6577**	**4,038.6577**	**0.8609**	**0.3500**	**4,160.2498**

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					
2022	1.7966	22.6763	12.1930	0.0390	3.6473	0.8864	4.5338	1.5417	0.8171	2.3588	0.0000	4,038.6577	4,038.6577	0.6920	0.3500	4,160.2498
2023	67.1376	17.4188	21.2636	0.0391	0.7314	0.8394	1.5708	0.1949	0.7844	0.9793	0.0000	3,749.2823	3,749.2823	0.8609	0.0319	3,780.3233
Maximum	**67.1376**	**22.6763**	**21.2636**	**0.0391**	**3.6473**	**0.8864**	**4.5338**	**1.5417**	**0.8171**	**2.3588**	**0.0000**	**4,038.6577**	**4,038.6577**	**0.8609**	**0.3500**	**4,160.2498**

14480 Whittier Resdiential - South Coast AQMD Air District, 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	51.57	0.00	43.30	55.05	0.00	38.92	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	1.3389	0.8258	4.6214	5.1800e-003		0.0865	0.0865		0.0865	0.0865	0.0000	998.7835	998.7835	0.0264	0.0182	1,004.8586
Energy	0.0201	0.1716	0.0730	1.1000e-003		0.0139	0.0139		0.0139	0.0139		219.0049	219.0049	4.2000e-003	4.0200e-003	220.3063
Mobile	0.6954	0.8466	7.1428	0.0159	1.6997	0.0118	1.7115	0.4529	0.0110	0.4639		1,634.9641	1,634.9641	0.1057	0.0724	1,659.1929
Total	**2.0543**	**1.8440**	**11.8372**	**0.0222**	**1.6997**	**0.1122**	**1.8119**	**0.4529**	**0.1114**	**0.5643**	**0.0000**	**2,852.7526**	**2,852.7526**	**0.1363**	**0.0946**	**2,884.3578**

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	1.3389	0.8258	4.6214	5.1800e-003		0.0865	0.0865		0.0865	0.0865	0.0000	998.7835	998.7835	0.0264	0.0182	1,004.8586
Energy	0.0201	0.1716	0.0730	1.1000e-003		0.0139	0.0139		0.0139	0.0139		219.0049	219.0049	4.2000e-003	4.0200e-003	220.3063
Mobile	0.6954	0.8466	7.1428	0.0159	1.6997	0.0118	1.7115	0.4529	0.0110	0.4639		1,634.9641	1,634.9641	0.1057	0.0724	1,659.1929
Total	**2.0543**	**1.8440**	**11.8372**	**0.0222**	**1.6997**	**0.1122**	**1.8119**	**0.4529**	**0.1114**	**0.5643**	**0.0000**	**2,852.7526**	**2,852.7526**	**0.1363**	**0.0946**	**2,884.3578**

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	11/1/2022	11/14/2022	5	10	
2	Site Preparation	Site Preparation	11/15/2022	11/15/2022	5	1	
3	Grading	Grading	11/16/2022	11/17/2022	5	2	
4	Building Construction	Building Construction	11/18/2022	4/6/2023	5	100	
5	Paving	Paving	3/31/2023	4/6/2023	5	5	
6	Architectural Coating	Architectural Coating	3/31/2023	4/6/2023	5	5	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 3

Acres of Paving: 0

Residential Indoor: 105,300; Residential Outdoor: 35,100; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Crawler Tractors	1	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41

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

Grading	Crawler Tractors	1	8.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	8.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Rollers	1	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	8.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	33.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	66.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	37.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	7.00	0.00	0.00	14.70	6.90	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 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7060	0.0000	0.7060	0.1069	0.0000	0.1069			0.0000			0.0000
Off-Road	1.5242	14.9461	11.7226	0.0210		0.7478	0.7478		0.7000	0.7000		2,022.1779	2,022.1779	0.4947		2,034.5445
Total	**1.5242**	**14.9461**	**11.7226**	**0.0210**	**0.7060**	**0.7478**	**1.4538**	**0.1069**	**0.7000**	**0.8069**		**2,022.1779**	**2,022.1779**	**0.4947**		**2,034.5445**

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	0.0136	0.5375	0.1254	2.0000e-003	0.0577	4.3100e-003	0.0620	0.0158	4.1300e-003	0.0200		219.1481	219.1481	0.0118	0.0348	229.8092
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	0.0362	0.0265	0.3451	9.5000e-004	0.1118	6.7000e-004	0.1124	0.0296	6.1000e-004	0.0303		96.9305	96.9305	2.7000e-003	2.6000e-003	97.7717
Total	**0.0498**	**0.5640**	**0.4704**	**2.9500e-003**	**0.1695**	**4.9800e-003**	**0.1745**	**0.0455**	**4.7400e-003**	**0.0502**		**316.0787**	**316.0787**	**0.0145**	**0.0374**	**327.5809**

