Keller Crossing Specific Plan

ENERGY ANALYSIS

COUNTY OF RIVERSIDE

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LIST OF ABBREVIATED TERMS

%	Percent
(1)	Reference
AQIA	Keller Crossing Specific Plan Air Quality Impact Analysis
BACM	best available control measures
BTS	backbone transmission system
BTU	British Thermal Unit
CAPCOA	California Air Pollution Control Officers Association
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act
City	City of Perris
CMAQ	Congestion Mitigation and Air Quality Improvement
CPEP	Clean Power and Electrification Pathway
CPUC	California Public Utilities Commission
CTA	core transport agents
DMV	Department of Motor Vehicles
EIA	Energy Information Administration
EMFAC	EMissions FACtor model
EPA	Environmental Protection Agency
FAR	firm access rights
FERC	Federal Energy Regulatory Commission
GHG	greenhouse gas
IEPR	Integrated Energy Policy Report
ISO	Independent Service Operator
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
ITE	Institute of Transportation Engineers
LDA	light-duty-auto vehicles
MHDT	medium-heavy duty trucks
MMcfd	million cubic feet per day
MPOs	Metropolitan Planning Organizations
Project	Keller Crossing Specific Plan Project
PV	photovoltaic
RPS	California's Renewable Portfolio Standard
SB	Senate Bill
SCAB	South California Air Basin
SCAG	Southern California Association of Governments

SCE	Southern California Edison
SDAB	San Diego Air Basin
TEA-21	The Transportation Equity Act for the 21st Century
U.S.	United States
VMT	vehicle miles traveled

EXECUTIVE SUMMARY

ES.1 SUMMARY OF FINDINGS

The results of this *Keller Crossing Specific Plan 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 Keller Crossing Specific Plan Project (Project). The purpose of this report is to quantify anticipated energy demand associated with construction and operation of the proposed Project, determine if the usage of the energy is inefficient, atypical, or wasteful for the land use type. The report is intended for use in the environmental review being conducted by the County of Riverside (County) under the California Environmental Quality Act (CEQA).

1.1 SITE LOCATION

The proposed Project is located on the northwest corner of Winchester Road (SR-79) and Keller Road in the County of Riverside, as shown on Exhibit 1-A. The area surrounding the Project Site is developed with rural residential homes.

1.2 PROJECT DESCRIPTION

A preliminary land use plan for the proposed Project is shown on Exhibit 1-B. The Project is proposing to amend the Specific Plan with a mix of residential and commercial uses, as described below:

- Phase 1 (Opening Year of 2023) is anticipated to include the development of 195 single family detached residential dwelling units.
- Project Buildout (Buildout year of 2028) is anticipated to include a total of 356 singe family detached residential dwelling units, 80 attached senior housing units, a 5.7-acre sports park/active park[1], and 176,000 square feet of commercial retail uses. For the purposes of the calculating and evaluating a conservative trip generation, the commercial retail area is proposed to include a 50,000 square foot supermarket, 14,000 square foot pharmacy, 101,500 square feet of commercial retail uses, and 10,500 square feet of fast-food restaurant with drive-through window use. The commercial area land use assumptions are an estimation of the types of uses that could be developed within this area of the Specific Plan.

[1] The Project design has been updated and reduce the main park size from 6.5 to 5.7 acres. The modeling and findings are based on a worst-case project with a 6.5-acre park.

EXHIBIT 1-A: LOCATION MAP

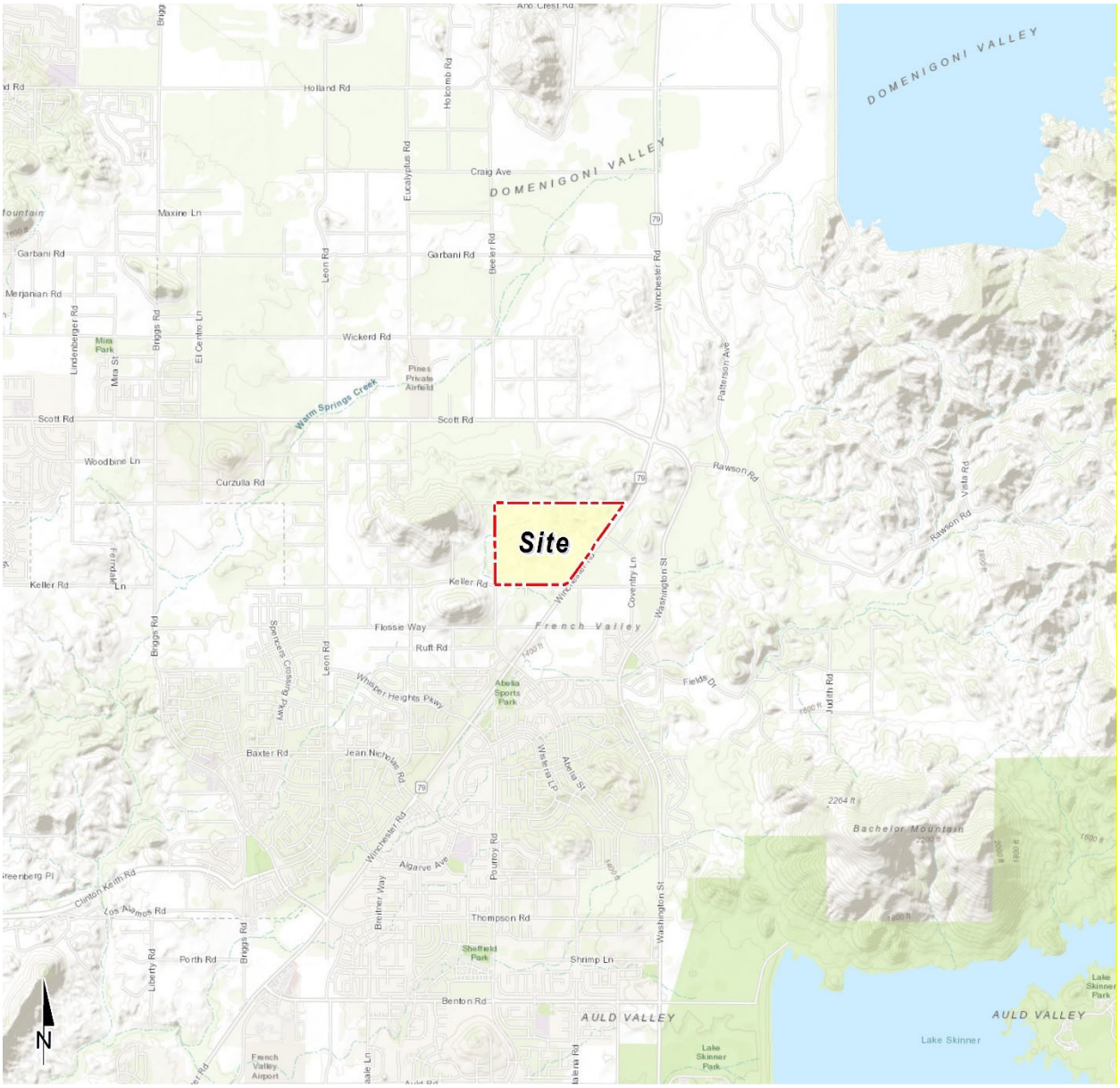
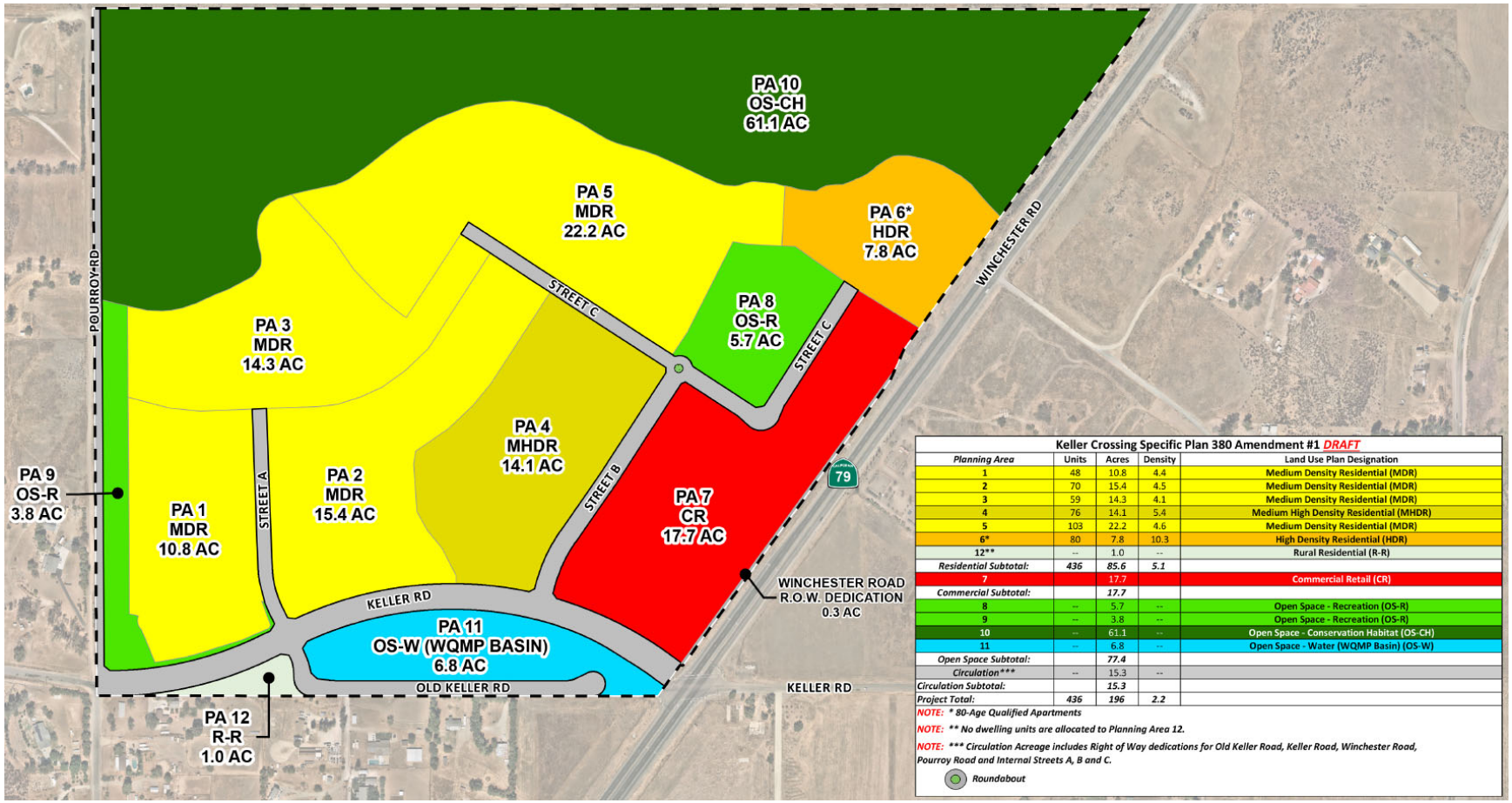


