

WOODCREST RETAIL CENTER

ENERGY ANALYSIS

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TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
ES.1 Summary of Findings.....	1
ES.2 Project Requirements	1
1 INTRODUCTION	2
1.1 Site Location	2
1.2 Project Description	2
2 EXISTING CONDITIONS.....	7
2.1 Overview	7
2.2 Electricity	10
2.3 Natural Gas.....	11
2.4 Transportation Energy Resources	14
3 REGULATORY BACKGROUND	16
3.1 Federal Regulations.....	16
3.2 California Regulations.....	16
4 EXISTING PROJECT SITE OPERATIONAL ENERGY DEMANDS	19
4.1 Existing Operational Energy Demands.....	19
5 PROJECT ENERGY DEMANDS AND ENERGY EFFICIENCY MEASURES	21
5.1 Evaluation Criteria	21
5.2 Methodology.....	21
5.3 Construction Energy Demands	22
5.4 Operational Energy Demands.....	32
5.5 Summary.....	35
6 CONCLUSIONS	37
6.1 Energy Impact 1.....	37
6.2 Energy Impact 2	38
7 REFERENCES	40
8 CERTIFICATION	42

APPENDICES

APPENDIX 4.1: CALFEEMOD EXISTING EMISSIONS MODEL OUTPUTS
APPENDIX 5.1: CALFEEMOD BASE DEVELOPMENT CONCEPT EMISSIONS MODEL OUTPUTS
APPENDIX 5.2: CALFEEMOD PARCEL 1 OPTION EMISSIONS MODEL OUTPUTS
APPENDIX 5.3: EMFAC2025

LIST OF EXHIBITS

EXHIBIT 1-A: LOCATION MAP	4
EXHIBIT 1-B: EXISTING USES	5
EXHIBIT 1-C: SITE PLAN	6

LIST OF TABLES

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS.....	1
TABLE 1-1: WOODCREST RETAIL CENTER DEVELOPMENT CONCEPT	3
TABLE 2-1: TOTAL ELECTRICITY SYSTEM POWER (CALIFORNIA 2023)	9
TABLE 2-2: SCE 2023 POWER CONTENT MIX	11
TABLE 4-1: TOTAL PROJECT-GENERATED TRAFFIC ANNUAL FUEL CONSUMPTION (ALL VEHICLES)	19
TABLE 4-2: EXISTING ANNUAL OPERATIONAL ENERGY DEMAND SUMMARY	20
TABLE 5-1: CONSTRUCTION DURATION	22
TABLE 5-2: BASE DEVELOPMENT CONCEPT CONSTRUCTION POWER COST	23
TABLE 5-3: PARCEL 1 OPTION CONCEPT CONSTRUCTION POWER COST	23
TABLE 5-4: BASE DEVELOPMENT CONCEPT CONSTRUCTION ELECTRICITY USAGE	24
TABLE 5-5: PARCEL 1 OPTION CONSTRUCTION ELECTRICITY USAGE.....	24
TABLE 5-6: CONSTRUCTION EQUIPMENT ASSUMPTIONS (1 OF 2)	24
TABLE 5-6: CONSTRUCTION EQUIPMENT ASSUMPTIONS (2 OF 2)	25
TABLE 5-7: CONSTRUCTION EQUIPMENT FUEL CONSUMPTION ESTIMATE	26
TABLE 5-8: CONSTRUCTION TRIPS AND VMT	27
TABLE 5-9: CONSTRUCTION WORKER FUEL CONSUMPTION ESTIMATES (1 OF 2).....	29
TABLE 5-9: CONSTRUCTION WORKER FUEL CONSUMPTION ESTIMATES (1 OF 2).....	30
TABLE 5-10: CONSTRUCTION VENDOR/HAULING FUEL CONSUMPTION ESTIMATES	30
TABLE 5-11: BASE DEVELOPMENT CONCEPT TRAFFIC ANNUAL FUEL CONSUMPTION	32
TABLE 5-12: PARCEL 1 OPTION TRAFFIC ANNUAL FUEL CONSUMPTION	33
TABLE 5-13: BASE DEVELOPMENT CONCEPT ANNUAL OPERATIONAL ENERGY DEMAND SUMMARY	34
TABLE 5-14: PARCEL 1 OPTION ANNUAL OPERATIONAL ENERGY DEMAND SUMMARY.....	34

LIST OF ABBREVIATED TERMS

%	Percent
(1)	Reference
APN	Assessor's Parcel Number
AQIA	Woodcrest Retail Center Air Quality Impact Analysis
BACM	Best Available Control Measures
BTU	British Thermal Units
CalEEMod	California Emissions Estimator Model
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act
County	County of Riverside
CPUC	California Public Utilities Commission
DMV	Department of Motor Vehicles
EIA	Energy Information Administration
EPA	Environmental Protection Agency
EMFAC	EMissions FACtor
FERC	Federal Energy Regulatory Commission
GHG	Greenhouse Gas
GWh	Gigawatt Hour
HHDT	Heavy-Heavy Duty Trucks
hp-hr-gal	Horsepower Hours Per Gallon
IEPR	Integrated Energy Policy Report
ISO	Independent Service Operator
ISTEA	Intermodal Surface Transportation Efficiency Act
ITE	Institute of Transportation Engineers
kBTU	Thousand-British Thermal Units
kWh	Kilowatt Hour
LDA	Light Duty Auto
LDT1/LDT2	Light-Duty Trucks
LHDT1/LHDT2	Light-Heavy Duty Trucks
MDV	Medium Duty Trucks
MHDT	Medium-Heavy Duty Trucks
MMcfd	Million Cubic Feet Per Day
mpg	Miles Per Gallon
MPO	Metropolitan Planning Organization
PG&E	Pacific Gas and Electric
Project	Woodcrest Retail Center
SCAB	South Coast Air Basin

SCE	Southern California Edison
SDAB	San Diego Air Basin
sf	Square Feet
SoCalGas	Southern California Gas
TEA-21	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 Woodcrest Retail Center *Energy Analysis* are summarized below based on the significance criteria in Section 5 of this report consistent with Appendix G of the CEQA 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?	5.0	<i>Less Than Significant</i>	<i>n/a</i>
Energy Impact #2: Would the Project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	5.0	<i>Less Than Significant</i>	<i>n/a</i>

ES.2 PROJECT REQUIREMENTS

The Project would be required to comply with regulations imposed by the 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
- California Code Title 24, Part 11, California Green Building Standards Code (CALGreen)
- AB 1493 Pavley Regulations and Fuel Efficiency Standards
- California's Renewable Portfolio Standard (RPS)

Consistency with the above regulations is discussed in detail in Section 5 of this report.

1 INTRODUCTION

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

1.1 SITE LOCATION

The Project site located on the northwest corner of Washington Street and Van Buren Boulevard in the Lake Mathews-Woodcrest area in the Lake Matthews Woodcrest area of the County of Riverside, as shown in Exhibit 1-A.

1.2 PROJECT DESCRIPTION

The site is largely undeveloped/vacant, however, there are two parcels developed with existing uses. Assessor's Parcel Number (APN) 273-141-004 is currently developed with in-line shops and a 7-Eleven with Gas Station. The 7-Eleven is approximately 2,400 square feet (with four vehicle fueling positions), the existing bike store is 2,400 square feet, the smoke shop is 1,200 square feet, the nail shop is 1,200 square feet, and the fish taco shop is 1,200 square feet. All existing structures on this parcel will be demolished and redeveloped as part of the Project. APN 273-141-005 is an existing Farmer Boys fast food restaurant that is approximately 2,640 square feet. This pad will be redeveloped as a 3,390 square foot restaurant pad with drive-through window. There is an existing bank (Valley Bank) located on APN 273-141-008) and is not-a-part of this Project and will be redeveloped under a future application. For the purposes of analysis, the assumed Project Opening Year is 2027. For context, location and configuration of existing uses are illustrated on the APN Map provided at Exhibit 1-B .