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

3.2 Demolition - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2753	0.0000	0.2753	0.0417	0.0000	0.0417			0.0000			0.0000
Off-Road	1.5242	14.9461	11.7226	0.0210		0.7478	0.7478		0.7000	0.7000	0.0000	2,022.1779	2,022.1779	0.4947		2,034.5445
Total	**1.5242**	**14.9461**	**11.7226**	**0.0210**	**0.2753**	**0.7478**	**1.0231**	**0.0417**	**0.7000**	**0.7417**	**0.0000**	**2,022.1779**	**2,022.1779**	**0.4947**		**2,034.5445**

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	0.0136	0.5375	0.1254	2.0000e-003	0.0577	4.3100e-003	0.0620	0.0158	4.1300e-003	0.0200		219.1481	219.1481	0.0118	0.0348	229.8092
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	0.0362	0.0265	0.3451	9.5000e-004	0.1118	6.7000e-004	0.1124	0.0296	6.1000e-004	0.0303		96.9305	96.9305	2.7000e-003	2.6000e-003	97.7717
Total	**0.0498**	**0.5640**	**0.4704**	**2.9500e-003**	**0.1695**	**4.9800e-003**	**0.1745**	**0.0455**	**4.7400e-003**	**0.0502**		**316.0787**	**316.0787**	**0.0145**	**0.0374**	**327.5809**

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

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.0605	0.0000	1.0605	0.1145	0.0000	0.1145			0.0000			0.0000
Off-Road	0.7949	8.4865	4.2062	9.7300e-003		0.4254	0.4254		0.3914	0.3914		942.5966	942.5966	0.3049		950.2180
Total	**0.7949**	**8.4865**	**4.2062**	**9.7300e-003**	**1.0605**	**0.4254**	**1.4859**	**0.1145**	**0.3914**	**0.5059**		**942.5966**	**942.5966**	**0.3049**		**950.2180**

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	0.0181	0.0133	0.1725	4.8000e-004	0.0559	3.3000e-004	0.0562	0.0148	3.1000e-004	0.0151		48.4653	48.4653	1.3500e-003	1.3000e-003	48.8859
Total	**0.0181**	**0.0133**	**0.1725**	**4.8000e-004**	**0.0559**	**3.3000e-004**	**0.0562**	**0.0148**	**3.1000e-004**	**0.0151**		**48.4653**	**48.4653**	**1.3500e-003**	**1.3000e-003**	**48.8859**

14480 Whittier Resdiential - South Coast AQMD Air District, Winter

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

3.3 Site Preparation - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4136	0.0000	0.4136	0.0447	0.0000	0.0447			0.0000			0.0000
Off-Road	0.7949	8.4865	4.2062	9.7300e-003		0.4254	0.4254		0.3914	0.3914	0.0000	942.5966	942.5966	0.3049		950.2180
Total	**0.7949**	**8.4865**	**4.2062**	**9.7300e-003**	**0.4136**	**0.4254**	**0.8390**	**0.0447**	**0.3914**	**0.4360**	**0.0000**	**942.5966**	**942.5966**	**0.3049**		**950.2180**

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	0.0181	0.0133	0.1725	4.8000e-004	0.0559	3.3000e-004	0.0562	0.0148	3.1000e-004	0.0151		48.4653	48.4653	1.3500e-003	1.3000e-003	48.8859
Total	**0.0181**	**0.0133**	**0.1725**	**4.8000e-004**	**0.0559**	**3.3000e-004**	**0.0562**	**0.0148**	**3.1000e-004**	**0.0151**		**48.4653**	**48.4653**	**1.3500e-003**	**1.3000e-003**	**48.8859**

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

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.6428	0.0000	7.6428	3.4865	0.0000	3.4865			0.0000			0.0000
Off-Road	1.6320	17.2802	7.7882	0.0183		0.8428	0.8428		0.7754	0.7754		1,769.6320	1,769.6320	0.5723		1,783.9403
Total	**1.6320**	**17.2802**	**7.7882**	**0.0183**	**7.6428**	**0.8428**	**8.4856**	**3.4865**	**0.7754**	**4.2619**		**1,769.6320**	**1,769.6320**	**0.5723**		**1,783.9403**