EXHIBIT 1-B: PRELIMINARY LAND USE PLAN



Keller Crossing Specific Plan 380 Amendment #1 *DRAFT*

Planning Area	Units	Acres	Density	Land Use Plan Designation
1	48	10.8	4.4	Medium Density Residential (MDR)
2	70	15.4	4.5	Medium Density Residential (MDR)
3	59	14.3	4.1	Medium Density Residential (MDR)
4	76	14.1	5.4	Medium High Density Residential (MHDR)
5	103	22.2	4.6	Medium Density Residential (MDR)
6*	80	7.8	10.3	High Density Residential (HDR)
12**	--	1.0	--	Rural Residential (R-R)
Residential Subtotal:	*436*	*85.6*	*5.1*	
7		17.7		Commercial Retail (CR)
Commercial Subtotal:		*17.7*		
8	--	5.7	--	Open Space - Recreation (OS-R)
9	--	3.8	--	Open Space - Recreation (OS-R)
10	--	61.1	--	Open Space - Conservation Habitat (OS-CH)
11	--	6.8	--	Open Space - Water (WQMP Basin) (OS-W)
Open Space Subtotal:		*77.4*		
*Circulation****	--	15.3	--	
Circulation Subtotal:		*15.3*		
Project Total:	*436*	*196*	*2.2*	

*NOTE: * 80-Age Qualified Apartments*

*NOTE: ** No dwelling units are allocated to Planning Area 12.*

*NOTE: *** Circulation Acreage includes Right of Way dedications for Old Keller Road, Keller Road, Winchester Road, Pourroy Road and Internal Streets A, B and C.*

Roundabout

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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 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	248	0.12%	219	7,765	8,233	2.96%
Natural Gas	86,136	42.97%	62	8,859	95,057	34.23%
Oil	36	0.02%	0	0	36	0.01%
Other	411	0.20%	0	11	422	0.15%
Nuclear	16,163	8.06%	39	8,743	24,945	8.98%
Large Hydro	33,145	16.53%	6,387	1,071	40,603	14.62%
Unspecified	0	0.00%	6,609	13,767	20,376	7.34%
Non-Renewables and Unspecified Totals	136,139	67.91%	13,315	40,218	189,672	68.30%
Biomass	5,851	2.92%	903	33	6,787	2.44%
Geothermal	10,943	5.46%	99	2,218	13,260	4.77%
Small Hydro	5,349	2.67%	292	4	5,646	2.03%
Solar	28,513	14.22%	282	5,295	34,090	12.28%
Wind	13,680	6.82%	9,038	5,531	28,249	10.17%
Renewables Totals	64,336	32.09%	10,615	13,081	88,032	31.70%
Total	200,475	100.00%	23,930	53,299	277,704	100.00%

Source: https://www.energy.ca.gov/almanac/electricity_data/total_system_power.html

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 ISO studies revealed the extent to which the South California Air Basin (SCAB) and the San Diego Air Basin (SDAB) 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 2018 and 2019 IEPR's identify 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 2018 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. SCE also purchases from independent power producers and utilities, including out-of-state suppliers (11).

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 (12).

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%. (13).

TABLE 2-2: SCE 2019 POWER CONTENT MIX

Energy Resources	2019 SCE Power Mix
Eligible Renewable	**35.1%**
Biomass & waste	0.6%
Geothermal	5.9%
Small Hydroelectric	1.0%
Solar	16.0%
Wind	11.5%
Coal	**0%**
Large Hydroelectric	**7.9%**
Natural Gas	**16.1%**
Nuclear	**8.2%**
Other	**0.1%**
Unspecified Sources of power*	32.6%
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 (FAR) system in 2008, and it is now referred to as the backbone transmission system (BTS) 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." (14)

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 (DMV) identified 36.4 million registered vehicles in California (15), and those vehicles consume an estimated 17.8 billion gallons of fuel each year[2]. Gasoline (and other vehicle fuels) are commercially provided commodities and would be available to the Project patrons and employees via commercial outlets.

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 (15). 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 (16). 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 (17), or the equivalent of 183 billion gallons of gasoline.

[2] Fuel consumptions estimated utilizing information from EMFAC2017.

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 (18). 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, 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 Title are applicable to building permit applications submitted on or after January 1, 2020. The 2019 Title 24 standards require solar PV systems for new residential development 3 stories or less, establishes requirements for newly constructed healthcare facilities, encourages demand responsive technologies for residential buildings, and updates indoor and outdoor lighting standards for nonresidential buildings. According to the CEC, single-family homes built with the 2019 standards use approximately 7% less energy compared to the residential homes built under the 2016 standards. Additionally, after implementation of solar PV systems, homes built under the 2019 standards use 53% less energy than homes built under the 2016 standards. Nonresidential buildings use approximately 30% less energy due to lighting upgrades compared to the 2016 standards (19).

3.2.4 AB 1493 PAVLEY REGULATIONS AND FUEL EFFICIENCY STANDARDS

California AB 1493, enacted on July 22, 2002, requires 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 (20).

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).

3.2.7 100 PERCENT CLEAN ENERGY ACT OF 2018

The 100 Percent Clean Energy Act of 2018 (SB 100, De León, Chapter 312, Statutes of 2018) establishes a target for renewable and zero-carbon resources to supply 100 percent of retail sales of electricity by 2045. The bill also increases the state's RPS to 60 percent of retail sales by December 31, 2030 and requires all state agencies to incorporate these targets into their relevant planning.

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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* (1), this report analyzes the project's anticipated energy use during construction and operations to determine if the Project would:

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

4.2 METHODOLOGY

Appendix F of the *State CEQA Guidelines* (21), provides some guidance for assessing these criteria, which implies that the means of achieving the goal of energy conservation includes decreasing overall per capita energy consumption; decreasing reliance on fossil fuels such as coal, natural gas, and oil; and increasing reliance on renewable energy sources. Additionally, the CEQA Guidelines state "[a] lead agency may consider the extent to which an energy source serving the project has already undergone environmental review that adequately analyzed and mitigated the effects of energy production."

Information from the CalEEMod Version 2020.4.0 outputs for the *Keller Crossing Specific Plan Greenhouse Gas Analysis* and the *Keller Crossing Specific Plan Air Quality Impact Analysis* (Urban Crossroads, Inc.) (AQIA) (22) (23) was utilized in this analysis, detailing Project related construction equipment, transportation energy demands, and facility energy demands.

4.2.1 CALEEMOD

The California Air Pollution Control Officers Association (CAPCOA) in association 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 used for construction and operation of the Project.

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 December 2024. 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, impacts would be reduced since emission factors for construction decrease as time passes due to emission regulations becoming more stringent[3]. The duration of construction activity and associated equipment represents a reasonable approximation of the expected construction fleet as required per *CEQA Guidelines* (26). The duration of construction activity was based on the 2023 opening year. While construction would continue into 2024, to be conservative, all operations are modeled in the year 2023.

TABLE 4-1: CONSTRUCTION DURATION

Phase Name	Start Date	End Date	Days
Site Preparation	11/1/2022	12/16/2022	34
Grading	11/16/2022	2/3/2023	58
Building Construction	2/6/2023	12/27/2024	495
Paving	7/15/2024	12/27/2024	120
Architectural Coating	7/15/2024	12/27/2024	120

Source: CalEEMod, Appendix 4.1.

Based on the *2021 National Construction Estimator*, Richard Pray (2021) (27), the typical power cost per 1,000 sf of construction per month is estimated to be $2.37. The proposed Project includes the development of approximately 648,800 sf residential land uses[4], 176,000 sf of commercial land uses, and 283,140 sf of park space. Based on information provided in the AQIA, construction activities are anticipated to occur over the course of 25 months (22). 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 $70,231.40.

[3] 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.

[4] Based on CalEEMod output, see Appendix 3.1. CalEEMod assumes each single-family residence to be 1,800 square feet and each senior housing unit to be 1,000 square feet. (365*1,800=640,800)+(80*1000=80,000)

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
Single Family Residential	$2.37	640.800	25	$37,967.40
Age Restricted Units	$2.37	80.000	25	$4,740.00
Super Market	$2.37	50.000	25	$2,962.50
Pharmacy	$2.37	14.000	25	$829.50
Retail	$2.37	101.500	25	$6,013.88
Fast-Food Restaurant	$2.37	10.500	25	$622.13
Park	$2.37	283.140	25	$16,776.05
TOTAL PROJECT CONSTRUCTION COST				***$69,911.45***

The SCE's general service rate schedule were used to determine the Project's electrical usage. As of June 1, 2020, SCE's general service rate is $0.11 per kilowatt hours (kWh) of electricity for residential services (28). As shown on Table 4-3, the total electricity usage from on-site Project construction related activities is estimated to be approximately 638,467 kWh.

TABLE 4-3: CONSTRUCTION ELECTRICITY USAGE

Land Use	Cost per kWh	Total Project Construction Electricity Usage (kWh)
Single Family Residential	$0.11	345,158
Age Restricted Units	$0.11	43,091
Super Market	$0.11	26,932
Pharmacy	$0.11	7,541
Retail	$0.11	54,672
Fast-Food Restaurant	$0.11	5,656
Park	$0.11	152,510
TOTAL PROJECT CONSTRUCTION ELECTRICTY USAGE (kWh)		***635,559***

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 18.5 horsepower hour per gallon (hp-hr-gal.), obtained from CARB 2018 Emissions Factors Tables and cited fuel consumption rate factors presented in Table D-24 of the Moyer guidelines (29).