The Project proposes a Base Development Concept and a "Parcel 1 Option" development concept, presented in Exhibit 1-C. Under the Base Development Concept, Parcel 1 would be developed with a convenience store/retail gas station. Under the Parcel 1 Option, it would be developed with retail/restaurant uses. Under either development concept, the remainder of the Project site (Parcels 2 – 6) would be developed with a supermarket, shops, and restaurant uses as illustrated on Exhibit 1-C. Unless otherwise noted in this analysis, reference to the Project includes both the Base Development Concept and the Parcel 1 Option.

TABLE 1-1: WOODCREST RETAIL CENTER DEVELOPMENT CONCEPT

Site Plan Designation		Land Use(s)	Building Area ¹
Parcel 1	Pad A	Convenience Store/Gas Station	3,227 SF store w/ 6 Multi-Product Dispenser (MPD) Fuel Canopy (12 VFP)
Parcel 1 Option	Pad E	Drive-Through Restaurant	2,500 SF
Parcel 1 Option	Pad F	Retail/Sit-Down Restaurant	5,400 SF
Parcel 2	Pad B	Drive-Through Restaurant	3,500 SF
Parcel 3	Pad D	Drive-Through Restaurant (Farmer Boys)	3,390 SF
Parcel 4	Shops A	Retail *	5,000 SF
Parcel 5	Pad C	Drive-Through Restaurant	2,500 SF
Parcel 6	Market	Grocery Store (Stater Bros.)	43,403 SF
Lot A	--	Drainage/Stormwater Management	--
Total Project (Base)			61,020 Square Feet
Total Project (Parcel 1 Option)			65,693 Square Feet

Source: Woodcrest Retail Center Site Plan Concept, March 2025.

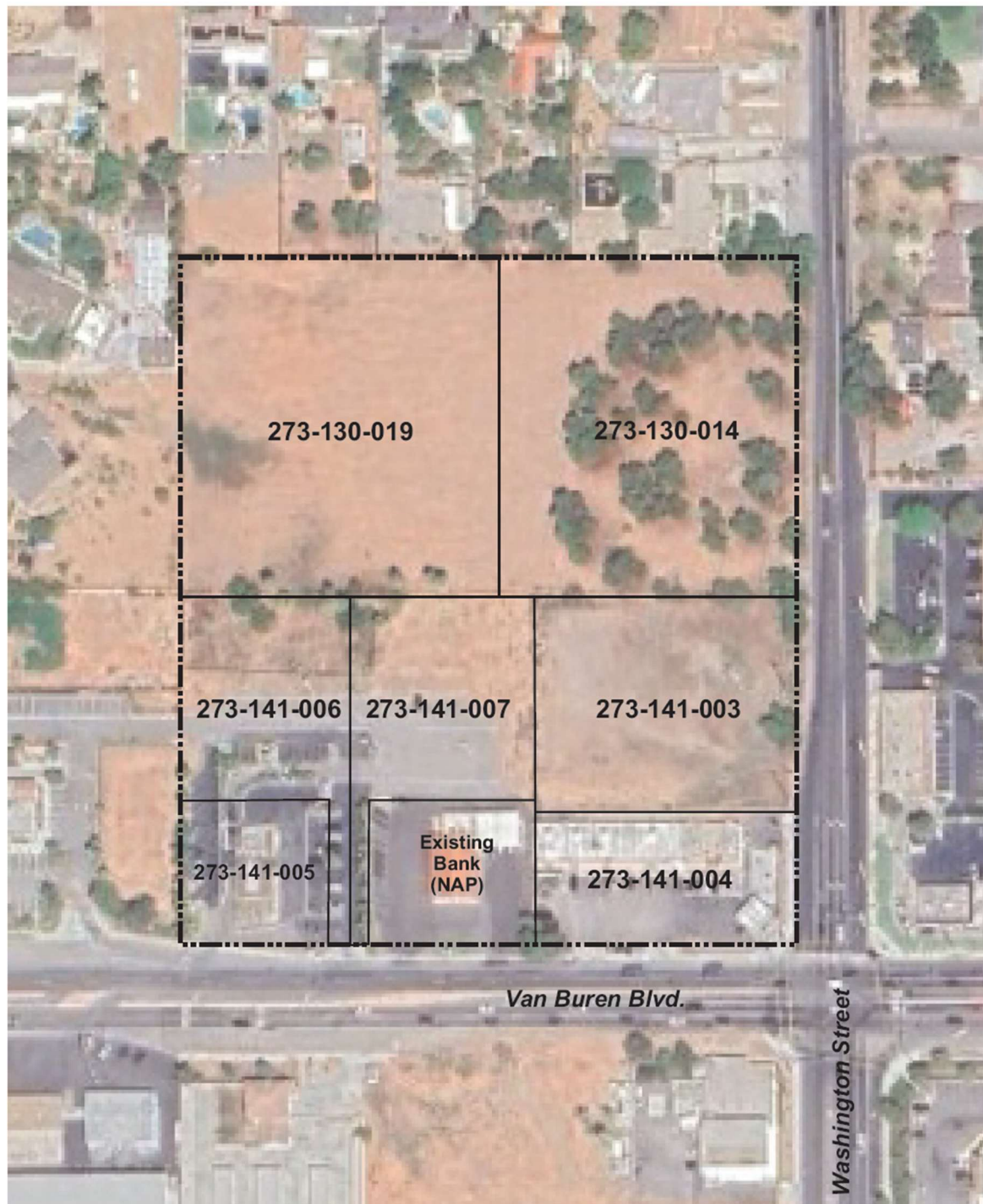
Note: * A proposed wireless communications antenna would be located within Parcel 4.