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	0.1356	5.3749	1.2536	0.0200	0.5772	0.0431	0.6204	0.1582	0.0413	0.1995		2,191.4813	2,191.4813	0.1175	0.3479	2,298.0920
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	0.0290	0.0212	0.2761	7.6000e-004	0.0894	5.3000e-004	0.0900	0.0237	4.9000e-004	0.0242		77.5444	77.5444	2.1600e-003	2.0800e-003	78.2174
Total	**0.1646**	**5.3961**	**1.5296**	**0.0207**	**0.6667**	**0.0437**	**0.7103**	**0.1819**	**0.0418**	**0.2237**		**2,269.0257**	**2,269.0257**	**0.1196**	**0.3500**	**2,376.3094**

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

3.4 Grading - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.9807	0.0000	2.9807	1.3598	0.0000	1.3598			0.0000			0.0000
Off-Road	1.6320	17.2802	7.7882	0.0183		0.8428	0.8428		0.7754	0.7754	0.0000	1,769.6320	1,769.6320	0.5723		1,783.9403
Total	**1.6320**	**17.2802**	**7.7882**	**0.0183**	**2.9807**	**0.8428**	**3.8235**	**1.3598**	**0.7754**	**2.1351**	**0.0000**	**1,769.6320**	**1,769.6320**	**0.5723**		**1,783.9403**

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	0.1356	5.3749	1.2536	0.0200	0.5772	0.0431	0.6204	0.1582	0.0413	0.1995		2,191.4813	2,191.4813	0.1175	0.3479	2,298.0920
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	0.0290	0.0212	0.2761	7.6000e-004	0.0894	5.3000e-004	0.0900	0.0237	4.9000e-004	0.0242		77.5444	77.5444	2.1600e-003	2.0800e-003	78.2174
Total	**0.1646**	**5.3961**	**1.5296**	**0.0207**	**0.6667**	**0.0437**	**0.7103**	**0.1819**	**0.0418**	**0.2237**		**2,269.0257**	**2,269.0257**	**0.1196**	**0.3500**	**2,376.3094**

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

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9296	9.6454	8.6757	0.0151		0.4937	0.4937		0.4542	0.4542		1,457.3699	1,457.3699	0.4713		1,469.1535
Total	**0.9296**	**9.6454**	**8.6757**	**0.0151**		**0.4937**	**0.4937**		**0.4542**	**0.4542**		**1,457.3699**	**1,457.3699**	**0.4713**		**1,469.1535**

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	0.0107	0.2914	0.0992	1.1500e-003	0.0384	2.9300e-003	0.0414	0.0111	2.8000e-003	0.0139		123.4634	123.4634	4.1200e-003	0.0179	128.9048
Worker	0.1341	0.0981	1.2767	3.5300e-003	0.4136	2.4700e-003	0.4160	0.1097	2.2800e-003	0.1120		358.6430	358.6430	0.0100	9.6000e-003	361.7554
Total	**0.1448**	**0.3894**	**1.3759**	**4.6800e-003**	**0.4520**	**5.4000e-003**	**0.4574**	**0.1207**	**5.0800e-003**	**0.1258**		**482.1064**	**482.1064**	**0.0141**	**0.0275**	**490.6602**

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

3.5 Building Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9296	9.6454	8.6757	0.0151		0.4937	0.4937		0.4542	0.4542	0.0000	1,457.3699	1,457.3699	0.4713		1,469.1535
Total	**0.9296**	**9.6454**	**8.6757**	**0.0151**		**0.4937**	**0.4937**		**0.4542**	**0.4542**	**0.0000**	**1,457.3699**	**1,457.3699**	**0.4713**		**1,469.1535**

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	0.0107	0.2914	0.0992	1.1500e-003	0.0384	2.9300e-003	0.0414	0.0111	2.8000e-003	0.0139		123.4634	123.4634	4.1200e-003	0.0179	128.9048
Worker	0.1341	0.0981	1.2767	3.5300e-003	0.4136	2.4700e-003	0.4160	0.1097	2.2800e-003	0.1120		358.6430	358.6430	0.0100	9.6000e-003	361.7554
Total	**0.1448**	**0.3894**	**1.3759**	**4.6800e-003**	**0.4520**	**5.4000e-003**	**0.4574**	**0.1207**	**5.0800e-003**	**0.1258**		**482.1064**	**482.1064**	**0.0141**	**0.0275**	**490.6602**