TABLE 4-4: CONSTRUCTION EQUIPMENT ASSUMPTIONS

Phase Name	Equipment	Amount	Hours Per Day
Site Preparation	Crawler Tractors	4	8
	Rubber Tired Dozers	3	8
Grading	Crawler Tractors	2	8
	Excavators	2	8
	Graders	1	8
	Rubber Tired Dozers	1	8
	Scrapers	2	8
Building Construction	Cranes	2	8
	Forklifts	6	8
	Generator Sets	2	8
	Tractors/Loaders/Backhoes	6	8
	Welders	2	8
Paving	Pavers	2	8
	Paving Equipment	2	8
	Rollers	2	8
Architectural Coating	Air Compressors	1	8

Source: Appendix 4.1

For the purposes of this analysis, the calculations are based on all construction equipment being diesel-powered which is consistent with industry standards. Diesel fuel would be supplied by existing commercial fuel providers serving the County and region[5]. As presented in Table 4-5, Project construction activities would consume an estimated 223,522 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.

[5] Based on Appendix A of the CalEEMod User's Guide, Construction consists of several types of off-road equipment. Since the majority of the off-road construction equipment used for construction projects are diesel fueled, CalEEMod assumes all of the equipment operates on diesel fuel.

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)
Site Preparation	34	Crawler Tractors	97	4	8	0.37	1,148.48	788.9
		Rubber Tired Dozers	247	3	8	0.40	2,371.20	1,628.7
Grading	58	Excavators	97	2	8	0.37	574.24	672.8
		Graders	158	2	8	0.38	960.64	1,125.6
		Rubber Tired Dozers	187	1	8	0.41	613.36	718.7
		Scrapers	247	1	8	0.40	790.40	926.1
Building Construction	495	Cranes	367	2	8	0.48	2,818.56	28,185.6
		Forklifts	231	2	8	0.29	1,071.84	10,718.4
		Tractors/Loaders/Backhoes	89	6	8	0.20	854.40	8,544.0
		Generator Sets	84	2	8	0.74	994.56	9,945.6
		Welders	97	6	8	0.37	1,722.72	17,227.2
Paving	120	Pavers	46	2	8	0.45	331.20	802.9
		Paving Equipment	130	2	8	0.42	873.60	2,117.8
		Rollers	132	2	8	0.36	760.32	1,843.2
Architectural Coating	120	Air Compressors	80	2	8	0.38	486.40	1,179.2
CONSTRUCTION FUEL DEMAND (GALLONS DIESEL FUEL)								***85,245.5***

4.3.3 CONSTRUCTION TRIPS AND VMT

Based on the CalEEMod, the Trip and VMT are the number and length (in terms VMT[6]) of on-road vehicle trips for workers and vendors for each construction phase. The trips identified in Table 4-6 are based on information provided by the Project Applicant and adjusted to the overall length of each phase with an opening year of 2023.

TABLE 4-6: CONSTRUCTION TRIPS AND VMT

Phase Name	Worker Trips / Day	Vendor Trips / Day	Worker Trip Length	Vendor Trip Length
Site Preparation	18	0	14.7	6.9
Grading	20	0	14.7	6.9
Building Construction	1,247	467	14.7	6.9
Paving	15	0	14.7	6.9
Architectural Coating	249	0	14.7	6.9

Source: 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 9,581,313 VMT during the 25 months of construction (22). Based on CalEEMod methodology, emissions from construction worker trips are generated by light-duty-auto vehicles (LDA), light-duty-trucks 1 (LDT1[7]), and light-duty-trucks 2 (LDT2[8]). Based on EMFAC2017 vehicle population data for Year 2022, 70.9% of these vehicles would be LDA, 7.2% would be LDT1, and 21.9% 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 California 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 ranging from model year 1974 to model year 2022 are estimated to have a fuel efficiency of 32.77 miles per gallon (mpg). Table 4-7 provides an estimated annual fuel consumption resulting from LDAs related to the Project

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

[7] 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.

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

construction worker trips. Based on Table 4-7, it is estimated that 207,004 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)
Site Preparation	34	13	14.7	6,497	32.77	198
Grading	58	15	14.7	12,789	32.77	390
Building Construction	495	884	14.7	6,432,426	32.77	196,295
Paving	120	11	14.7	19,404	32.77	592
Architectural Coating	120	177	14.7	312,228	32.77	9,528
TOTAL CONSTRUCTION WORKER (LDA) FUEL CONSUMPTION						***207,004***

The EMFAC2017 aggregated fuel economy of LDT1s ranging from model year 1974 to model year 2022 are estimated to have a fuel efficiency 27.55 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 25,184 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)
Site Preparation	34	2	14.7	1,999	27.55	73
Grading	58	2	14.7	1,705	27.55	62
Building Construction	495	90	14.7	654,885	27.55	23,769
Paving	120	2	14.7	3,528	27.55	128
Architectural Coating	120	18	14.7	31,752	27.55	1,152
TOTAL CONSTRUCTION WORKER (LDT1) FUEL CONSUMPTION						***25,184***

The EMFAC2017 aggregated fuel economy of LDT2s ranging from model year 1974 to model years 2022 are estimated to have a fuel efficiency of 26.03 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 80,831 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)
Site Preparation	34	4	14.7	1,999	26.03	77
Grading	58	5	14.7	4,263	26.03	164
Building Construction	495	274	14.7	1,993,761	26.03	76,592
Paving	120	4	14.7	7,056	26.03	271
Architectural Coating	120	55	14.7	97,020	26.03	3,727
TOTAL CONSTRUCTION WORKER (LDT2) FUEL CONSUMPTION						***80,831***

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 795,812 VMT along area roadways for the Project over the duration of construction activity (30). Based on CalEEMod standard inputs, vehicles associated with vendor trips are limited to medium-heavy duty trucks (MHDT) and heavy-heavy duty trucks (HHDT) (30). 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. EMFAC2017 was run for the MHDT and HHDT vehicle classes within the California sub-area for the 2022 calendar year. Data from EMFAC2017 is shown in Appendix 4.2.

As generated by EMFAC2017, an aggregated fuel economy of MHDTs ranging from model year 1974 to model year 2022 are estimated to have a fuel efficiency of 10.37 mpg. Based on Table 4-10, it is estimated that 68,170 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	495	207	6.9	707,009	10.37	68,170
TOTAL CONSTRUCTION VENDOR (MHDT) FUEL CONSUMPTION						***68,170***

Tables 4-11 shows the estimated fuel economy of HHDTs accessing the Project site. As generated by EMFAC2017, an aggregated fuel economy of HHDTs ranging from model year 1974 to model year 2022 are estimated to have a fuel efficiency of 7.06 mpg. Based on Tables 4-11, fuel consumption from construction vendor trips (HHDTs) will total approximately 126,229 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	495	261	6.9	891,446	7.06	126,229
TOTAL CONSTRUCTION VENDOR (HHDT) FUEL CONSUMPTION						***126,229***

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 (BACM). 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. The percentage of each vehicle class shown in Table 4-12 is based on CalEEMod defaults. As shown in Table 4-12, the Project will result in 11,581,479 annual VMT and an estimated annual fuel consumption of 429,229 gallons of fuel. These calculations are conservative as they do not include any TDM measures, which are designed to reduce VMT from vehicles.

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 Table 4-13 and Table 4-14. Energy demand estimates are generates as part of the AQIA calculations provided in Appendices 4.1.

TABLE 4-12: TOTAL PROJECT-GENERATED TRAFFIC ANNUAL FUEL CONSUMPTION (ALL VEHICLES)

Vehicle Type	Annual Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Annual Fuel Consumption (gallons)
LDA	6,290,353	33.8	186,182
LDT1	703,563	28.4	24,789
LDT2	2,139,794	27.0	79,190
MDV	1,508,580	21.5	70,315
LHD1	275,987	14.6	18,930
LHD2	73,577	15.3	4,823
MHD	135,712	10.8	12,595
HHD	105,820	7.4	14,231
OBUS	9,404	6.7	1,396
UBUS	5,895	5.0	1,187
MCY	280,191	37.9	7,394
SBUS	8,686	8.1	1,078
MH	43,905	6.2	7,118
Total (All Vehicles)	11,581,467	NA	**429,229**

TABLE 4-13: PROJECT ANNUAL OPERATIONAL NATURAL GAS DEMAND

Natural Gas Demand	kBTU/year
Single Family Residential	10,070,200
Age Restricted Housing	1,210,070
Super Market	956,500
Pharmacy	30,800
Retail	223,300
Fast-Food Restaurant	2,862,930
Park	0
TOTAL PROJECT NATURAL GAS DEMAND	***15,353,800***

kBTU – kilo-British Thermal Units

TABLE 4-14: PROJECT ANNUAL OPERATIONAL ELECTRICITY DEMAND

Electricity Demand	kWh/year
Single Family Residential	2,835,420
Age Restricted Housing	348,855
Super Market	1,819,000
Pharmacy	169,960
Retail	1,232,210
Fast-Food Restaurant	484,680
Park	0
TOTAL PROJECT ELECTRICITY DEMAND	***6,890,125***

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 4-12 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 $69,911.45. 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 635,559 kWh.

Construction equipment used by the Project would result in single event consumption of approximately 85,246 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, 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. BACMs 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 313,019 gallons of fuel. Additionally, fuel consumption from construction vendor and hauling trips (MHDTs and HHDTs) will total approximately 194,399 gallons. Diesel fuel would be supplied by County and 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 (18). 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 429,229 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 use developments of similar scale and configuration, as reflected respectively in the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Ed., 2017); 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. 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: 15,353,800 kBTU/year of natural gas; and 6,890,125 kWh/year of electricity. Natural gas would be supplied to the Project by SoCalGas; electricity would be supplied by SCE. The Project proposes conventional commercial

retail and residential uses reflecting contemporary energy efficient/energy conserving designs and operational programs. The Project would also be required to install solar PV systems and would not result in inefficient or unnecessary energy use. The Project does not propose uses that are inherently energy intensive and the energy demands in total would be comparable to other mixed use projects 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 (SCAG) 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* (CPEP) 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 along major transportation corridors with proximate 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 the CEC anticipates that, with incorporation of solar PV requirements, residential buildings will use approximately 53% less energy compared to the 2016 Energy Code (19).

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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5 REFERENCES

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6 CERTIFICATIONS

The contents of this energy analysis report represent an accurate depiction of the environmental impacts associated with the proposed Keller Crossing Specific Plan. 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 (619) 778-1971.