¹ VFP = Vehicle Fueling Positions; SF = Square Feet

EXHIBIT 1-A: LOCATION MAP

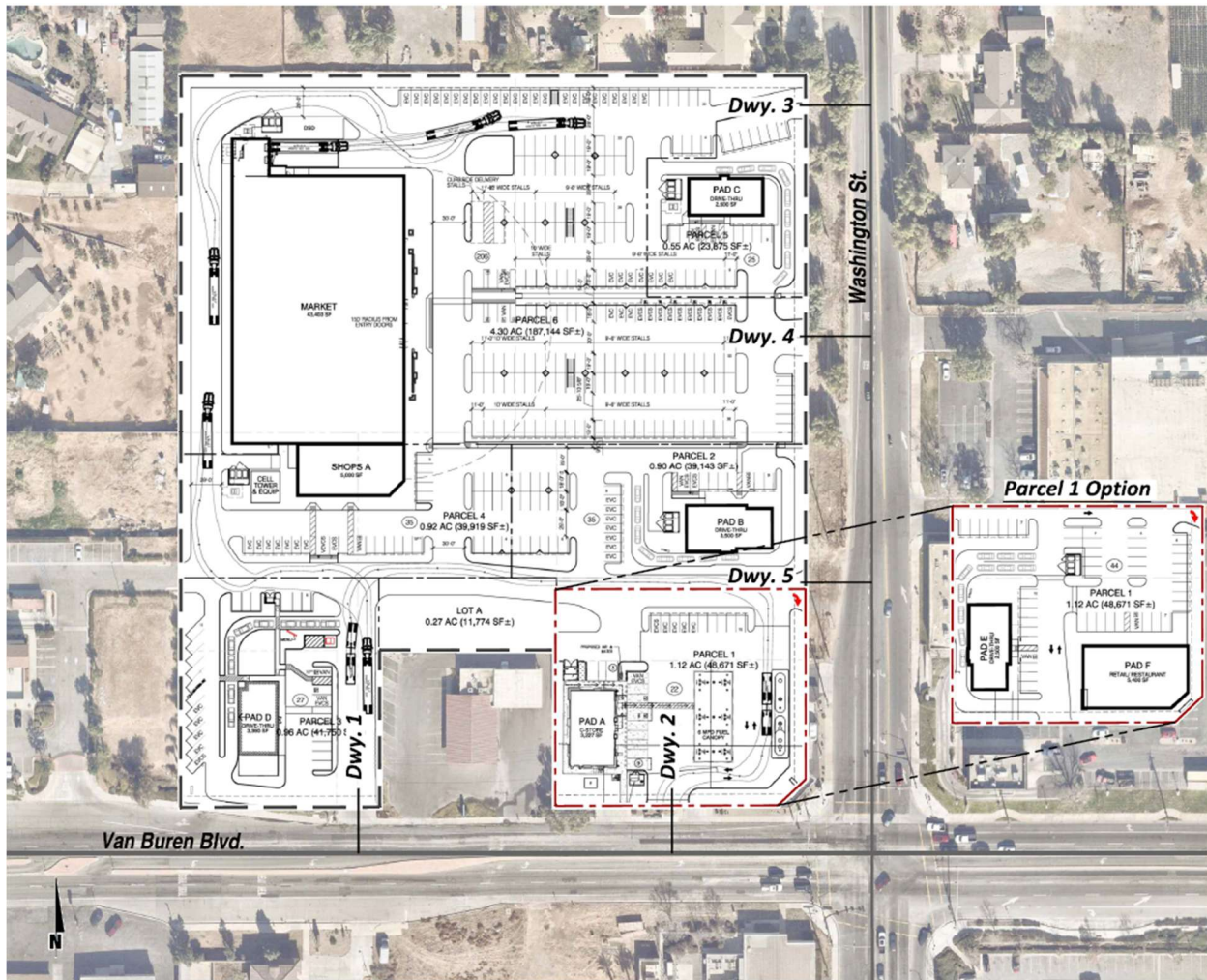


EXHIBIT 1-B: EXISTING USES



NOT TO SCALE
Source: Google Earth; Applied Planning, Inc.

EXHIBIT 1-C: SITE PLAN



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 2022 and 2023, released by the United States (U.S.) Energy Information Administration's (EIA) California State Profile and Energy Estimates and includes (2):

- As of 2022, approximately 6,882 trillion British Thermal Unit (BTU) of energy was consumed
- As of 2022, approximately 628 million barrels of petroleum
- As of 2023, approximately 2,085 billion cubic feet of natural gas
- As of 2023, approximately 1,227 thousand short tons of coal

According to the EIA, in 2022 the U.S. petroleum consumption comprised about 90% of all transportation energy use, excluding fuel consumed for aviation and most marine vessels (3). In 2023, about 253,289 million gallons (or about 6.031 million barrels) of finished petroleum products were consumed in the U.S., an average of about 694 million gallons per day (or about 16.5 million barrels per day) (4). In 2021, California consumed approximately 12,157 million gallons in motor gasoline (33.31 million per day) and approximately 3,541 million gallons of diesel fuel (9.7 million per day) (5).

The most recent data provided by the EIA for energy use in California is reported from 2022 which shows approximate energy usage by each of the following sectors:

- 42.6% for transportation uses
- 22.5% for industrial uses
- 17.6% for residential uses
- 17.4% for commercial uses (6)

According to the EIA, California used approximately 239,480 million kilowatt hours (kWh) of electricity in 2023 (7). By sector in 2023, residential uses utilized 34.6% of the state's electricity, followed by 47.2% for commercial uses, 18.0% for industrial uses, and 0.3% for transportation. Electricity usage in California for differing land uses varies substantially by the type of uses in a building, type of construction materials used in a building, and the efficiency of all electricity-consuming devices within a building (7).

According to the EIA, California used approximately 21,036 million therms of natural gas in 2023 (8). In 2023 (the most recent year for which data is available), by sector, industrial uses utilized 31.6% of the state's natural gas, followed by 31.3% used as fuel in the electric power sector, 22.8% from residential, 12.7% from commercial, 1.5% from transportation uses and the remaining 3% was utilized for the operations, processing and production of natural gas itself (8). While the supply of natural gas in the United States and production in the lower 48 states has increased greatly since 2008, California produces little, and imports 90% of its supply of natural gas (8).

In 2023, total system electric generation for California was 281,140 gigawatt hours (GWh). California's massive electricity in-state generation system generated approximately 215,623 GWh which accounted for approximately 76% of the electricity it uses; the rest was imported from the

Pacific Northwest (6%) and the U.S. Southwest (18%) (9). Natural gas is the main source for electricity generation at 43.68% of the total in-state electric generation system power as shown in Table 2-1.

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 (10):

- In 2023, California was the seventh-largest producer of crude oil among the 50 states, and the state ranked third in crude oil refining capacity.
- California is the largest consumer of jet fuel and second-largest consumer of motor gasoline among the 50 states.
- California is the second-largest total energy consumer among the states, after Texas, but its per capita energy consumption is the fourth-lowest in the nation.
- In 2023, renewable resources, including hydroelectric power and small-scale solar power, supplied 54% of California's in-state electricity generation. Natural gas fueled another 39% and nuclear power provided almost all the rest.
- In 2023, California was the fourth-largest electricity producer in the nation. It is also the nation's third-largest electricity consumer and imports more electricity than any other state.

As indicated below, 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.

TABLE 2-1: TOTAL ELECTRICITY SYSTEM POWER (CALIFORNIA 2023)

Fuel Type	California In-State Generation (GWh)	% of California In-State Generation	Northwest Imports (GWh)	Southwest Imports (GWh)	Total Imports (GWh)	Total California Energy Mix (GWh)	Total California Power Mix
Coal	257	0.12%	163	4,561	4,724	4,981	1.77%
Natural Gas	94,192	43.68%	52	8,530	8,582	102,774	36.56%
Oil	36	0.02%	0	0	0	36	0.01%
Other (Waste Heat/Petroleum Coke)	206	0.10%	0	0	0	206	0.07%
Unspecified	0	0.00%	100	10,273	10,373	10,373	3.69%
<i>Total Thermal and Unspecified</i>	<i>94,690</i>	<i>43.91%</i>	<i>316</i>	<i>23,363</i>	<i>23,679</i>	<i>118,370</i>	<i>42.10%</i>
Nuclear	17,714	8.22%	196	8,361	8,558	26,272	9.34%
Large Hydro	27,066	12.55%	4,712	1,109	5,821	32,886	11.70%
Biomass	5,037	2.34%	753	-	753	5,790	2.06%
Geothermal	10,999	5.10%	221	2,347	2,569	13,567	4.83%
Small Hydro	4,853	2.25%	133	2	135	4,988	1.77%
Solar	41,344	19.17%	417	6,108	6,525	47,869	17.03%
Wind	13,920	6.46%	9,177	8,302	17,479	31,399	11.17%
Total Non-GHG and Renewable Resources	120,932	56.09%	15,609	26,229	41,838	162,771	57.90%
<i>System Totals</i>	<i>215,623</i>	<i>100.00%</i>	<i>15,925</i>	<i>49,593</i>	<i>65,518</i>	<i>281,140</i>	<i>100.00%</i>

Source: CECs 2023 Total System Electric Generation

2.2 ELECTRICITY

The usage associated with electricity use was calculated using CalEEMod Version 2022.1. The Southern California region's electricity reliability has been of concern for the past several years due to the planned retirement of aging facilities that depend upon once-through cooling technologies, as well as the June 2013 retirement of the San Onofre Nuclear Generating Station (San Onofre). While the once-through cooling phase-out has been ongoing since the May 2010 adoption of the State Water Resources Control Board's once-through cooling policy, the retirement of San Onofre complicated the situation. California Independent Service Operator (ISO) studies revealed the extent to which the Mojave Desert Air Basin (MDAB) 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. Similarly, the subsequent 2023 IEPR provides information and policy recommendations on advancing a clean, reliable, and affordable energy system (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 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, utilities 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.