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

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8592	8.8062	8.5866	0.0151		0.4296	0.4296		0.3952	0.3952		1,458.0339	1,458.0339	0.4716		1,469.8228
Total	**0.8592**	**8.8062**	**8.5866**	**0.0151**		**0.4296**	**0.4296**		**0.3952**	**0.3952**		**1,458.0339**	**1,458.0339**	**0.4716**		**1,469.8228**

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	6.3500e-003	0.2286	0.0885	1.0900e-003	0.0384	1.2700e-003	0.0397	0.0111	1.2200e-003	0.0123		117.8312	117.8312	3.9300e-003	0.0171	123.0174
Worker	0.1248	0.0868	1.1777	3.4100e-003	0.4136	2.3300e-003	0.4159	0.1097	2.1400e-003	0.1118		349.2241	349.2241	9.0000e-003	8.8700e-003	352.0925
Total	**0.1311**	**0.3154**	**1.2663**	**4.5000e-003**	**0.4520**	**3.6000e-003**	**0.4556**	**0.1207**	**3.3600e-003**	**0.1241**		**467.0553**	**467.0553**	**0.0129**	**0.0259**	**475.1099**

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

3.5 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8592	8.8062	8.5866	0.0151		0.4296	0.4296		0.3952	0.3952	0.0000	1,458.0339	1,458.0339	0.4716		1,469.8228
Total	**0.8592**	**8.8062**	**8.5866**	**0.0151**		**0.4296**	**0.4296**		**0.3952**	**0.3952**	**0.0000**	**1,458.0339**	**1,458.0339**	**0.4716**		**1,469.8228**

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	6.3500e-003	0.2286	0.0885	1.0900e-003	0.0384	1.2700e-003	0.0397	0.0111	1.2200e-003	0.0123		117.8312	117.8312	3.9300e-003	0.0171	123.0174
Worker	0.1248	0.0868	1.1777	3.4100e-003	0.4136	2.3300e-003	0.4159	0.1097	2.1400e-003	0.1118		349.2241	349.2241	9.0000e-003	8.8700e-003	352.0925
Total	**0.1311**	**0.3154**	**1.2663**	**4.5000e-003**	**0.4520**	**3.6000e-003**	**0.4556**	**0.1207**	**3.3600e-003**	**0.1241**		**467.0553**	**467.0553**	**0.0129**	**0.0259**	**475.1099**

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

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7320	6.5013	8.2001	0.0133		0.3102	0.3102		0.2900	0.2900		1,212.9668	1,212.9668	0.3479		1,221.6649
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7320**	**6.5013**	**8.2001**	**0.0133**		**0.3102**	**0.3102**		**0.2900**	**0.2900**		**1,212.9668**	**1,212.9668**	**0.3479**		**1,221.6649**

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	0.0607	0.0422	0.5730	1.6600e-003	0.2012	1.1300e-003	0.2023	0.0534	1.0400e-003	0.0544		169.8928	169.8928	4.3800e-003	4.3200e-003	171.2882
Total	**0.0607**	**0.0422**	**0.5730**	**1.6600e-003**	**0.2012**	**1.1300e-003**	**0.2023**	**0.0534**	**1.0400e-003**	**0.0544**		**169.8928**	**169.8928**	**4.3800e-003**	**4.3200e-003**	**171.2882**

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

3.6 Paving - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7320	6.5013	8.2001	0.0133		0.3102	0.3102		0.2900	0.2900	0.0000	1,212.9668	1,212.9668	0.3479		1,221.6649
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7320**	**6.5013**	**8.2001**	**0.0133**		**0.3102**	**0.3102**		**0.2900**	**0.2900**	**0.0000**	**1,212.9668**	**1,212.9668**	**0.3479**		**1,221.6649**

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	0.0607	0.0422	0.5730	1.6600e-003	0.2012	1.1300e-003	0.2023	0.0534	1.0400e-003	0.0544		169.8928	169.8928	4.3800e-003	4.3200e-003	171.2882
Total	**0.0607**	**0.0422**	**0.5730**	**1.6600e-003**	**0.2012**	**1.1300e-003**	**0.2023**	**0.0534**	**1.0400e-003**	**0.0544**		**169.8928**	**169.8928**	**4.3800e-003**	**4.3200e-003**	**171.2882**

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

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	65.0754					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2556	1.7373	2.4148	3.9600e-003		0.0944	0.0944		0.0944	0.0944		375.2641	375.2641	0.0225		375.8253
Total	**65.3310**	**1.7373**	**2.4148**	**3.9600e-003**		**0.0944**	**0.0944**		**0.0944**	**0.0944**		**375.2641**	**375.2641**	**0.0225**		**375.8253**