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EDUCATION

Bachelor of Science in Urban and Regional Planning
California Polytechnic State University, Pomona • June 2000

PROFESSIONAL AFFILIATIONS

ASA – Acoustical Society of America
APA – American Planning Association
AWMA – Air and Waste Management Association

PROFESSIONAL CERTIFICATIONS``

HARP Model Training – Bluescape Environmental • 2004
Air Dispersion Modeling – Lakes Environmental • 2008

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APPENDIX 4.1:

CALEEMOD PROJECT ANNUAL EMISSIONS MODEL OUTPUTS

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Keller Crossing - South Coast AQMD Air District, Annual

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

Keller Crossing

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Pharmacy/Drugstore w/o Drive Thru	14.00	1000sqft	0.32	14,000.00	0
Other Non-Asphalt Surfaces	48.30	Acre	48.30	2,103,948.00	0
City Park	6.50	Acre	6.50	283,140.00	0
Fast Food Restaurant with Drive Thru	10.50	1000sqft	0.24	10,500.00	0
Retirement Community	80.00	Dwelling Unit	16.00	80,000.00	229
Single Family Housing	356.00	Dwelling Unit	115.58	640,800.00	1018
Strip Mall	101.50	1000sqft	3.31	101,500.00	0
Supermarket	50.00	1000sqft	1.15	50,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**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 - Acres of retail increased to match site plan acreage of 191.4

Construction Phase - Based on developed time frame

Off-road Equipment - Standard 8-hour day

Off-road Equipment - increased equipmnet for construction duration and standard 8-hour day

Keller Crossing - South Coast AQMD Air District, Annual

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

Off-road Equipment - Tractor/Backhoe/Loaders and Excavators replaced with crwler tractor for dust generation. HP and LF from Tractor/Backhoe/Loaders and Excavators used to simulate original equipmnet

Off-road Equipment -

Off-road Equipment - Tractor/Backhoe/Loaders replaced with crwler tractor for dust generation. HP and LF from Tractor/Backhoe/Loaders used to simulate original equipment

Trips and VMT -

Grading - No import or export

Vehicle Trips - Trip rate apportioned based on traffic report and ratio of weekday to weekend trip

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Woodstoves - Rule 445

Area Coating -

Water And Wastewater - 20% reduction in indoor water use based on CALGreen pluming fixture flow rates as compared to CalEEMod 2000 data set.

Solid Waste -

Construction Off-road Equipment Mitigation - Rule 403 watering 4x/day and trackout device

Energy Mitigation - Based on Title 24 requirements

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Parking	126,237.00	0.00
tblArchitecturalCoating	ConstArea_Residential_Exterior	486,540.00	490,185.00
tblArchitecturalCoating	ConstArea_Residential_Interior	1,459,620.00	1,470,555.00
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	46
tblConstDustMitigation	WaterExposedAreaPM10PercentReduction	61	74
tblConstDustMitigation	WaterExposedAreaPM25PercentReduction	61	74
tblConstructionPhase	NumDays	120.00	34.00
tblConstructionPhase	NumDays	310.00	58.00
tblConstructionPhase	NumDays	3,100.00	495.00
tblConstructionPhase	NumDays	220.00	120.00

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

tblConstructionPhase	NumDays	220.00	120.00
tblFireplaces	NumberGas	68.00	72.00
tblFireplaces	NumberGas	302.60	320.00
tblFireplaces	NumberNoFireplace	35.60	36.00
tblFireplaces	NumberWood	4.00	0.00
tblFireplaces	NumberWood	17.80	0.00
tblLandUse	LotAcreage	2.33	3.31
tblOffRoadEquipment	HorsePower	212.00	97.00
tblOffRoadEquipment	HorsePower	212.00	97.00
tblOffRoadEquipment	HorsePower	212.00	158.00
tblOffRoadEquipment	LoadFactor	0.43	0.37
tblOffRoadEquipment	LoadFactor	0.43	0.37
tblOffRoadEquipment	LoadFactor	0.43	0.38
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblTripsAndVMT	WorkerTripNumber	1,246.00	1,247.00
tblVehicleTrips	ST_TR	1.96	36.34
tblVehicleTrips	ST_TR	616.12	177.42
tblVehicleTrips	ST_TR	90.08	41.87
tblVehicleTrips	ST_TR	2.03	0.90
tblVehicleTrips	ST_TR	9.54	2.75
tblVehicleTrips	ST_TR	42.04	16.35
tblVehicleTrips	ST_TR	177.62	51.17

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

tblVehicleTrips	SU_TR	2.19	40.60
tblVehicleTrips	SU_TR	472.58	136.09
tblVehicleTrips	SU_TR	90.08	35.62
tblVehicleTrips	SU_TR	1.95	0.86
tblVehicleTrips	SU_TR	8.55	2.46
tblVehicleTrips	SU_TR	20.43	7.94
tblVehicleTrips	SU_TR	166.47	47.95
tblVehicleTrips	WD_TR	0.78	14.46
tblVehicleTrips	WD_TR	470.95	135.62
tblVehicleTrips	WD_TR	90.08	31.43
tblVehicleTrips	WD_TR	2.40	1.06
tblVehicleTrips	WD_TR	9.44	2.72
tblVehicleTrips	WD_TR	44.32	17.23
tblVehicleTrips	WD_TR	106.78	30.76
tblWater	IndoorWaterUseRate	3,187,103.98	2,549,683.18
tblWater	IndoorWaterUseRate	986,265.32	789,012.26
tblWater	IndoorWaterUseRate	5,212,322.05	4,169,857.64
tblWater	IndoorWaterUseRate	23,194,833.12	18,555,866.50
tblWater	IndoorWaterUseRate	7,518,360.93	6,014,688.74
tblWater	IndoorWaterUseRate	6,163,410.74	4,930,728.59
tblWoodstoves	NumberCatalytic	4.00	0.00
tblWoodstoves	NumberCatalytic	17.80	0.00
tblWoodstoves	NumberNoncatalytic	4.00	0.00
tblWoodstoves	NumberNoncatalytic	17.80	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

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

2.0 Emissions Summary

Keller Crossing - 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	0.1445	1.4370	0.8681	1.7300e-003	0.5996	0.0760	0.6756	0.2454	0.0700	0.3154	0.0000	152.4949	152.4949	0.0476	1.5000e-004	153.7312
2023	0.9613	6.5880	10.0266	0.0313	2.1546	0.2215	2.3761	0.5822	0.2076	0.7898	0.0000	2,904.4362	2,904.4362	0.2294	0.1739	2,961.9990
2024	4.1518	7.1240	11.8010	0.0362	2.3352	0.2273	2.5625	0.6290	0.2133	0.8422	0.0000	3,365.2615	3,365.2615	0.2684	0.1911	3,428.9167
Maximum	**4.1518**	**7.1240**	**11.8010**	**0.0362**	**2.3352**	**0.2273**	**2.5625**	**0.6290**	**0.2133**	**0.8422**	**0.0000**	**3,365.2615**	**3,365.2615**	**0.2684**	**0.1911**	**3,428.9167**

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	0.1445	1.4370	0.8681	1.7300e-003	0.1583	0.0760	0.2343	0.0645	0.0700	0.1344	0.0000	152.4947	152.4947	0.0476	1.5000e-004	153.7311
2023	0.9613	6.5880	10.0266	0.0313	1.2531	0.2215	1.4745	0.3564	0.2076	0.5641	0.0000	2,904.4355	2,904.4355	0.2294	0.1739	2,961.9982
2024	4.1518	7.1240	11.8010	0.0362	1.4320	0.2273	1.6593	0.4073	0.2133	0.6205	0.0000	3,365.2605	3,365.2605	0.2684	0.1911	3,428.9157
Maximum	**4.1518**	**7.1240**	**11.8010**	**0.0362**	**1.4320**	**0.2273**	**1.6593**	**0.4073**	**0.2133**	**0.6205**	**0.0000**	**3,365.2605**	**3,365.2605**	**0.2684**	**0.1911**	**3,428.9157**

Keller Crossing - South Coast AQMD Air District, Annual

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**44.13**	**0.00**	**40.01**	**43.14**	**0.00**	**32.27**	**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**	2.0583	2.0583
2	**2-1-2023**	**4-30-2023**	1.8242	1.8242
3	**5-1-2023**	**7-31-2023**	1.9171	1.9171
4	**8-1-2023**	**10-31-2023**	1.9314	1.9314
5	**11-1-2023**	**1-31-2024**	1.9291	1.9291
6	**2-1-2024**	**4-30-2024**	1.8151	1.8151
7	**5-1-2024**	**7-31-2024**	2.2232	2.2232
8	**8-1-2024**	**9-30-2024**	2.6309	2.6309
		Highest	2.6309	2.6309

Keller Crossing - South Coast AQMD Air District, Annual

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

2.2 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	3.8609	0.1332	4.5349	7.6000e-004		0.0315	0.0315		0.0315	0.0315	0.0000	101.4841	101.4841	8.8800e-003	1.7300e-003	102.2205
Energy	0.0828	0.7195	0.3889	4.5200e-003		0.0572	0.0572		0.0572	0.0572	0.0000	2,041.2676	2,041.2676	0.1188	0.0275	2,052.4402
Mobile	2.5734	2.6384	21.9498	0.0428	4.3598	0.0331	4.3929	1.1635	0.0308	1.1942	0.0000	3,996.8125	3,996.8125	0.3142	0.2043	4,065.5562
Waste						0.0000	0.0000		0.0000	0.0000	204.2840	0.0000	204.2840	12.0728	0.0000	506.1050
Water						0.0000	0.0000		0.0000	0.0000	11.7415	147.0557	158.7972	1.2184	0.0300	198.1907
Total	**6.5171**	**3.4910**	**26.8736**	**0.0481**	**4.3598**	**0.1218**	**4.4815**	**1.1635**	**0.1195**	**1.2829**	**216.0255**	**6,286.6199**	**6,502.6455**	**13.7332**	**0.2636**	**6,924.5126**

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	3.8609	0.1332	4.5349	7.6000e-004		0.0315	0.0315		0.0315	0.0315	0.0000	101.4841	101.4841	8.8800e-003	1.7300e-003	102.2205
Energy	0.0828	0.7195	0.3889	4.5200e-003		0.0572	0.0572		0.0572	0.0572	0.0000	1,880.6306	1,880.6306	0.1053	0.0259	1,890.9746
Mobile	2.5734	2.6384	21.9498	0.0428	4.3598	0.0331	4.3929	1.1635	0.0308	1.1942	0.0000	3,996.8125	3,996.8125	0.3142	0.2043	4,065.5562
Waste						0.0000	0.0000		0.0000	0.0000	204.2840	0.0000	204.2840	12.0728	0.0000	506.1050
Water						0.0000	0.0000		0.0000	0.0000	11.7415	147.0557	158.7972	1.2184	0.0300	198.1907
Total	**6.5171**	**3.4910**	**26.8736**	**0.0481**	**4.3598**	**0.1218**	**4.4815**	**1.1635**	**0.1195**	**1.2829**	**216.0255**	**6,125.9830**	**6,342.0085**	**13.7196**	**0.2619**	**6,763.0469**