Electricity is currently provided to the Project site 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 20 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 (13).

Table 2-2, SCE's specific proportional shares of electricity sources in 2023. As indicated in Table 2-2, the 2023 SCE Power Mix has renewable energy at 36.9% of the overall energy resources. Geothermal

resources are at 4.8%, wind power is at 11.2%, large hydroelectric sources are at 11.7%, solar energy is at 17.0%, and coal is at 1.8% (14).

TABLE 2-2: SCE 2023 POWER CONTENT MIX

Energy Resources	2023 SCE Power Mix
<i>Eligible Renewable</i>	36.9%
Biomass & Waste	2.1%
Geothermal	4.8%
Eligible Hydroelectric	1.8%
Solar	17.0%
Wind	11.2%
<i>Coal</i>	1.8%
<i>Large Hydroelectric</i>	11.7%
<i>Natural Gas</i>	36.6%
<i>Nuclear</i>	9.3%
<i>Other</i>	0.1%
Unspecified Sources of power*	3.7%
<i>Total</i>	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 and 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 commercial customers, referred to as "core" customers. Larger volume gas customers, like electric generators and industrial customers, are called "noncore" customers. Although very small in number relative to core customers, noncore

customers consume about 65% of the natural gas delivered by the state's natural gas utilities, while core customers consume about 35%.

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

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

2.4 TRANSPORTATION ENERGY RESOURCES

The Project would generate additional vehicle trips with resulting consumption of energy resources, predominantly gasoline and diesel fuel. On January 1, 2025, the Department of Motor Vehicles (DMV) reported 35.98 million registered vehicles in California, which, based on data from the 2024 version of the Emissions FAcT (EMFAC) model, are estimated to consume approximately 15.6 billion gallons of fuel annually (16).¹ 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 396,616 lane miles, more than 26.6 million passenger vehicles and light trucks, and almost 9.0 million medium- and heavy-duty vehicles (6). While gasoline consumption has been declining since 2008 it is still by far the dominant fuel.

¹ Fuel consumptions estimated utilizing information from EMFAC2025.

California is the second-largest consumer of petroleum products, after Texas, and accounts for 8% of the nation's total consumption. The State is the largest U.S. consumer of motor gasoline and jet fuel, and 83% of the petroleum consumed in California is used in the transportation sector (17).

California accounts for less than 1% of total U.S. natural gas reserves and production. As with crude oil, California's natural gas production has experienced a gradual decline since 1985. In 2023, about 32% of the natural gas delivered to consumers went to the State's industrial sector, and about 31% was delivered to the electric power sector. Natural gas fueled more than two-fifths of the State's utility-scale electricity generation in 2023. The residential sector, where three-fifths of California households use natural gas for home heating, accounted for 23% of natural gas deliveries. The commercial sector received 13% of the deliveries to end users and the transportation sector consumed the remaining 1% (17).

3 REGULATORY BACKGROUND

Federal and state agencies regulate energy use and consumption through various means and programs. On the federal level, the United States Department of Transportation, the United States Department of Energy, and the United States Environmental Protection Agency (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. The TEA-21 authorizes highway, highway safety, transit, and other efficient surface transportation programs. The 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. The 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 (ITS), 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 § 25301[a]). The CEC prepares these assessments and associated policy recommendations every two years, with updates in alternate years, as part of the Integrated Energy Policy Report.

The 2023 IEPR was adopted February 2024, and continues to work towards improving electricity, natural gas, and transportation fuel energy use in California. The 2023 IEPR introduces a new framework for embedding equity and environmental justice at the CEC and the California Energy Planning Library which allows for easier access to energy data and analytics for a

wide range of users. Additionally, energy reliability, western electricity integration, gasoline cost factors and price spikes, the role of hydrogen in California's clean energy future, fossil gas transition, and distributed energy resources are topics discussed within the 2023 IEPR (18).

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 State Energy 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 Title 24 Energy Efficiency Standards and California Green Building Standards

California Code of Regulations (CCR) Title 24 Part 6: The California Energy Code was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption.

The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. CCR, Title 24, Part 11: California Green Building Standards Code (CALGreen) is a comprehensive and uniform regulatory code for all residential, commercial, and school buildings that went in effect on August 1, 2009, and is administered by the California Building Standards Commission.

The 2022 California Title 24 Energy Standards became effective on January 1, 2023, with updates for the 2025 standards set to take effect on January 1, 2026. As the Project is expected to be completed in 2026, it will need to comply with the Title 24 Energy Standards in effect at that time, which may include further updates beyond the 2025 version.

CALGreen is updated on a regular basis, with the most recent approved update consisting of the 2025 California Green Building Code Standards that go into effect on January 1, 2026. The Project would be required to comply with the applicable standards in place at the time plan check submittals are made.

3.2.4 AB 1493 Pavley Regulations and Fuel Efficiency Standards

California AB 1493, enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. Under this legislation, CARB adopted regulations to reduce GHG emissions from non-commercial passenger vehicles (cars and light-duty trucks). Although aimed at reducing GHG emissions, specifically, a co-benefit of the Pavley standards is an improvement in fuel efficiency and consequently a reduction in fuel consumption.

3.2.5 California's Renewable Portfolio Standard (RPS)

First established in 2002 under Senate Bill (SB) 1078, California's Renewable Portfolio Standards (RPS) requires retail sellers of electric services to increase procurement from eligible renewable resources to 44% of total retail sales by 2024 (19).

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 45% by 2027.
- Double the energy efficiency in existing buildings by 2030. This target will be achieved through the California Public Utility Commission (CPUC), the CEC, and local publicly owned utilities.
- Reorganize the Independent System Operator (ISO) to develop more regional electricity 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 Executive Order N-79-20 and Advanced Clean Cars II

On August 25, 2022, CARB approved the Advanced Clean Cars II rule, which codifies the goals set out in Executive Order N-79-20 and establishes a year-by-year roadmap such that by 2035, 100% of new cars and light trucks sold in California will be zero-emission vehicles. Under this regulation, automakers are required to accelerate deliveries of zero-emission light-duty vehicles, beginning with model year 2026. CARB estimates that between 2026 and 2040, the regulation would reduce GHG emissions by a cumulative 395 million metric tons, equivalent to reducing petroleum use by 915 million barrels.

4 EXISTING PROJECT SITE OPERATIONAL ENERGY DEMANDS

4.1 EXISTING OPERATIONAL ENERGY DEMANDS

4.1.1 Existing Transportation Energy Demands

As previously stated, portions of the Project site are currently developed with existing uses. Assessor's Parcel Number (APN) 273-141-004 is currently developed with in-line shops and a 7-Eleven with Gas Station. The 7-Eleven is approximately 2,400 square feet (with four vehicle fueling positions), the existing bike store is 2,400 square feet, the smoke shop is 1,200 square feet, the nail shop is 1,200 square feet, and the fish taco shop is 1,200 square feet. APN 273-141-005 is an existing Farmer Boys fast food restaurant that is approximately 2,640 square feet. The estimated transportation energy demands from the existing development are summarized in Table 4-1. Detailed operation model outputs are presented in Appendix 4.1

TABLE 4-1: TOTAL PROJECT-GENERATED TRAFFIC ANNUAL FUEL CONSUMPTION (ALL VEHICLES)

Vehicle Type	Average Vehicle Fuel Economy (mpg)	Annual VMT	Estimated Annual Fuel Consumption (gallons)
LDA	33.17	709,855	21,398
LDT1	23.47	52,966	2,257
LDT2	24.56	298,609	12,159
MDV	19.69	224,915	11,425
LHDT1	16.78	44,245	2,636
LHDT2	17.32	12,644	730
MHDT	8.48	21,309	2,512
HHDT	6.49	23,501	3,619
OBUS	8.05	848	105
UBUS	5.47	549	100
MCY	40.21	32,663	812
SBUS	6.25	1,910	305
MH	5.76	8,154	1,416
Total Annual Fuel Consumption (All Vehicles)		1,432,168	59,476

4.1.2 Existing Facility Energy Demands

The estimated energy demands of the existing development are summarized in Table 4-2.