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	0.0236	0.0164	0.2228	6.5000e-004	0.0782	4.4000e-004	0.0787	0.0208	4.1000e-004	0.0212		66.0694	66.0694	1.7000e-003	1.6800e-003	66.6121
Total	**0.0236**	**0.0164**	**0.2228**	**6.5000e-004**	**0.0782**	**4.4000e-004**	**0.0787**	**0.0208**	**4.1000e-004**	**0.0212**		**66.0694**	**66.0694**	**1.7000e-003**	**1.6800e-003**	**66.6121**

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

3.7 Architectural Coating - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	65.0754					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2556	1.7373	2.4148	3.9600e-003		0.0944	0.0944		0.0944	0.0944	0.0000	375.2641	375.2641	0.0225		375.8253
Total	**65.3310**	**1.7373**	**2.4148**	**3.9600e-003**		**0.0944**	**0.0944**		**0.0944**	**0.0944**	**0.0000**	**375.2641**	**375.2641**	**0.0225**		**375.8253**

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	0.0236	0.0164	0.2228	6.5000e-004	0.0782	4.4000e-004	0.0787	0.0208	4.1000e-004	0.0212		66.0694	66.0694	1.7000e-003	1.6800e-003	66.6121
Total	**0.0236**	**0.0164**	**0.2228**	**6.5000e-004**	**0.0782**	**4.4000e-004**	**0.0787**	**0.0208**	**4.1000e-004**	**0.0212**		**66.0694**	**66.0694**	**1.7000e-003**	**1.6800e-003**	**66.6121**

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

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.6954	0.8466	7.1428	0.0159	1.6997	0.0118	1.7115	0.4529	0.0110	0.4639		1,634.9641	1,634.9641	0.1057	0.0724	1,659.1929
Unmitigated	0.6954	0.8466	7.1428	0.0159	1.6997	0.0118	1.7115	0.4529	0.0110	0.4639		1,634.9641	1,634.9641	0.1057	0.0724	1,659.1929

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	236.08	213.20	177.32	766,867	766,867
Total	236.08	213.20	177.32	766,867	766,867

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	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.543139	0.060749	0.184760	0.130258	0.023830	0.006353	0.011718	0.009137	0.000812	0.000509	0.024193	0.000750	0.003791

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

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	0.0201	0.1716	0.0730	1.1000e-003		0.0139	0.0139		0.0139	0.0139		219.0049	219.0049	4.2000e-003	4.0200e-003	220.3063
NaturalGas Unmitigated	0.0201	0.1716	0.0730	1.1000e-003		0.0139	0.0139		0.0139	0.0139		219.0049	219.0049	4.2000e-003	4.0200e-003	220.3063

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	1861.54	0.0201	0.1716	0.0730	1.1000e-003		0.0139	0.0139		0.0139	0.0139		219.0049	219.0049	4.2000e-003	4.0200e-003	220.3063
Total		**0.0201**	**0.1716**	**0.0730**	**1.1000e-003**		**0.0139**	**0.0139**		**0.0139**	**0.0139**		**219.0049**	**219.0049**	**4.2000e-003**	**4.0200e-003**	**220.3063**

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	1.86154	0.0201	0.1716	0.0730	1.1000e-003		0.0139	0.0139		0.0139	0.0139		219.0049	219.0049	4.2000e-003	4.0200e-003	220.3063
Total		**0.0201**	**0.1716**	**0.0730**	**1.1000e-003**		**0.0139**	**0.0139**		**0.0139**	**0.0139**		**219.0049**	**219.0049**	**4.2000e-003**	**4.0200e-003**	**220.3063**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	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	1.3389	0.8258	4.6214	5.1800e-003		0.0865	0.0865		0.0865	0.0865	0.0000	998.7835	998.7835	0.0264	0.0182	1,004.8586
Unmitigated	1.3389	0.8258	4.6214	5.1800e-003		0.0865	0.0865		0.0865	0.0865	0.0000	998.7835	998.7835	0.0264	0.0182	1,004.8586

14480 Whittier Resdiential - South Coast AQMD Air District, Winter

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

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	0.0891					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.0296					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0909	0.7763	0.3304	4.9600e-003		0.0628	0.0628		0.0628	0.0628	0.0000	991.0588	991.0588	0.0190	0.0182	996.9482
Landscaping	0.1293	0.0495	4.2910	2.3000e-004		0.0238	0.0238		0.0238	0.0238		7.7247	7.7247	7.4300e-003		7.9104
Total	**1.3389**	**0.8258**	**4.6214**	**5.1900e-003**		**0.0865**	**0.0865**		**0.0865**	**0.0865**	**0.0000**	**998.7835**	**998.7835**	**0.0264**	**0.0182**	**1,004.8586**