	ROG	NOx	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**	**2.56**	**2.47**	**0.10**	**0.62**	**2.33**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	11/1/2022	12/16/2022	5	34	
2	Grading	Grading	11/16/2022	2/3/2023	5	58	
3	Building Construction	Building Construction	2/6/2023	12/27/2024	5	495	

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

4	Paving	Paving	7/15/2024	12/27/2024	5	120	
5	Architectural Coating	Architectural Coating	7/15/2024	12/27/2024	5	120	

Acres of Grading (Site Preparation Phase): 119

Acres of Grading (Grading Phase): 232

Acres of Paving: 48.3

Residential Indoor: 1,470,555; Residential Outdoor: 490,185; Non-Residential Indoor: 264,000; Non-Residential Outdoor: 88,000; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Crawler Tractors	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Crawler Tractors	2	8.00	97	0.37
Grading	Crawler Tractors	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Cranes	2	8.00	231	0.29
Building Construction	Forklifts	6	8.00	89	0.20
Building Construction	Generator Sets	2	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	6	8.00	97	0.37
Building Construction	Welders	2	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	8.00	78	0.48

Trips and VMT

Keller Crossing - South Coast AQMD Air District, Annual

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

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	17	1,247.00	467.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	249.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Clean Paved Roads

3.2 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3702	0.0000	0.3702	0.1756	0.0000	0.1756	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0685	0.6680	0.3516	6.5000e-004		0.0388	0.0388		0.0357	0.0357	0.0000	56.8518	56.8518	0.0184	0.0000	57.3115
Total	**0.0685**	**0.6680**	**0.3516**	**6.5000e-004**	**0.3702**	**0.0388**	**0.4091**	**0.1756**	**0.0357**	**0.2114**	**0.0000**	**56.8518**	**56.8518**	**0.0184**	**0.0000**	**57.3115**

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

3.2 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	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	1.0300e-003	8.3000e-004	0.0109	3.0000e-005	3.3600e-003	2.0000e-005	3.3800e-003	8.9000e-004	2.0000e-005	9.1000e-004	0.0000	2.7321	2.7321	8.0000e-005	7.0000e-005	2.7558
Total	**1.0300e-003**	**8.3000e-004**	**0.0109**	**3.0000e-005**	**3.3600e-003**	**2.0000e-005**	**3.3800e-003**	**8.9000e-004**	**2.0000e-005**	**9.1000e-004**	**0.0000**	**2.7321**	**2.7321**	**8.0000e-005**	**7.0000e-005**	**2.7558**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0963	0.0000	0.0963	0.0457	0.0000	0.0457	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0685	0.6680	0.3516	6.5000e-004		0.0388	0.0388		0.0357	0.0357	0.0000	56.8518	56.8518	0.0184	0.0000	57.3114
Total	**0.0685**	**0.6680**	**0.3516**	**6.5000e-004**	**0.0963**	**0.0388**	**0.1351**	**0.0457**	**0.0357**	**0.0814**	**0.0000**	**56.8518**	**56.8518**	**0.0184**	**0.0000**	**57.3114**

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

3.2 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	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	1.0300e-003	8.3000e-004	0.0109	3.0000e-005	2.0200e-003	2.0000e-005	2.0400e-003	5.6000e-004	2.0000e-005	5.8000e-004	0.0000	2.7321	2.7321	8.0000e-005	7.0000e-005	2.7558
Total	**1.0300e-003**	**8.3000e-004**	**0.0109**	**3.0000e-005**	**2.0200e-003**	**2.0000e-005**	**2.0400e-003**	**5.6000e-004**	**2.0000e-005**	**5.8000e-004**	**0.0000**	**2.7321**	**2.7321**	**8.0000e-005**	**7.0000e-005**	**2.7558**

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2224	0.0000	0.2224	0.0679	0.0000	0.0679	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0738	0.7673	0.4940	1.0200e-003		0.0372	0.0372		0.0342	0.0342	0.0000	89.9647	89.9647	0.0291	0.0000	90.6921
Total	**0.0738**	**0.7673**	**0.4940**	**1.0200e-003**	**0.2224**	**0.0372**	**0.2595**	**0.0679**	**0.0342**	**0.1021**	**0.0000**	**89.9647**	**89.9647**	**0.0291**	**0.0000**	**90.6921**

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

3.3 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	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	1.1100e-003	8.9000e-004	0.0117	3.0000e-005	3.6200e-003	2.0000e-005	3.6400e-003	9.6000e-004	2.0000e-005	9.8000e-004	0.0000	2.9464	2.9464	8.0000e-005	8.0000e-005	2.9719
Total	**1.1100e-003**	**8.9000e-004**	**0.0117**	**3.0000e-005**	**3.6200e-003**	**2.0000e-005**	**3.6400e-003**	**9.6000e-004**	**2.0000e-005**	**9.8000e-004**	**0.0000**	**2.9464**	**2.9464**	**8.0000e-005**	**8.0000e-005**	**2.9719**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0578	0.0000	0.0578	0.0177	0.0000	0.0177	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0738	0.7673	0.4940	1.0200e-003		0.0372	0.0372		0.0342	0.0342	0.0000	89.9646	89.9646	0.0291	0.0000	90.6920
Total	**0.0738**	**0.7673**	**0.4940**	**1.0200e-003**	**0.0578**	**0.0372**	**0.0950**	**0.0177**	**0.0342**	**0.0518**	**0.0000**	**89.9646**	**89.9646**	**0.0291**	**0.0000**	**90.6920**

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

3.3 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	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	1.1100e-003	8.9000e-004	0.0117	3.0000e-005	2.1800e-003	2.0000e-005	2.2000e-003	6.1000e-004	2.0000e-005	6.3000e-004	0.0000	2.9464	2.9464	8.0000e-005	8.0000e-005	2.9719
Total	**1.1100e-003**	**8.9000e-004**	**0.0117**	**3.0000e-005**	**2.1800e-003**	**2.0000e-005**	**2.2000e-003**	**6.1000e-004**	**2.0000e-005**	**6.3000e-004**	**0.0000**	**2.9464**	**2.9464**	**8.0000e-005**	**8.0000e-005**	**2.9719**

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1983	0.0000	0.1983	0.0547	0.0000	0.0547	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0510	0.5179	0.3606	7.8000e-004		0.0248	0.0248		0.0228	0.0228	0.0000	68.1532	68.1532	0.0220	0.0000	68.7042
Total	**0.0510**	**0.5179**	**0.3606**	**7.8000e-004**	**0.1983**	**0.0248**	**0.2231**	**0.0547**	**0.0228**	**0.0775**	**0.0000**	**68.1532**	**68.1532**	**0.0220**	**0.0000**	**68.7042**

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

3.3 Grading - 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	7.8000e-004	6.0000e-004	8.1800e-003	2.0000e-005	2.7400e-003	2.0000e-005	2.7600e-003	7.3000e-004	1.0000e-005	7.4000e-004	0.0000	2.1734	2.1734	6.0000e-005	6.0000e-005	2.1912
Total	**7.8000e-004**	**6.0000e-004**	**8.1800e-003**	**2.0000e-005**	**2.7400e-003**	**2.0000e-005**	**2.7600e-003**	**7.3000e-004**	**1.0000e-005**	**7.4000e-004**	**0.0000**	**2.1734**	**2.1734**	**6.0000e-005**	**6.0000e-005**	**2.1912**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0516	0.0000	0.0516	0.0142	0.0000	0.0142	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0510	0.5179	0.3606	7.8000e-004		0.0248	0.0248		0.0228	0.0228	0.0000	68.1531	68.1531	0.0220	0.0000	68.7041
Total	**0.0510**	**0.5179**	**0.3606**	**7.8000e-004**	**0.0516**	**0.0248**	**0.0764**	**0.0142**	**0.0228**	**0.0370**	**0.0000**	**68.1531**	**68.1531**	**0.0220**	**0.0000**	**68.7041**

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

3.3 Grading - 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	7.8000e-004	6.0000e-004	8.1800e-003	2.0000e-005	1.6500e-003	2.0000e-005	1.6600e-003	4.6000e-004	1.0000e-005	4.7000e-004	0.0000	2.1734	2.1734	6.0000e-005	6.0000e-005	2.1912
Total	**7.8000e-004**	**6.0000e-004**	**8.1800e-003**	**2.0000e-005**	**1.6500e-003**	**2.0000e-005**	**1.6600e-003**	**4.6000e-004**	**1.0000e-005**	**4.7000e-004**	**0.0000**	**2.1734**	**2.1734**	**6.0000e-005**	**6.0000e-005**	**2.1912**

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3933	3.6279	4.0679	6.7800e-003		0.1758	0.1758		0.1652	0.1652	0.0000	583.7426	583.7426	0.1422	0.0000	587.2976
Total	**0.3933**	**3.6279**	**4.0679**	**6.7800e-003**		**0.1758**	**0.1758**		**0.1652**	**0.1652**	**0.0000**	**583.7426**	**583.7426**	**0.1422**	**0.0000**	**587.2976**

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

3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0593	2.0904	0.7959	9.9900e-003	0.3461	0.0116	0.3577	0.0999	0.0111	0.1110	0.0000	976.5748	976.5748	0.0327	0.1415	1,019.5595
Worker	0.4570	0.3513	4.7941	0.0137	1.6075	9.2200e-003	1.6168	0.4269	8.4900e-003	0.4354	0.0000	1,273.7923	1,273.7923	0.0323	0.0324	1,284.2465
Total	**0.5163**	**2.4417**	**5.5900**	**0.0237**	**1.9536**	**0.0208**	**1.9744**	**0.5268**	**0.0196**	**0.5464**	**0.0000**	**2,250.3671**	**2,250.3671**	**0.0651**	**0.1739**	**2,303.8060**