TABLE 4-2: EXISTING ANNUAL OPERATIONAL ENERGY DEMAND SUMMARY

Energy Type	Natural Gas (kBTU/year)	Electricity (kWh/year)
Convenience Market with Gas Pumps	40,283	76,991
Strip Mall	35,533	58,550
Fast Food Restaurant with Drive Thru	301,115	92,703
Total Usage	376,931	228,244

kBTU – kilo-British Thermal Units
kWh – Kilowatt Hour

For the purposes of CEQA analysis, the net fuel consumption and energy demand is calculated by subtracting the consumption associated with the existing uses from the total demand generated by the new development. That is, as provided for under CEQA, the baseline condition reflected in these analyses includes uses that exist at the Site, regardless of whether those uses are actively operational or temporarily inactive.

5 PROJECT ENERGY DEMANDS AND ENERGY EFFICIENCY MEASURES

5.1 EVALUATION CRITERIA

Appendix F of the *State CEQA Guidelines* (20) states that the means of achieving the goal of energy conservation includes the following:

- 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.

In compliance with Appendix G of the *State CEQA Guidelines* (21), this report analyzes the Project's anticipated energy use during construction and operations to determine if the Project would:

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

5.2 METHODOLOGY

Information from the CalEEMod Version 2022.1 outputs for the *Woodcrest Retail Center Project Air Quality Impact Analysis* (AQIA) (22) was utilized in this analysis, detailing Project-related construction equipment, transportation energy demands, and facility energy demands.

5.2.1 CalEEMod

The California Air Pollution Control Officers Association (CAPCOA) in conjunction with other California air districts, including SCAQMD, released CalEEMod 2022 in May 2022. CalEEMod periodically releases updates, as such the latest version available at the time of this report has been utilized in this analysis. 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 (23). Accordingly, the latest version of CalEEMod has been used to determine the proposed Project's anticipated transportation and facility energy demands. Outputs from the annual model runs are provided in Appendices 5.1 and 5.2.

5.2.2 Emission Factors Model

In May 2025, the EPA approved the 2025 version of the Emissions FACtor model (EMFAC) web database for use in State Implementation Plan and transportation conformity analyses. EMFAC2025 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 (24). This energy study utilizes the different fuel types for each vehicle class from the annual EMFAC2025 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 2026 through 2027

analysis years were utilized to determine the average vehicle fuel economy used throughout the duration of the Project. Output from the EMFAC2025 model run is provided in Appendix 5.3.

5.3 CONSTRUCTION ENERGY DEMANDS

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.

5.3.1 Construction Power Cost

The total Project construction power costs is the summation of the products of the area (sf) by the construction duration and the typical power cost.

Construction Duration

For purposes of analysis, construction will begin January 2026 and would last through January 2027 (22). The construction schedule utilized in the analysis, shown in Table 5-1, represents a “worst-case” analysis scenario. The duration of construction activity and associated equipment represents a reasonable approximation of the expected construction fleet as required per *CEQA Guidelines* (25).

TABLE 5-1: CONSTRUCTION DURATION

Construction Activity	Start Date	End Date	Days
Demolition	1/1/2026	1/29/2026	20
Site Preparation	1/30/2026	2/13/2026	10
Grading	2/14/2026	3/13/2026	20
Building Construction	3/16/2026	1/29/2027	230
Paving	1/4/2027	1/29/2027	20
Architectural Coating	1/4/2027	1/29/2027	20

Project Construction Power Cost

The *2025 National Construction Estimator* identifies a typical power cost per 1,000 sf of construction per month of \$2.85, which was used to calculate the Project’s total construction power cost (26).

Base Development Concept

As shown in Table 5-2, the total power cost of on-site electricity usage during the building construction of the Based Development Concept is estimated to be approximately \$2,086.88.

Parcel 1 Option

As shown in Table 5-3, the total power cost of on-site electricity usage during the building construction of the Parcel 1 Option is estimated to be approximately \$2,246.70.

TABLE 5-2: BASE DEVELOPMENT CONCEPT CONSTRUCTION POWER COST

Land Use	Power Cost ¹	Total Building Size (1,000 SF)	Construction Duration (months)	Total Project Construction Power Cost
Convenience Market with Gas Pumps	\$2.85	3.227	12	\$110.36
Supermarket	\$2.85	43.403	12	\$1,484.38
Strip Mall	\$2.85	2.500	12	\$85.50
Fast Food Restaurant w/o Drive Thru	\$2.85	2.500	12	\$85.50
Fast Food Restaurant with Drive Thru	\$2.85	9.390	12	\$321.14
Total Project Construction Cost				\$2,086.88

TABLE 5-3: PARCEL 1 OPTION CONCEPT CONSTRUCTION POWER COST

Land Use	Power Cost ¹	Total Building Size (1,000 SF)	Construction Duration (months)	Total Project Construction Power Cost
Supermarket	\$2.85	43.403	12	\$1,484.38
Strip Mall	\$2.85	5.200	12	\$177.84
Fast Food Restaurant w/o Drive Thru	\$2.85	5.200	12	\$177.84
Fast Food Restaurant with Drive Thru	\$2.85	11.890	12	\$406.64
Total Project Construction Cost				\$2,246.70

5.3.2 Construction Electricity Usage

The total Project construction electricity usage is the summation of the products of the power cost (estimated in Tables 5-2 and 5-3) by the utility provider cost per kWh of electricity.

Project Construction Electricity Usage

The SCE's general service rate schedule was used to determine the Project's electrical usage. As of March 1, 2025, SCE's general service rate is \$0.17 per kWh for industrial services (27).

Base Development Concept

As shown in Table 5-4, the total electricity usage from on-site construction related activities associated with the Base Development Concept is estimated to be approximately 12,453 kWh.

Parcel 1 Option

As shown in Table 5-5, the total electricity usage from on-site construction related activities associated with the Parcel Option 1 is estimated to be approximately 14,978 kWh.

TABLE 5-4: BASE DEVELOPMENT CONCEPT CONSTRUCTION ELECTRICITY USAGE

Land Use	Cost per kWh	Total Project Construction Electricity Usage (kWh)
Convenience Market with Gas Pumps	\$0.17	659
Supermarket	\$0.17	8,858
Strip Mall	\$0.17	510
Fast Food Restaurant w/o Drive Thru	\$0.17	510
Fast Food Restaurant with Drive Thru	\$0.17	1,916
Total Project Construction Electricity Usage (kWh)		12,453

TABLE 5-5: PARCEL 1 OPTION CONSTRUCTION ELECTRICITY USAGE

Land Use	Cost per kWh	Total Project Construction Electricity Usage (kWh)
Supermarket	\$0.15	9,896
Strip Mall	\$0.15	1,186
Fast Food Restaurant w/o Drive Thru	\$0.15	1,186
Fast Food Restaurant with Drive Thru	\$0.15	2,711
Total Project Construction Electricity Usage (kWh)		14,978

5.3.3 Construction Equipment Fuel Estimates

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

Construction Equipment

A summary of construction equipment assumptions by phase is provided at Table 5-6. This equipment will be used for both the Base Development Concept and Parcel Option 1. Consistent with industry standards and typical construction practices, each piece of equipment listed in Table 5-6 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 County Code.