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	0.0891					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.0296					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0909	0.7763	0.3304	4.9600e-003		0.0628	0.0628		0.0628	0.0628	0.0000	991.0588	991.0588	0.0190	0.0182	996.9482
Landscaping	0.1293	0.0495	4.2910	2.3000e-004		0.0238	0.0238		0.0238	0.0238		7.7247	7.7247	7.4300e-003		7.9104
Total	**1.3389**	**0.8258**	**4.6214**	**5.1900e-003**		**0.0865**	**0.0865**		**0.0865**	**0.0865**	**0.0000**	**998.7835**	**998.7835**	**0.0264**	**0.0182**	**1,004.8586**

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

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 4.2:

EMFAC 2017 MODEL OUTPUTS

Source: EMFAC2017 (v1.0.3) Emissions Inventory
Region Type: Sub-Area
Region: Los Angeles (SC)
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	Calenc	Vehicle Cat	Model Year	Speed	Fuel	Population	VMT	Trips	Fuel_Consumption	Total Fuel	VMT	Total VMT	Miles per Gallon	Vehicle Class	Mix
Los Angeles (SC)	2022	HHDT	Aggregate	Aggregate	Gasoli	55.2683338	5768.621752	1105.809	1407.168754	1086408.186	5768.621752	6924642.476	6.37	HHDT	42.8%
Los Angeles (SC)	2022	HHDT	Aggregate	Aggregate	Diesel	56923.2659	6812046.132	566695.2	1037218.174		6812046.132				
Los Angeles (SC)	2022	HHDT	Aggregate	Aggregate	Natur	2623.533087	106827.7218	10231.78	47782.843		106827.7218				
Los Angeles (SC)	2022	LDA	Aggregate	Aggregate	Gasoli	3949334.32	149966456.8	18636854	4951890.616	4980766.411	149966456.8	154513499.1	31.02	LDA	68.6%
Los Angeles (SC)	2022	LDA	Aggregate	Aggregate	Diesel	34750.74201	1365564.321	164528.3	28875.79459		1365564.321				
Los Angeles (SC)	2022	LDA	Aggregate	Aggregate	Electr	78084.60157	3181477.948	389918.7	0		3181477.948				
Los Angeles (SC)	2022	LDT1	Aggregate	Aggregate	Gasoli	458115.2498	17043179.81	2118381	652540.1757	652844.4739	17043179.81	17194559.02	26.34	LDT1	7.8%
Los Angeles (SC)	2022	LDT1	Aggregate	Aggregate	Diesel	270.6503295	6627.200698	961.471	304.298206		6627.200698				
Los Angeles (SC)	2022	LDT1	Aggregate	Aggregate	Electr	3508.68045	144752.0157	17546.16	0		144752.0157				
Los Angeles (SC)	2022	LDT2	Aggregate	Aggregate	Gasoli	1372144.276	51802172.9	6443902	2129497.975	2140386.032	51802172.9	52650503.28	24.60	LDT2	23.6%
Los Angeles (SC)	2022	LDT2	Aggregate	Aggregate	Diesel	8920.377392	378460.5711	44003.2	10888.05719		378460.5711				
Los Angeles (SC)	2022	LDT2	Aggregate	Aggregate	Electr	14383.25646	469869.8144	72773.64	0		469869.8144				