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	0.3933	3.6279	4.0679	6.7800e-003		0.1758	0.1758		0.1652	0.1652	0.0000	583.7419	583.7419	0.1422	0.0000	587.2969
Total	**0.3933**	**3.6279**	**4.0679**	**6.7800e-003**		**0.1758**	**0.1758**		**0.1652**	**0.1652**	**0.0000**	**583.7419**	**583.7419**	**0.1422**	**0.0000**	**587.2969**

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

3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0593	2.0904	0.7959	9.9900e-003	0.2334	0.0116	0.2450	0.0722	0.0111	0.0833	0.0000	976.5748	976.5748	0.0327	0.1415	1,019.5595
Worker	0.4570	0.3513	4.7941	0.0137	0.9665	9.2200e-003	0.9757	0.2696	8.4900e-003	0.2781	0.0000	1,273.7923	1,273.7923	0.0323	0.0324	1,284.2465
Total	**0.5163**	**2.4417**	**5.5900**	**0.0237**	**1.1999**	**0.0208**	**1.2207**	**0.3418**	**0.0196**	**0.3614**	**0.0000**	**2,250.3671**	**2,250.3671**	**0.0651**	**0.1739**	**2,303.8060**

3.4 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.4074	3.7505	4.4790	7.5000e-003		0.1707	0.1707		0.1603	0.1603	0.0000	645.9747	645.9747	0.1565	0.0000	649.8874
Total	**0.4074**	**3.7505**	**4.4790**	**7.5000e-003**		**0.1707**	**0.1707**		**0.1603**	**0.1603**	**0.0000**	**645.9747**	**645.9747**	**0.1565**	**0.0000**	**649.8874**

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

3.4 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0640	2.3234	0.8661	0.0109	0.3829	0.0129	0.3958	0.1105	0.0123	0.1228	0.0000	1,064.9356	1,064.9356	0.0362	0.1545	1,111.8870
Worker	0.4726	0.3472	4.9498	0.0147	1.7786	9.7800e-003	1.7883	0.4723	9.0000e-003	0.4813	0.0000	1,379.0200	1,379.0200	0.0324	0.0333	1,389.7612
Total	**0.5366**	**2.6706**	**5.8159**	**0.0256**	**2.1614**	**0.0227**	**2.1841**	**0.5828**	**0.0213**	**0.6042**	**0.0000**	**2,443.9555**	**2,443.9555**	**0.0687**	**0.1878**	**2,501.6482**

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	0.4074	3.7505	4.4790	7.5000e-003		0.1707	0.1707		0.1603	0.1603	0.0000	645.9739	645.9739	0.1565	0.0000	649.8866
Total	**0.4074**	**3.7505**	**4.4790**	**7.5000e-003**		**0.1707**	**0.1707**		**0.1603**	**0.1603**	**0.0000**	**645.9739**	**645.9739**	**0.1565**	**0.0000**	**649.8866**

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

3.4 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0640	2.3234	0.8661	0.0109	0.2582	0.0129	0.2711	0.0799	0.0123	0.0922	0.0000	1,064.9356	1,064.9356	0.0362	0.1545	1,111.8870
Worker	0.4726	0.3472	4.9498	0.0147	1.0693	9.7800e-003	1.0791	0.2983	9.0000e-003	0.3073	0.0000	1,379.0200	1,379.0200	0.0324	0.0333	1,389.7612
Total	**0.5366**	**2.6706**	**5.8159**	**0.0256**	**1.3275**	**0.0227**	**1.3502**	**0.3781**	**0.0213**	**0.3995**	**0.0000**	**2,443.9555**	**2,443.9555**	**0.0687**	**0.1878**	**2,501.6482**

3.5 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0593	0.5715	0.8776	1.3700e-003		0.0281	0.0281		0.0259	0.0259	0.0000	120.1592	120.1592	0.0389	0.0000	121.1307
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0593**	**0.5715**	**0.8776**	**1.3700e-003**		**0.0281**	**0.0281**		**0.0259**	**0.0259**	**0.0000**	**120.1592**	**120.1592**	**0.0389**	**0.0000**	**121.1307**

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

3.5 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6200e-003	1.9300e-003	0.0275	8.0000e-005	9.8700e-003	5.0000e-005	9.9300e-003	2.6200e-003	5.0000e-005	2.6700e-003	0.0000	7.6560	7.6560	1.8000e-004	1.9000e-004	7.7157
Total	**2.6200e-003**	**1.9300e-003**	**0.0275**	**8.0000e-005**	**9.8700e-003**	**5.0000e-005**	**9.9300e-003**	**2.6200e-003**	**5.0000e-005**	**2.6700e-003**	**0.0000**	**7.6560**	**7.6560**	**1.8000e-004**	**1.9000e-004**	**7.7157**

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	0.0593	0.5715	0.8775	1.3700e-003		0.0281	0.0281		0.0259	0.0259	0.0000	120.1591	120.1591	0.0389	0.0000	121.1306
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0593**	**0.5715**	**0.8775**	**1.3700e-003**		**0.0281**	**0.0281**		**0.0259**	**0.0259**	**0.0000**	**120.1591**	**120.1591**	**0.0389**	**0.0000**	**121.1306**

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

3.5 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6200e-003	1.9300e-003	0.0275	8.0000e-005	5.9400e-003	5.0000e-005	5.9900e-003	1.6600e-003	5.0000e-005	1.7100e-003	0.0000	7.6560	7.6560	1.8000e-004	1.9000e-004	7.7157
Total	**2.6200e-003**	**1.9300e-003**	**0.0275**	**8.0000e-005**	**5.9400e-003**	**5.0000e-005**	**5.9900e-003**	**1.6600e-003**	**5.0000e-005**	**1.7100e-003**	**0.0000**	**7.6560**	**7.6560**	**1.8000e-004**	**1.9000e-004**	**7.7157**

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	3.0878					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0145	0.0975	0.1448	2.4000e-004		4.8700e-003	4.8700e-003		4.8700e-003	4.8700e-003	0.0000	20.4260	20.4260	1.1500e-003	0.0000	20.4548
Total	**3.1022**	**0.0975**	**0.1448**	**2.4000e-004**		**4.8700e-003**	**4.8700e-003**		**4.8700e-003**	**4.8700e-003**	**0.0000**	**20.4260**	**20.4260**	**1.1500e-003**	**0.0000**	**20.4548**

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

3.6 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0436	0.0320	0.4562	1.3600e-003	0.1639	9.0000e-004	0.1648	0.0435	8.3000e-004	0.0444	0.0000	127.0900	127.0900	2.9900e-003	3.0700e-003	128.0799
Total	**0.0436**	**0.0320**	**0.4562**	**1.3600e-003**	**0.1639**	**9.0000e-004**	**0.1648**	**0.0435**	**8.3000e-004**	**0.0444**	**0.0000**	**127.0900**	**127.0900**	**2.9900e-003**	**3.0700e-003**	**128.0799**

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	3.0878					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0145	0.0975	0.1448	2.4000e-004		4.8700e-003	4.8700e-003		4.8700e-003	4.8700e-003	0.0000	20.4260	20.4260	1.1500e-003	0.0000	20.4548
Total	**3.1022**	**0.0975**	**0.1448**	**2.4000e-004**		**4.8700e-003**	**4.8700e-003**		**4.8700e-003**	**4.8700e-003**	**0.0000**	**20.4260**	**20.4260**	**1.1500e-003**	**0.0000**	**20.4548**

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

3.6 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0436	0.0320	0.4562	1.3600e-003	0.0986	9.0000e-004	0.0995	0.0275	8.3000e-004	0.0283	0.0000	127.0900	127.0900	2.9900e-003	3.0700e-003	128.0799
Total	**0.0436**	**0.0320**	**0.4562**	**1.3600e-003**	**0.0986**	**9.0000e-004**	**0.0995**	**0.0275**	**8.3000e-004**	**0.0283**	**0.0000**	**127.0900**	**127.0900**	**2.9900e-003**	**3.0700e-003**	**128.0799**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.5734	2.6384	21.9498	0.0428	4.3598	0.0331	4.3929	1.1635	0.0308	1.1942	0.0000	3,996.8125	3,996.8125	0.3142	0.2043	4,065.5562
Unmitigated	2.5734	2.6384	21.9498	0.0428	4.3598	0.0331	4.3929	1.1635	0.0308	1.1942	0.0000	3,996.8125	3,996.8125	0.3142	0.2043	4,065.5562

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	93.99	236.21	263.90	398,770	398,770
Fast Food Restaurant with Drive Thru	1,424.01	1,862.91	1428.95	1,565,337	1,565,337
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Pharmacy/Drugstore w/o Drive Thru	440.02	586.18	498.68	642,235	642,235
Retirement Community	84.80	72.00	68.80	275,715	275,715
Single Family Housing	968.32	979.00	875.76	3,268,926	3,268,926
Strip Mall	1,748.85	1,659.53	805.91	3,046,778	3,046,778
Supermarket	1,538.00	2,558.50	2397.50	2,383,718	2,383,718
Total	6,297.99	7,954.33	6,339.50	11,581,479	11,581,479

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
City Park	16.60	8.40	6.90	33.00	48.00	19.00	66	28	6
Fast Food Restaurant with Drive	16.60	8.40	6.90	2.20	78.80	19.00	29	21	50
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Pharmacy/Drugstore w/o Drive	16.60	8.40	6.90	7.40	73.60	19.00	41	6	53

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

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Retirement Community	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Strip Mall	16.60	8.40	6.90	16.60	64.40	19.00	45	40	15
Supermarket	16.60	8.40	6.90	6.50	74.50	19.00	34	30	36

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	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
Fast Food Restaurant with Drive Thru	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
Other Non-Asphalt Surfaces	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
Pharmacy/Drugstore w/o Drive Thru	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
Retirement Community	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
Single Family Housing	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
Strip Mall	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
Supermarket	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

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

Keller Crossing - South Coast AQMD Air District, Annual

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,061.2959	1,061.2959	0.0896	0.0109	1,066.7709
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,221.9328	1,221.9328	0.1031	0.0125	1,228.2366
NaturalGas Mitigated	0.0828	0.7195	0.3889	4.5200e-003		0.0572	0.0572		0.0572	0.0572	0.0000	819.3348	819.3348	0.0157	0.0150	824.2037
NaturalGas Unmitigated	0.0828	0.7195	0.3889	4.5200e-003		0.0572	0.0572		0.0572	0.0572	0.0000	819.3348	819.3348	0.0157	0.0150	824.2037