TABLE 5-6: CONSTRUCTION EQUIPMENT ASSUMPTIONS (1 OF 2)

Construction Activity	Equipment	Quantity	Hours
Demolition	Rubber Tired Dozers	2	8
	Excavators	3	8
	Concrete/Industrial Saws	1	8
Site Preparation	Rubber Tired Dozers	3	8
	Crawler Tractors	4	8

TABLE 5-6: CONSTRUCTION EQUIPMENT ASSUMPTIONS (2 OF 2)

Construction Activity	Equipment	Quantity	Hours
Grading	Graders	1	8
	Excavators	1	8
	Rubber Tired Dozers	1	8
	Crawler Tractors	3	8
Building Construction	Forklifts	3	8
	Generator Sets	1	8
	Cranes	1	8
	Welders	1	8
	Tractors/Loaders/Backhoes	3	8
Paving	Pavers	2	8
	Paving Equipment	2	8
	Rollers	2	8
Architectural Coating	Air Compressors	1	8

Project Construction Equipment Fuel Consumption

For both the Base Development Concept and Parcel Option 1, construction activity timeline estimates, construction equipment schedules, equipment power ratings, load factors, and associated fuel consumption estimates are presented in Table 5-7. 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 (28). 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 Project area and region.² As presented in Table 5-7, Project construction activities would consume an estimated 419 gallons of gasoline and 37,912 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.

² 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 5-7: CONSTRUCTION EQUIPMENT FUEL CONSUMPTION ESTIMATE

Activity	Duration (Days)	Equipment	HP Rating	Quantity	Usage Hours	Load Factor	HP-hrs/day	Total Fuel Consumption
Demolition	20	Rubber Tired Dozers	367	2	8	0.40	2,348.80	2,539
		Excavators	36	3	8	0.38	328.32	355
		Concrete/Industrial Saws	33	1	8	0.73	192.72	208
Site Preparation	10	Rubber Tired Dozers	367	3	8	0.40	3,523.20	1,904
		Crawler Tractors	87	4	8	0.43	1,197.12	647
Grading	20	Graders	148	1	8	0.41	485.44	525
		Excavators	36	1	8	0.38	109.44	118
		Rubber Tired Dozers	367	1	8	0.40	1,174.40	1,270
		Crawler Tractors	87	3	8	0.43	897.84	971
Building Construction	230	Forklifts	82	3	8	0.20	393.60	4,893
		Generator Sets	14	1	8	0.74	82.88	1,030
		Cranes	367	1	8	0.29	851.44	10,585
		Welders	46	1	8	0.45	165.60	2,059
		Tractors/Loaders/Backhoes	84	3	8	0.37	745.92	9,274
Paving	20	Pavers	81	2	8	0.42	544.32	588
		Paving Equipment	89	2	8	0.36	512.64	554
		Rollers	36	2	8	0.38	218.88	237
Architectural Coating	20	Air Compressors	37	1	8	0.48	142.08	154
Construction Fuel Demand (Gallons Fuel)								37,912

5.3.4 Construction Trips and VMT

Construction generates on-road vehicle emissions from vehicle usage for workers, hauling, and vendors commuting to and from the site as well as on-site truck movement. For both the Base Development Concept and the Parcel Option 1, the number of workers, hauling, vendor, and onsite truck trips are presented below in Table 5-8. It should be noted that for Vendor Trips specifically, CalEEMod only assigns Vendor Trips to the Building Construction phase. Vendor trips would likely occur during all phases of construction. As such, the CalEEMod defaults for Vendor Trips have been adjusted based on a ratio of the total vendor trips to the number of days of each subphase of activity

TABLE 5-8: CONSTRUCTION TRIPS AND VMT

Construction Activity	Worker Trips Per Day	Vendor Trips Per Day	Hauling Trips Per Day
Demolition	15	1	6
Site Preparation	18	0	0
Grading	15	1	42
Building Construction	21	8	0
Paving	15	0	0
Architectural Coating	4	0	0

5.3.5 Construction Worker Fuel Estimates

With respect to estimated VMT for the Base Development Concept and Parcel 1 Option, the construction worker trips would generate an estimated 121,268 VMT during the 12 months of construction (22). Based on CalEEMod methodology, it is assumed that 50% of all vendor trips are from light-duty-auto vehicles (LDA), 25% are from light-duty-trucks (LDT1³), and 25% are from light-duty-trucks (LDT2⁴). Data regarding Project related construction worker trips were based on CalEEMod defaults utilized within the AQIA.

Vehicle fuel efficiencies for LDA, LDT1, and LDT2 were estimated using information generated within the 2025 version of the EMFAC developed by CARB. EMFAC2025 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 (24). EMFAC2025 was run for the LDA, LDT1, and LDT2 vehicle class within the California sub-area for the 2026 through 2027 calendar years. Data from EMFAC2025 is shown in Appendix 5.3.

Table 5-9 provides an estimated annual fuel consumption resulting from Project construction worker trips associated with the Base Development Concept and Parcel 1 Option. Based on Table 5-9, it is estimated that 4,529 gallons of fuel will be consumed related to construction worker trips during full construction of the Project. It should be noted that construction worker trips would represent a

³ 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.

⁴ Vehicles under the LDT2 category have a GVWR of less than 6,000 lbs. and ETW between 3,751 lbs. and 5,750 lbs.

“single-event” gasoline fuel demand and would not require on-going or permanent commitment of fuel resources for this purpose.

5.3.6 Construction Vendor/Hauling Fuel Estimates

With respect to estimated VMT for the Base Development Concept and Parcel 1 Option, the construction vendor/hauling trips (vehicles that deliver materials to the site during construction) would generate an estimated 38,984 VMT along area roadways for the Project over the duration of construction activity (22). It is assumed that 50% of all vendor trips are from medium-heavy duty trucks (MHDT), 50% of vendor trips are from heavy-heavy duty trucks (HHDT), and 100% of hauling trips are from HHDTs. These assumptions are consistent with the CalEEMod defaults utilized within the within the AQIA (22). Vehicle fuel efficiencies for MHDTs and HHDTs were estimated using information generated within EMFAC2025. EMFAC2025 was run for the MHDT and HHDT vehicle classes within the California sub-area for the 2026 through 2027 calendar years. Data from EMFAC2025 is shown in Appendix 5.3.

Table 5-10 provides an estimated annual fuel consumption resulting from Project construction vendor/hauling trips associated with the Base Development Concept and Parcel 1 Option. It is estimated that 5,759 gallons of fuel will be consumed related to construction vendor/hauling trips during full construction of the Project. It should be noted that Project construction vendor/hauling 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.

TABLE 5-9: CONSTRUCTION WORKER FUEL CONSUMPTION ESTIMATES (1 OF 2)

Year	Construction Activity	Duration (Days)	Worker Trips/Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Trip Length (miles)
2026	LDA						
	Demolition	21	8	18.5	3,108	31.71	98
	Site Preparation	11	9	18.5	1,832	31.71	58
	Grading	20	8	18.5	2,960	31.71	93
	Building Construction	209	11	18.5	42,532	31.71	1,341
	LDT1						
	Demolition	21	4	18.5	1,554	22.78	68
	Site Preparation	11	5	18.5	1,018	22.78	45
	Grading	20	4	18.5	1,480	22.78	65
	Building Construction	209	6	18.5	23,199	22.78	1,019
	LDT2						
	Demolition	21	4	18.5	1,554	23.62	66
	Site Preparation	11	5	18.5	1,018	23.62	43
	Grading	20	4	18.5	1,480	23.62	63
	Building Construction	209	6	18.5	23,199	23.62	982
2027	LDA						
	Building Construction	21	11	18.5	4,274	33.17	129
	Paving	20	8	18.5	2,960	33.17	89
	Architectural Coating	20	2	18.5	740	33.17	22
	LDT1						
	Building Construction	21	6	18.5	2,331	23.47	99
	Paving	20	4	18.5	1,480	23.47	63
	Architectural Coating	20	1	18.5	370	23.47	16