Los Angeles (SC)	2022	LHDT1	Aggregate	Aggregate	Gasoli	105423.6869	3836224.58	1570656	367279.9521	493429.2209	3836224.58	6581195.911	13.34	LHDT1	
Los Angeles (SC)	2022	LHDT1	Aggregate	Aggregate	Diesel	64097.22758	2744971.33	806262.5	126149.2688		2744971.33				
Los Angeles (SC)	2022	LHDT2	Aggregate	Aggregate	Gasoli	17796.61867	625803.0177	265143.1	68769.69502	123223.915	625803.0177	1693224.361	13.74	LHDT2	
Los Angeles (SC)	2022	LHDT2	Aggregate	Aggregate	Diesel	25927.3097	1067421.343	326132.9	54454.22002		1067421.343				
Los Angeles (SC)	2022	MCY	Aggregate	Aggregate	Gasoli	177319.3254	1237635.154	354638.7	34667.20507	34667.20507	1237635.154	1237635.154	35.70	MCY	
Los Angeles (SC)	2022	MDV	Aggregate	Aggregate	Gasoli	921693.6708	32233548.24	4274374	1629222.502	1657925.297	32233548.24	33255882.47	20.06	MDV	
Los Angeles (SC)	2022	MDV	Aggregate	Aggregate	Diesel	19516.67089	771652.3864	96044.42	28702.79505		771652.3864				
Los Angeles (SC)	2022	MDV	Aggregate	Aggregate	Electr	7423.218148	250681.8433	37959.6	0		250681.8433				
Los Angeles (SC)	2022	MH	Aggregate	Aggregate	Gasoli	18777.11371	190934.9774	1878.462	37176.60803	43036.03201	190934.9774	252720.2849	5.87	MH	
Los Angeles (SC)	2022	MH	Aggregate	Aggregate	Diesel	5865.304828	61785.30748	586.5305	5859.423982		61785.30748				
Los Angeles (SC)	2022	MHDT	Aggregate	Aggregate	Gasoli	14505.49561	793122.3284	290226	157239.2835	550800.6485	793122.3284	4933919.071	8.96	MHDT	57.2%
Los Angeles (SC)	2022	MHDT	Aggregate	Aggregate	Diesel	64993.29301	4140796.743	639139.1	393561.365		4140796.743				
Los Angeles (SC)	2022	OBUS	Aggregate	Aggregate	Gasoli	3972.712037	163041.1007	79486.02	32643.28018	60762.46176	163041.1007	398395.5754	6.56	OBUS	
Los Angeles (SC)	2022	OBUS	Aggregate	Aggregate	Diesel	3063.907446	235354.4747	29929.83	28119.18158		235354.4747				
Los Angeles (SC)	2022	SBUS	Aggregate	Aggregate	Gasoli	1378.869452	55608.41612	5515.478	6053.496228	20413.2524	55608.41612	165144.0981	8.09	SBUS	
Los Angeles (SC)	2022	SBUS	Aggregate	Aggregate	Diesel	3460.157096	109535.682	39929.73	14359.75618		109535.682				
Los Angeles (SC)	2022	UBUS	Aggregate	Aggregate	Gasoli	460.6006493	32989.32038	1842.403	7783.285084	7991.832652	32989.32038	35240.95381	4.41	UBUS	
Los Angeles (SC)	2022	UBUS	Aggregate	Aggregate	Diesel	10.1389	1181.230112	40.5556	208.5475678		1181.230112				
Los Angeles (SC)	2022	UBUS	Aggregate	Aggregate	Electr	12	1070.403311	48	0		1070.403311				
Los Angeles (SC)	2022	UBUS	Aggregate	Aggregate	Natur	4129.345993	437121.0718	16517.38							