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					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Fast Food Restaurant with Drive Thru	2.86293e+006	0.0154	0.1403	0.1179	8.4000e-004		0.0107	0.0107		0.0107	0.0107	0.0000	152.7769	152.7769	2.9300e-003	2.8000e-003	153.6847
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	30800	1.7000e-004	1.5100e-003	1.2700e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	1.6436	1.6436	3.0000e-005	3.0000e-005	1.6534
Retirement Community	1.21007e+006	6.5200e-003	0.0558	0.0237	3.6000e-004		4.5100e-003	4.5100e-003		4.5100e-003	4.5100e-003	0.0000	64.5741	64.5741	1.2400e-003	1.1800e-003	64.9578
Single Family Housing	1.00702e+007	0.0543	0.4640	0.1975	2.9600e-003		0.0375	0.0375		0.0375	0.0375	0.0000	537.3816	537.3816	0.0103	9.8500e-003	540.5750
Strip Mall	223300	1.2000e-003	0.0110	9.1900e-003	7.0000e-005		8.3000e-004	8.3000e-004		8.3000e-004	8.3000e-004	0.0000	11.9161	11.9161	2.3000e-004	2.2000e-004	11.9870
Supermarket	956500	5.1600e-003	0.0469	0.0394	2.8000e-004		3.5600e-003	3.5600e-003		3.5600e-003	3.5600e-003	0.0000	51.0425	51.0425	9.8000e-004	9.4000e-004	51.3458
Total		**0.0828**	**0.7195**	**0.3889**	**4.5200e-003**		**0.0572**	**0.0572**		**0.0572**	**0.0572**	**0.0000**	**819.3348**	**819.3348**	**0.0157**	**0.0150**	**824.2036**

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

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Fast Food Restaurant with Drive Thru	2.86293e+006	0.0154	0.1403	0.1179	8.4000e-004		0.0107	0.0107		0.0107	0.0107	0.0000	152.7769	152.7769	2.9300e-003	2.8000e-003	153.6847
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	30800	1.7000e-004	1.5100e-003	1.2700e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	1.6436	1.6436	3.0000e-005	3.0000e-005	1.6534
Retirement Community	1.21007e+006	6.5200e-003	0.0558	0.0237	3.6000e-004		4.5100e-003	4.5100e-003		4.5100e-003	4.5100e-003	0.0000	64.5741	64.5741	1.2400e-003	1.1800e-003	64.9578
Single Family Housing	1.00702e+007	0.0543	0.4640	0.1975	2.9600e-003		0.0375	0.0375		0.0375	0.0375	0.0000	537.3816	537.3816	0.0103	9.8500e-003	540.5750
Strip Mall	223300	1.2000e-003	0.0110	9.1900e-003	7.0000e-005		8.3000e-004	8.3000e-004		8.3000e-004	8.3000e-004	0.0000	11.9161	11.9161	2.3000e-004	2.2000e-004	11.9870
Supermarket	956500	5.1600e-003	0.0469	0.0394	2.8000e-004		3.5600e-003	3.5600e-003		3.5600e-003	3.5600e-003	0.0000	51.0425	51.0425	9.8000e-004	9.4000e-004	51.3458
Total		**0.0828**	**0.7195**	**0.3889**	**4.5200e-003**		**0.0572**	**0.0572**		**0.0572**	**0.0572**	**0.0000**	**819.3348**	**819.3348**	**0.0157**	**0.0150**	**824.2036**

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			
City Park	0	0.0000	0.0000	0.0000	0.0000
Fast Food Restaurant with Drive Thru	484680	85.9558	7.2500e-003	8.8000e-004	86.3993
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	169960	30.1417	2.5400e-003	3.1000e-004	30.2971
Retirement Community	348855	61.8679	5.2200e-003	6.3000e-004	62.1871
Single Family Housing	2.83542e+006	502.8489	0.0424	5.1400e-003	505.4430
Strip Mall	1.23221e+006	218.5270	0.0184	2.2400e-003	219.6543
Supermarket	1.819e+006	322.5916	0.0272	3.3000e-003	324.2557
Total		**1,221.9328**	**0.1031**	**0.0125**	**1,228.2366**

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

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	-113223	-20.0796	-0.0017	-0.0002	-20.1832
Fast Food Restaurant with Drive Thru	371457	65.8762	5.5600e-003	6.7000e-004	66.2161
Other Non-Asphalt Surfaces	-113223	-20.0796	-0.0017	-0.0002	-20.1832
Pharmacy/Drugstore w/o Drive Thru	56736.9	10.0620	8.5000e-004	1.0000e-004	10.1139
Retirement Community	235632	41.7883	3.5300e-003	4.3000e-004	42.0039
Single Family Housing	2.7222e+006	482.7693	0.0408	4.9400e-003	485.2598
Strip Mall	1.11899e+006	198.4473	0.0168	2.0300e-003	199.4711
Supermarket	1.70578e+006	302.5119	0.0255	3.0900e-003	304.0725
Total		**1,061.2959**	**0.0896**	**0.0108**	**1,066.7710**

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	3.8609	0.1332	4.5349	7.6000e-004		0.0315	0.0315		0.0315	0.0315	0.0000	101.4841	101.4841	8.8800e-003	1.7300e-003	102.2205
Unmitigated	3.8609	0.1332	4.5349	7.6000e-004		0.0315	0.0315		0.0315	0.0315	0.0000	101.4841	101.4841	8.8800e-003	1.7300e-003	102.2205

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	0.3363					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.3793					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	9.5100e-003	0.0813	0.0346	5.2000e-004		6.5700e-003	6.5700e-003		6.5700e-003	6.5700e-003	0.0000	94.1338	94.1338	1.8000e-003	1.7300e-003	94.6932
Landscaping	0.1358	0.0519	4.5003	2.4000e-004		0.0249	0.0249		0.0249	0.0249	0.0000	7.3504	7.3504	7.0800e-003	0.0000	7.5273
Total	**3.8609**	**0.1332**	**4.5349**	**7.6000e-004**		**0.0315**	**0.0315**		**0.0315**	**0.0315**	**0.0000**	**101.4842**	**101.4842**	**8.8800e-003**	**1.7300e-003**	**102.2205**

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	0.3363					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.3793					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	9.5100e-003	0.0813	0.0346	5.2000e-004		6.5700e-003	6.5700e-003		6.5700e-003	6.5700e-003	0.0000	94.1338	94.1338	1.8000e-003	1.7300e-003	94.6932
Landscaping	0.1358	0.0519	4.5003	2.4000e-004		0.0249	0.0249		0.0249	0.0249	0.0000	7.3504	7.3504	7.0800e-003	0.0000	7.5273
Total	**3.8609**	**0.1332**	**4.5349**	**7.6000e-004**		**0.0315**	**0.0315**		**0.0315**	**0.0315**	**0.0000**	**101.4842**	**101.4842**	**8.8800e-003**	**1.7300e-003**	**102.2205**

7.0 Water Detail

7.1 Mitigation Measures Water

Keller Crossing - South Coast AQMD Air District, Annual

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

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	158.7972	1.2184	0.0300	198.1907
Unmitigated	158.7972	1.2184	0.0300	198.1907

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

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 7.74463	15.2593	1.2900e-003	1.6000e-004	15.3380
Fast Food Restaurant with Drive Thru	2.54968 / 0.203432	7.0975	0.0836	2.0300e-003	9.7916
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	0.789012 / 0.604485	3.2633	0.0260	6.4000e-004	4.1025
Retirement Community	4.16986 / 3.28603	17.4265	0.1372	3.3700e-003	21.8625
Single Family Housing	18.5559 / 14.6228	77.5479	0.6107	0.0150	97.2882
Strip Mall	6.01469 / 4.60803	24.8766	0.1979	4.8600e-003	31.2739
Supermarket	4.93073 / 0.190621	13.3260	0.1617	3.9100e-003	18.5339
Total		**158.7972**	**1.2184**	**0.0300**	**198.1907**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 7.74463	15.2593	1.2900e-003	1.6000e-004	15.3380
Fast Food Restaurant with Drive Thru	2.54968 / 0.203432	7.0975	0.0836	2.0300e-003	9.7916
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	0.789012 / 0.604485	3.2633	0.0260	6.4000e-004	4.1025
Retirement Community	4.16986 / 3.28603	17.4265	0.1372	3.3700e-003	21.8625
Single Family Housing	18.5559 / 14.6228	77.5479	0.6107	0.0150	97.2882
Strip Mall	6.01469 / 4.60803	24.8766	0.1979	4.8600e-003	31.2739
Supermarket	4.93073 / 0.190621	13.3260	0.1617	3.9100e-003	18.5339
Total		**158.7972**	**1.2184**	**0.0300**	**198.1907**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Keller Crossing - South Coast AQMD Air District, Annual

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

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	204.2840	12.0728	0.0000	506.1050
Unmitigated	204.2840	12.0728	0.0000	506.1050

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			
City Park	0.56	0.1137	6.7200e-003	0.0000	0.2816
Fast Food Restaurant with Drive Thru	120.95	24.5518	1.4510	0.0000	60.8259
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	42.1	8.5459	0.5051	0.0000	21.1722
Retirement Community	36.8	7.4701	0.4415	0.0000	18.5068
Single Family Housing	417.38	84.7244	5.0071	0.0000	209.9010
Strip Mall	106.58	21.6348	1.2786	0.0000	53.5992
Supermarket	282	57.2435	3.3830	0.0000	141.8182
Total		**204.2840**	**12.0729**	**0.0000**	**506.1050**

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

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.56	0.1137	6.7200e-003	0.0000	0.2816
Fast Food Restaurant with Drive Thru	120.95	24.5518	1.4510	0.0000	60.8259
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	42.1	8.5459	0.5051	0.0000	21.1722
Retirement Community	36.8	7.4701	0.4415	0.0000	18.5068
Single Family Housing	417.38	84.7244	5.0071	0.0000	209.9010
Strip Mall	106.58	21.6348	1.2786	0.0000	53.5992
Supermarket	282	57.2435	3.3830	0.0000	141.8182
Total		**204.2840**	**12.0729**	**0.0000**	**506.1050**

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

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

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

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APPENDIX 4.2:

EMFAC2017

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Source: EMFAC2017 (v1.0.3) Emissions Inventory
Region Type: Sub-Area
Region: Riverside (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	Calend	Vehicle Cat	Fuel	Population	VMT	Trips	Fuel_Consumption	*Total Fuel*	VMT	*Total VMT*	Miles per Gallon	Vehicle Class	Percent
Riverside (SC)	2023	HHDT	Gasoline	6.287048944	470.7572646	125.79128	108.7168293	*269084.7531*	470.7572646	*2000831.243*	7.44	HHDT	**55.7%**
Riverside (SC)	2023	HHDT	Diesel	15994.29576	1988254.022	167972.94	263953.2757		1988254.022				
Riverside (SC)	2023	HHDT	Natural Gas	297.8339277	12106.46352	1161.5523	5022.760484		12106.46352				
Riverside (SC)	2023	LDA	Gasoline	600073.2625	24106871.96	2840577.5	730230.9972	*734950.915*	24106871.96	*24831107.93*	33.79	LDA	**71.0%**
Riverside (SC)	2023	LDA	Diesel	6022.455725	252078.6078	28799.308	4719.917791		252078.6078				
Riverside (SC)	2023	LDA	Electricity	11812.58063	472157.3583	59231.083	0		472157.3583				
Riverside (SC)	2023	LDT1	Gasoline	61620.9911	2305410.758	281506.9	81958.23074	*81979.79872*	2305410.758	*2326765.882*	28.38	LDT1	**7.1%**
Riverside (SC)	2023	LDT1	Diesel	25.82294405	564.5507588	85.517116	21.5679801		564.5507588				
Riverside (SC)	2023	LDT1	Electricity	500.2265064	20790.57268	2538.375	0		20790.57268				
Riverside (SC)	2023	LDT2	Gasoline	186844.1926	7271356.285	875597.98	272220.1339	*273519.5233*	7271356.285	*7390732.737*	27.02	LDT2	**21.9%**
Riverside (SC)	2023	LDT2	Diesel	1179.189513	52389.15473	5802.5313	1299.389383		52389.15473				
Riverside (SC)	2023	LDT2	Electricity	2202.047417	66987.29664	11134.27	0		66987.29664				
Riverside (SC)	2023	LHDT1	Gasoline	15202.19219	489408.3926	226490.01	44787.94149	*69458.64379*	489408.3926	*1012657.526*	14.58	LHDT1	
Riverside (SC)	2023	LHDT1	Diesel	15878.17916	523249.1337	199727.52	24670.70229		523249.1337				
Riverside (SC)	2023	LHDT2	Gasoline	2254.447347	72843.78455	33587.906	7620.327883	*18120.43735*	72843.78455	*276453.3551*	15.26	LHDT2	
Riverside (SC)	2023	LHDT2	Diesel	6182.746468	203609.5705	77771.173	10500.10946		203609.5705				
Riverside (SC)	2023	MCY	Gasoline	28475.24545	179075.0601	56950.491	4725.448328	*4725.448328*	179075.0601	*179075.0601*	37.90	MCY	
Riverside (SC)	2023	MDV	Gasoline	154204.1049	5532730.192	706420.93	261618.9822	*266481.7348*	5532730.192	*5717270.278*	21.45	MDV	
Riverside (SC)	2023	MDV	Diesel	3492.231312	143624.7637	16925.231	4862.752584		143624.7637				
Riverside (SC)	2023	MDV	Electricity	1314.447545	40915.32239	6695.9371	0		40915.32239				
Riverside (SC)	2023	MH	Gasoline	4646.002839	36045.00319	464.78612	6920.030798	*8307.842208*	36045.00319	*51245.8412*	6.17	MH	
Riverside (SC)	2023	MH	Diesel	1979.944695	15200.83801	197.99447	1387.81141		15200.83801				
Riverside (SC)	2023	MHDT	Gasoline	1361.919314	55522.81781	27249.282	10399.79838	*74626.43474*	55522.81781	*804084.1257*	10.77	MHDT	**44.3%**
Riverside (SC)	2023	MHDT	Diesel	11600.10675	748561.3079	115156.78	64226.63636		748561.3079				
Riverside (SC)	2023	OBUS	Gasoline	437.8068702	14961.4141	8759.6399	2859.206488	*4613.197055*	14961.4141	*31071.97019*	6.74	OBUS	
Riverside (SC)	2023	OBUS	Diesel	221.7033657	16110.5561	2113.0011	1753.990567		16110.5561				
Riverside (SC)	2023	SBUS	Gasoline	428.8888994	14909.41731	1715.5556	1679.727113	*5282.154427*	14909.41731	*42556.73324*	8.06	SBUS	
Riverside (SC)	2023	SBUS	Diesel	872.8772386	27647.31593	10072.882	3602.427315		27647.31593				
Riverside (SC)	2023	UBUS	Gasoline	165.4254964	23291.05069	661.70199	3744.875418	*10143.9907*	23291.05069	*50365.41497*	4.97	UBUS	
Riverside (SC)	2023	UBUS	Diesel	0.141961099	11.67769301	0.5678444	1.254634181		11.67769301				
Riverside (SC)	2023	UBUS	Electricity	0.058469431	1.251702935	0.2338777	0		1.251702935				
Riverside (SC)	2023	UBUS	Natural Gas	206.2939379	27061.43488	825.17575	6397.860652		27061.43488				

Source: EMFAC2017 (v1.0.3) Emissions Inventory
Region Type: Sub-Area
Region: Riverside (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	Calend	Vehicle Cat	Fuel	Population	VMT	Trips	Fuel Consumption	*Total Fuel*	VMT	*Total VMT*	Miles per Gallon	Vehicle Class	Percent
Riverside (SC)	2022	HHDT	Gasoline	6.576938112	469.290096	131.59138	111.263246	*276720.944*	469.290096	*1954241.273*	7.06	HHDT	**54.7%**
Riverside (SC)	2022	HHDT	Diesel	15714.36952	1943053.846	165079.11	272096.2785		1943053.846				
Riverside (SC)	2022	HHDT	Natural Gas	263.7933161	10718.13672	1028.7939	4513.402274		10718.13672				
Riverside (SC)	2022	LDA	Gasoline	581991.6725	23700815.4	2755729.7	737396.3282	*741995.8718*	23700815.4	*24314627.74*	32.77	LDA	**70.9%**
Riverside (SC)	2022	LDA	Diesel	5627.648407	239612.1354	26937.894	4599.543626		239612.1354				
Riverside (SC)	2022	LDA	Electricity	9519.079074	374200.2044	47839.253	0		374200.2044				
Riverside (SC)	2022	LDT1	Gasoline	60037.51621	2261929.707	273557.48	82622.73159	*82646.09985*	2261929.707	*2277084.362*	27.55	LDT1	**7.2%**
Riverside (SC)	2022	LDT1	Diesel	27.76404389	601.6680241	91.612429	23.36826688		601.6680241				
Riverside (SC)	2022	LDT1	Electricity	356.2042589	14552.98677	1810.8593	0		14552.98677				
Riverside (SC)	2022	LDT2	Gasoline	182118.8677	7165411.096	853062.78	277891.5039	*279116.8158*	7165411.096	*7265624.392*	26.03	LDT2	**21.9%**
Riverside (SC)	2022	LDT2	Diesel	1054.483634	48028.55818	5205.8905	1225.311901		48028.55818				
Riverside (SC)	2022	LDT2	Electricity	1677.633962	52184.73813	8507.2329	0		52184.73813				
Riverside (SC)	2022	LHDT1	Gasoline	15417.55767	499086.0807	229698.64	46202.19857	*71521.2169*	499086.0807	*1029280.982*	14.39	LHDT1	
Riverside (SC)	2022	LHDT1	Diesel	15837.49513	530194.9018	199215.77	25319.01832		530194.9018				
Riverside (SC)	2022	LHDT2	Gasoline	2252.42518	73474.64451	33557.779	7773.72894	*18506.82986*	73474.64451	*279062.9473*	15.08	LHDT2	
Riverside (SC)	2022	LHDT2	Diesel	6123.275766	205588.3028	77023.106	10733.10092		205588.3028				
Riverside (SC)	2022	MCY	Gasoline	28171.90267	180969.5918	56343.805	4771.14182	*4771.14182*	180969.5918	*180969.5918*	37.93	MCY	
Riverside (SC)	2022	MDV	Gasoline	154199.5457	5597389.871	706482.88	273167.7758	*277942.5828*	5597389.871	*5763801.187*	20.74	MDV	
Riverside (SC)	2022	MDV	Diesel	3261.4865	137165.9419	15860.637	4774.807066		137165.9419				
Riverside (SC)	2022	MDV	Electricity	916.717804	29245.37498	4686.4809	0		29245.37498				
Riverside (SC)	2022	MH	Gasoline	4849.122996	37965.37359	485.10626	7358.586255	*8794.495605*	37965.37359	*53583.34508*	6.09	MH	
Riverside (SC)	2022	MH	Diesel	1986.085476	15617.97149	198.60855	1435.90935		15617.97149				
Riverside (SC)	2022	MHDT	Gasoline	1326.926938	54049.91102	26549.154	10273.53802	*76587.82765*	54049.91102	*794309.7864*	10.37	MHDT	**45.3%**
Riverside (SC)	2022	MHDT	Diesel	11907.6705	740259.8754	118276.64	66314.28963		740259.8754				
Riverside (SC)	2022	OBUS	Gasoline	438.8357563	15270.69972	8780.2258	2957.8564	*4724.84948*	15270.69972	*31059.30019*	6.57	OBUS	
Riverside (SC)	2022	OBUS	Diesel	222.2197269	15788.60048	2124.3398	1766.993079		15788.60048				
Riverside (SC)	2022	SBUS	Gasoline	417.9532809	14725.72528	1671.8131	1664.498557	*5223.410044*	14725.72528	*41715.56692*	7.99	SBUS	
Riverside (SC)	2022	SBUS	Diesel	852.548169	26989.84164	9838.2877	3558.911487		26989.84164				
Riverside (SC)	2022	UBUS	Gasoline	164.4551683	23154.43353	657.82067	3756.059553	*10115.00541*	23154.43353	*50069.98905*	4.95	UBUS	
Riverside (SC)	2022	UBUS	Diesel	1.105797941	58.57190354	4.4231918	6.56634569		58.57190354				
Riverside (SC)	2022	UBUS	Electricity	0.058469431	1.251702935	0.2338777	0		1.251702935				
Riverside (SC)	2022	UBUS	Natural Gas	204.1188773	26855.73191	816.47551	6352.37951		26855.73191				