TABLE 5-9: CONSTRUCTION WORKER FUEL CONSUMPTION ESTIMATES (1 OF 2)

Year	Construction Activity	Duration (Days)	Worker Trips/Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Trip Length (miles)
2027	LDT2						
	Building Construction	21	6	18.5	2,331	24.56	95
	Paving	20	4	18.5	1,480	24.56	60
	Architectural Coating	20	1	18.5	370	24.56	15
	Total Construction Worker Fuel Consumption						4,529

TABLE 5-10: CONSTRUCTION VENDOR/HAULING FUEL CONSUMPTION ESTIMATES

Year	Construction Activity	Duration (Days)	Vendor and Hauling Trips/Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Trip Length (miles)
2026	MHDT						
	Demolition	21	1	10.2	214	8.37	26
	Grading	20	1	10.2	204	8.37	24
	Building Construction	209	4	10.2	8,527	8.37	1,019
	HHDT (Vendor)						
	Demolition	21	1	10.2	214	6.35	34
	Grading	20	1	10.2	204	6.35	32
	Building Construction	209	4	10.2	8,527	6.35	1,342
	HHDT (Hauling)						
	Demolition	21	6	20.0	2,520	6.35	397
	Grading	20	42	20.0	16,860	6.35	2,653
	MHDT						
2027	Building Construction	21	4	10.2	857	8.48	101
	HHDT (Vendor)						
	Building Construction	21	4	10.2	857	6.49	132
Total Construction Vendor/Hauling Fuel Consumption							5,759

5.3.7 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 the 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.

5.4 OPERATIONAL ENERGY DEMANDS

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

5.4.1 Transportation Energy Demands

Base Development Concept

Energy that would be consumed by Project-generated traffic associated with the Base Development Concept is a function of total VMT and estimated vehicle fuel economies of vehicles accessing the Project site. The VMT per vehicle class can be determined by evaluating the vehicle fleet mix and the total VMT. As with worker and vendors trips, operational vehicle fuel efficiencies were estimated using information generated within EMFAC2025 developed by CARB (24). EMFAC2025 was run for the Riverside (SC) area for the 2027 calendar year. Data from EMFAC2025 is shown in Appendix 5.3.

As summarized in Table 5-11, the Base Development Concept would result in a net increase of 3,210,459 annual VMT and an estimated annual fuel consumption of 133,327 gallons of fuel.

TABLE 5-11: BASE DEVELOPMENT CONCEPT TRAFFIC ANNUAL FUEL CONSUMPTION

Vehicle Type	Average Vehicle Fuel Economy (mpg)	Annual VMT	Estimated Annual Fuel Consumption (gallons)
LDA	33.17	2,301,122	69,367
LDT1	23.47	171,700	7,317
LDT2	24.56	967,993	39,416
MDV	19.69	729,103	37,035
LHDT1	16.78	143,428	8,545
LHDT2	17.32	40,987	2,366
MHDT	8.48	69,076	8,144
HHDT	6.49	76,183	11,733
OBUS	8.05	2,749	342
UBUS	5.47	1,779	325
MCY	40.21	105,884	2,633
SBUS	6.25	6,191	990
MH	5.76	26,433	4,590
Total Annual Fuel Consumption (All Vehicles)		4,642,627	192,803
<i>Existing</i>		1,432,168	59,476
Total Net Annual Fuel Consumption (All Vehicles)		3,210,459	133,327

Parcel 1 Option

As summarized in Table 5-12, the Parcel 1 Option would result in a net increase of 2,894,806 annual VMT and an estimated annual fuel consumption of 120,218 gallons of fuel.

TABLE 5-12: PARCEL 1 OPTION TRAFFIC ANNUAL FUEL CONSUMPTION

Vehicle Type	Average Vehicle Fuel Economy (mpg)	Annual VMT	Estimated Annual Fuel Consumption (gallons)
LDA	33.17	2,144,668	64,650
LDT1	23.47	160,026	6,820
LDT2	24.56	902,179	36,736
MDV	19.69	679,531	34,517
LHDT1	16.78	133,676	7,964
LHDT2	17.32	38,200	2,205
MHDT	8.48	64,379	7,590
HHDT	6.49	71,003	10,935
OBUS	8.05	2,562	318
UBUS	5.47	1,658	303
MCY	40.21	98,685	2,454
SBUS	6.25	5,770	923
MH	5.76	24,636	4,278
Total Annual Fuel Consumption (All Vehicles)		4,326,974	179,694
<i>Existing</i>		1,432,168	59,476
Total Net Annual Fuel Consumption (All Vehicles)		2,894,806	120,218

5.4.2 Facility Energy Demands

Base Development Concept

Project building operations activities from the Base Development Concept would result in the consumption of natural gas and electricity which would be supplied to the Project by SoCalGas and SCE, respectively. As summarized in Table 5-13, the Base Development Concept would result in a net increase of 1,776,705 kBTU/year of natural gas and an increase of 1,832,835 kWh/year of electricity demand.

Parcel 1 Option

Project building operations activities from the Parcel 1 Option would result in the consumption of natural gas and electricity which would be supplied to the Project by SoCalGas and SCE, respectively. As summarized in Table 5-14, the Parcel 1 Option would result in a net increase of 2,331,637 kBTU/year of natural gas and an increase of 1,938,260 kWh/year of electricity demand.

TABLE 5-13: BASE DEVELOPMENT CONCEPT ANNUAL OPERATIONAL ENERGY DEMAND SUMMARY

Energy Type	Natural Gas (kBtu/year)	Electricity (kWh/year)
Convenience Market with Gas Pumps	54,164	103,521
Supermarket	728,508	1,392,356
Strip Mall	14,805	24,396
Fast Food Restaurant w/o Drive Thru	285,147	87,787
Fast Food Restaurant with Drive Thru	1,071,012	329,729
Parking Lot	0	123,290
Total Usage	2,153,636	2,061,079
Existing	376,931	228,244
Net Usage	1,776,705	1,832,835

TABLE 5-14: PARCEL 1 OPTION ANNUAL OPERATIONAL ENERGY DEMAND SUMMARY

Energy Type	Natural Gas (kBtu/year)	Electricity (kWh/year)
Supermarket	728,508	1,392,356
Strip Mall	30,795	50,744
Fast Food Restaurant w/o Drive Thru	593,106	182,598
Fast Food Restaurant with Drive Thru	1,356,159	417,516
Parking Lot	0	123,290
Total Usage	2,708,568	2,166,504
Existing	376,931	228,244
Net Usage	2,331,637	1,938,260

5.4.3 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., Title 24, California Green Building Standards Code).

The Project would also not result in a substantial increase in demand for transmission service, resulting in the need for new or expanded sources of energy supply or new or expanded energy delivery systems or infrastructure (other than site-adjacent and on-site connects to local utilities).

Enhanced Vehicle Fuel Efficiencies

Project annual fuel consumption estimates presented previously in Tables 5-11 and 5-12 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. The Project's location near regional and local road networks helps decrease VMT in the area, which in turn reduces the overall energy demand for vehicles in the region.

5.5 SUMMARY

5.5.1 Construction Energy Demands

The estimated power cost of on-site electricity usage during the building construction of the Project is assumed to be approximately \$2,0866.88 for the Base Development Concept and \$2,246.70 for the Parcel 1 Option. 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 12,453 kWh for the Base Development Concept and 14,978 kWh for the Parcel 1 Option.

Construction equipment used by the Project would result in single event consumption of approximately 37,912 gallons of diesel fuel. Construction equipment use of fuel would not be atypical for the type of construction proposed because there are no aspects of the Project's proposed construction process that are unusual or energy-intensive, and Project construction equipment would conform to the applicable CARB emissions standards, acting to promote equipment fuel efficiencies.