Source: EMFAC2017 (v1.0.3) Emissions Inventory
Region Type: Sub-Area
Region: Los Angeles (SC)
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	Calenc	Vehicle Cat	Model Year	Speed	Fuel	Population	VMT	Trips	Fuel_Consumption	Total Fuel	VMT	Total VMT	Miles per Gallon	Vehicle Class	Mix
Los Angeles (SC)	2023	HHDT	Aggregate	Aggregate	Gasoli	52.86814563	5904.510911	1057.786	1405.502268	1047691.821	5904.510911	7069012.357	6.75	HHDT	43.3%
Los Angeles (SC)	2023	HHDT	Aggregate	Aggregate	Diesel	57613.01744	6949256.203	573406.5	996118.4953		6949256.203				
Los Angeles (SC)	2023	HHDT	Aggregate	Aggregate	Natur	2795.817267	113851.643	10903.69	50167.82394		113851.643				
Los Angeles (SC)	2023	LDA	Aggregate	Aggregate	Gasoli	3986929.129	149418105.6	18815398	4801114.553	4830477.539	149418105.6	154650692.3	32.02	LDA	68.4%
Los Angeles (SC)	2023	LDA	Aggregate	Aggregate	Diesel	36740.62878	1426244.815	174171.3	29362.98643		1426244.815				
Los Angeles (SC)	2023	LDA	Aggregate	Aggregate	Electr	91678.53845	3806341.937	457107.9	0		3806341.937				
Los Angeles (SC)	2023	LDT1	Aggregate	Aggregate	Gasoli	472375.6724	17372474.6	2187811	648190.6909	648468.4663	17372474.6	17575389.14	27.10	LDT1	7.9%
Los Angeles (SC)	2023	LDT1	Aggregate	Aggregate	Diesel	252.4118747	6132.921962	894.906	277.7753077		6132.921962				
Los Angeles (SC)	2023	LDT1	Aggregate	Aggregate	Electr	4635.248736	196781.6242	23233.68	0		196781.6242				
Los Angeles (SC)	2023	LDT2	Aggregate	Aggregate	Gasoli	1397479.324	52162943.36	6567821	2069799.895	2081112.701	52162943.36	53151784.34	25.54	LDT2	23.7%
Los Angeles (SC)	2023	LDT2	Aggregate	Aggregate	Diesel	9765.230182	404272.1374	48008.06	11312.80557		404272.1374				
Los Angeles (SC)	2023	LDT2	Aggregate	Aggregate	Electr	18283.62829	584568.8418	92279.45	0		584568.8418				
Los Angeles (SC)	2023	LHDT1	Aggregate	Aggregate	Gasoli	105195.9307	3800052.408	1567263	359383.3271	490307.6912	3800052.408	6693435.515	13.65	LHDT1	
Los Angeles (SC)	2023	LHDT1	Aggregate	Aggregate	Diesel	68776.35703	2893383.107	865120.1	130924.3641		2893383.107				
Los Angeles (SC)	2023	LHDT2	Aggregate	Aggregate	Gasoli	17937.98852	625878.5235	267249.3	67954.38628	124551.7848	625878.5235	1752422.55	14.07	LHDT2	
Los Angeles (SC)	2023	LHDT2	Aggregate	Aggregate	Diesel	27873.77545	1126544.027	350617	56597.39854		1126544.027				
Los Angeles (SC)	2023	MCY	Aggregate	Aggregate	Gasoli	183955.3723	1265084.637	367910.7	35454.79504	35454.79504	1265084.637	1265084.637	35.68	MCY	
Los Angeles (SC)	2023	MDV	Aggregate	Aggregate	Gasoli	931795.9713	32264362.15	4326648	1576940.395	1606710.461	32264362.15	33429948.33	20.81	MDV	
Los Angeles (SC)	2023	MDV	Aggregate	Aggregate	Diesel	21297.50738	823486.0536	104465.3	29770.06577		823486.0536				
Los Angeles (SC)	2023	MDV	Aggregate	Aggregate	Electr	10378.92649	342100.1259	52903.33	0		342100.1259				
Los Angeles (SC)	2023	MH	Aggregate	Aggregate	Gasoli	18786.35518	191391.548	1879.387	36760.42896	42786.48288	191391.548	255711.0272	5.98	MH	
Los Angeles (SC)	2023	MH	Aggregate	Aggregate	Diesel	6166.797629	64319.47927	616.6798	6026.053915		64319.47927				
Los Angeles (SC)	2023	MHDT	Aggregate	Aggregate	Gasoli	14623.10816	797300.0842	292579.1	155867.6623	541983.0098	797300.0842	5044166.58	9.31	MHDT	56.7%
Los Angeles (SC)	2023	MHDT	Aggregate	Aggregate	Diesel	64520.19017	4246866.496	635166.6	386115.3475		4246866.496				
Los Angeles (SC)	2023	OBUS	Aggregate	Aggregate	Gasoli	3965.955178	159342.8081	79350.83	31499.29974	59407.05045	159342.8081	400434.5436	6.74	OBUS	
Los Angeles (SC)	2023	OBUS	Aggregate	Aggregate	Diesel	3071.453276	241091.7355	29880.37	27907.75071		241091.7355				
Los Angeles (SC)	2023	SBUS	Aggregate	Aggregate	Gasoli	1481.565044	58916.21473	5926.26	6358.131428	20718.13526	58916.21473	169554.5835	8.18	SBUS	
Los Angeles (SC)	2023	SBUS	Aggregate	Aggregate	Diesel	3497.078427	110638.3688	40355.8	14360.00383		110638.3688				
Los Angeles (SC)	2023	UBUS	Aggregate	Aggregate	Gasoli	463.3229945	33183.96593	1853.292	7630.187276	7838.734844	33183.96593	35435.59935	4.52	UBUS	
Los Angeles (SC)	2023	UBUS	Aggregate	Aggregate	Diesel	10.1389	1181.230112	40.5556	208.5475678		1181.230112				
Los Angeles (SC)	2023	UBUS	Aggregate	Aggregate	Electr	12	1070.403311	48	0		1070.403311				
Los Angeles (SC)	2023	UBUS	Aggregate	Aggregate	Natur	4153.840831	439713.4848	16615.36							

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