CCR Title 13, Title 13, Motor Vehicles, section 2449(d)(3) Idling, limits idling times of construction vehicles to no more than 5 minutes, thereby precluding unnecessary and wasteful consumption of fuel due to unproductive idling of construction equipment. 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 4,529 gallons of fuel. Additionally, fuel consumption from construction vendor/hauling trips (MHDTs and HHDTs) will total approximately 5,759 gallons. Diesel fuel would be supplied by local and regional commercial vendors. Indirectly, construction energy efficiencies and energy conservation would be achieved using bulk purchases, transport and use of construction materials. The 2023 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 (29). As supported by the preceding discussions, Project construction energy consumption would not be considered inefficient, wasteful, or otherwise unnecessary.

5.5.2 Operational Energy Demands

Transportation Energy Demands

Annual vehicular trips and related VMT generated by the operation of the Project would result in a net increase fuel demand of 133,327 gallons of fuel for the Base Development Concept and an increase of 120,218 gallons of fuel for the Parcel 1 Option.

Fuel would be provided by current and future commercial vendors. Trip generation and VMT generated by the Project are consistent with other commercial uses of similar scale and

configuration, as reflected respectively in the Institute of Transportation Engineers (ITE) Trip Generation Manual (11th Ed., 2021); and CalEEMod. As such, Project operations would not result in excessive and wasteful vehicle trips and VMT, nor excess and wasteful vehicle energy consumption compared to other commercial uses.

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. The Project's location near regional and local road networks helps decrease VMT in the area, which in turn reduces the overall energy demand for vehicles in the region. 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 building operations activities from the Base Development Concept and Parcel 1 Option would result in the consumption of natural gas and electricity which would be supplied to the Project by SoCalGas and SCE, respectively. The Base Development Concept would result in a net increase of 1,776,705 kBTU/year of natural gas and an increase of 1,832,835 kWh/year of electricity demand. The Parcel 1 Option would result in a net increase of 2,331,637 kBTU/year of natural gas and an increase of 1,938,260 kWh/year of electricity demand. The Project proposes conventional commercial uses reflecting contemporary energy efficient/energy conserving designs and operational programs. The Project does not propose uses that are inherently energy intensive and the energy demands in total would be comparable to other commercial uses of similar scale and configuration.

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.

6 CONCLUSIONS

6.1 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?

Impact Analysis

A significant impact would occur if the proposed Project would result in the inefficient, wasteful, or unnecessary use of energy.

Construction

Based on CalEEMod estimations within the modeling output, construction-related vehicle trips would result in approximately 160,252 VMT and consume an estimated 10,289 gallons of gasoline and diesel combined during construction. Additionally, on-site construction equipment would consume an estimated 37,912 gallons of diesel fuel. Limitations on idling of vehicles and equipment and requirements that equipment be properly maintained would result in fuel savings. California Code of Regulations, Title 13, Sections 2449 and 2485, limit idling from both on-road and off-road diesel-powered equipment and are enforced by the CARB. Additionally, given the cost of fuel, contractors and owners have a strong financial incentive to avoid wasteful, inefficient, and unnecessary consumption of energy during construction.

Due to the temporary nature of construction and the financial incentives for developers and contractors to use energy-consuming resources in an efficient manner, the construction phase of the proposed Project would not result in wasteful, inefficient, and unnecessary consumption of energy. Therefore, the construction-related impacts related to electricity and fuel consumption would be less than significant.

Operation

Electricity and Natural Gas

Operation of the proposed Project would consume energy as part of building operations and transportation activities including truck and passenger vehicle traffic. Building operations would involve energy consumption for multiple purposes including, but not limited to, building heating and cooling, refrigeration, lighting, and electronics. Based on CalEEMod energy use estimations, the Base Development Concept would result in a net increase of 1,776,705 kBTU/year of natural gas and an increase of 1,832,835 kWh/year of electricity demand. The Parcel 1 Option would result in a net increase of 2,331,637 kBTU/year of natural gas and an increase of 1,938,260 kWh/year of electricity demand.

The proposed Project would be designed and constructed in accordance with the County's latest adopted energy efficiency standards, which are based on the California Title 24 energy efficiency standards. Title 24 standards include a broad set of energy conservation requirements that apply to the structural, mechanical, electrical, and plumbing systems in a building. For example, the Title 24 Lighting Power Density requirements define the maximum wattage of lighting that can be used in a building based on its square footage. Title 24 standards are widely regarded as the most advanced

energy efficiency standards and would help reduce the amount of energy required for lighting, water heating, and heating and air conditioning in buildings and promote energy conservation.

Fuel

Operational energy would also be consumed during vehicle trips associated with the proposed Project. Fuel consumption would be primarily related to vehicle use by residents, visitors, and employees associated with the Project. Based on CalEEMod energy use estimations, project-related vehicle trips would result in approximately 133,327 gallons of fuel for the Base Development Concept and an increase of 120,218 gallons of fuel for the Parcel 1 Option (see Appendices 5.1 and 5.2).

The Project is within close proximity of existing land uses that would provide future residents access to facilities such as fast-food restaurants and marketplaces which would further reduce fuel consumption demand. For these reasons, operational-related transportation fuel consumption would not result in a significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources. Therefore, the operational impact related to vehicle fuel consumption would be less than significant.

6.2 ENERGY IMPACT 2

Would the Project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Impact Analysis

A significant impact would occur if the proposed Project would conflict with or obstruct a State or local plan for renewable energy or energy efficiency.

Construction

As discussed in Section 5.1 above, the proposed Project would result in energy consumption through the combustion of fossil fuels in construction vehicles, worker commute vehicles, and construction equipment, and the use of electricity for temporary buildings used during construction, lighting, and other sources. California Code of Regulations Title 13, Sections 2449 and 2485, limit idling from both on-road and off-road diesel-powered equipment and are enforced by the ARB. The proposed Project would comply with these regulations. There are no policies at the local level applicable to energy conservation specific to the construction phase. Thus, it is anticipated that construction of the proposed Project would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing energy use or increasing the use of renewable energy. Therefore, construction-related energy efficiency and renewable energy standards consistency impacts would be less than significant.

Operation

California's Renewable Portfolio Standard (RPS) establishes a goal of renewable energy for local providers to be 44 percent by 2040. Similarly, the State is promoting renewable energy targets to meet the 2022 Scoping Plan greenhouse gas emissions reductions. As discussed in Section 5.1 above, the Base Development Concept would result in a net increase of 1,776,705 kBTU/year of natural gas and an increase of 1,832,835 kWh/year of electricity demand. The Parcel 1 Option would result in a

net increase of 2,331,637 kBTU/year of natural gas and an increase of 1,938,260 kWh/year of electricity demand.

The proposed Projects would be designed and constructed in accordance with the County's latest adopted energy efficiency standards, which are based on the California Title 24 energy efficiency standards. Title 24 standards include a broad set of energy conservation requirements that apply to the structural, mechanical, electrical, and plumbing systems in a building. For example, the Title 24 Lighting Power Density requirements define the maximum wattage of lighting that can be used in a building based on its square footage. Title 24 standards, widely regarded as the most advanced energy efficiency standards, would help reduce the amount of energy required for lighting, water heating, and heating and air conditioning in buildings and promote energy conservation.

Compliance with the aforementioned mandatory measures would ensure that the proposed Project would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing energy use or increasing the use of renewable energy. Therefore, operational energy efficiency and renewable energy standards consistency impacts would be less than significant.

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8 CERTIFICATION

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

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Professional Certifications

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

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APPENDIX 4.1:

CALEEMOD EXISTING EMISSIONS MODEL OUTPUTS

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APPENDIX 5.1:

CALEEMOD BASE DEVELOPMENT CONCEPT EMISSIONS MODEL OUTPUTS

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APPENDIX 5.2:

CALEEMOD PARCEL 1 OPTION EMISSIONS MODEL OUTPUTS

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APPENDIX 5.3:

EMFAC2025

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