

APPENDIX 4

Energy Analysis



2020 Optimum Basin Management Program Update

ENERGY ANALYSIS

CHINO BASIN WATERMASTER

PREPARED BY:

Haseeb Qureshi
hqureshi@urbanxroads.com
(949) 336-5987

Alyssa Tamase
atamase@urbanxroads.com
(949) 336-5988

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LIST OF ABBREVIATED TERMS

%	Percent
(1)	Reference
af	Acre-Feet
AQIA	Air Quality Impact Report
ASR	Aquifer Storage and Recovery
BACM	Best Available Control Measures
CalEEMod	California Emissions Estimator Model
CARB	California Air Resources Board
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CPEP	Clean Power and Electrification Pathway
CPUC	California Public Utilities Commission
DMV	Department of Motor Vehicles
EIA	Energy information Administration
EMFAC	Emissions Factor
FERC	Federal Energy Regulatory Commission
GS-1	General Service Rate Schedule
GWh	Gigawatt Hour
HHDT	Heavy-Heavy-Duty Trucks
Hp-hr/gal	Horsepower-Hour Per Gallon
IEPR	Integrative Energy Policy Report
IEUA	Inland Empire Utilities Agency
ISO	Independent Service Operator
ISTEA	Intermodal Surface Transportation Efficiency Act
kWh	Kilowatt Hours
LDA	Light Duty Auto
LF	Linear Feet
MHDT	Medium-Heavy-Duty Trucks
mpg	Miles Per Gallon
MAR	Managed Aquifer Recharge
MPO	Metropolitan Planning Organization
MS4	Municipal Separate Storm Sewer System
PCL	Power Content Label
PG&E	Pacific Gas and Electric
Project	2020 Optimum Basin Management Program Update

SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCE	Southern California Edison
SDAB	San Diego Air Basin
SDG&E	San Diego Gas & Electric
SoCalGas	Southern California Gas
TEA-21	Transportation Equity Act for the 21 st Century
Title 13	Motor Vehicles
Title 24	California Building Code
U.S.	United States
WFA	Water Facilities Authority

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EXECUTIVE SUMMARY

ES.1 SUMMARY OF FINDINGS

The results of this *2020 Optimum Basin Management Program Update (2020 OBMPU) Energy Analysis* is summarized below based on the significance criteria in Section 3 of this report consistent with Appendix G of the California Environmental Quality Act (CEQA) Guidelines (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: Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.	4.5	<i>Less Than Significant</i>	<i>n/a</i>
Energy Impact #2: Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.	4.5	<i>Less Than Significant</i>	<i>n/a</i>

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1 INTRODUCTION

This report presents the results of the energy analysis prepared by Urban Crossroads, Inc., for the proposed 2020 OBMPU (Project). The purpose of this report is to ensure that energy implication is considered by the Chino Basin Watermaster, as the lead agency, and to quantify anticipated energy usage associated with construction of the proposed Project, determine if the usage amounts are efficient, typical, or wasteful for the land use type, and to emphasize avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy.

1.1 SITE LOCATION

The proposed 2020 OBMPU Project is generally located within the portions of the San Bernardino, Riverside, and Los Angeles counties, as shown on Exhibit 1-A.

1.2 PROJECT DESCRIPTION

The OBMPU consists of construction and operation of the various facilities which are separated into four project categories: 1) Project Category 1: Well Development and Monitoring Devices; 2) Project Category 2: Conveyance Facilities and Ancillary Facilities; 3) Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands; and, 4) Project Category 4: Desalters and Water Treatment Facilities.

PROJECT CATEGORY 1: WELL DEVELOPMENT AND MONITORING DEVICES

This Project Category includes the development of aquifer storage and recovery (ASR), injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

Well development includes: 60 ASR wells, 10 wells relocated, 8 new wells to expand desalter capacity, modification of up to 5 wells, destruction and replacement of 5 wells for a total of 78 pumping wells. This category also includes the development of 100 monitoring wells, for a total of 178 wells, which serve the varying purposes listed above and outlined below. The monitoring devices proposed as part of the OBMPU include 300 flow meters and 3 extensometers.

PROJECT CATEGORY 2: CONVEYANCE FACILITIES AND ANCILLARY FACILITIES

This category includes the construction of 550,000 linear feet (LF) of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number, locations and capacities are presently unknown. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin.

PROJECT CATEGORY 3: STORAGE BASINS, RECHARGE FACILITIES, AND STORAGE BANDS

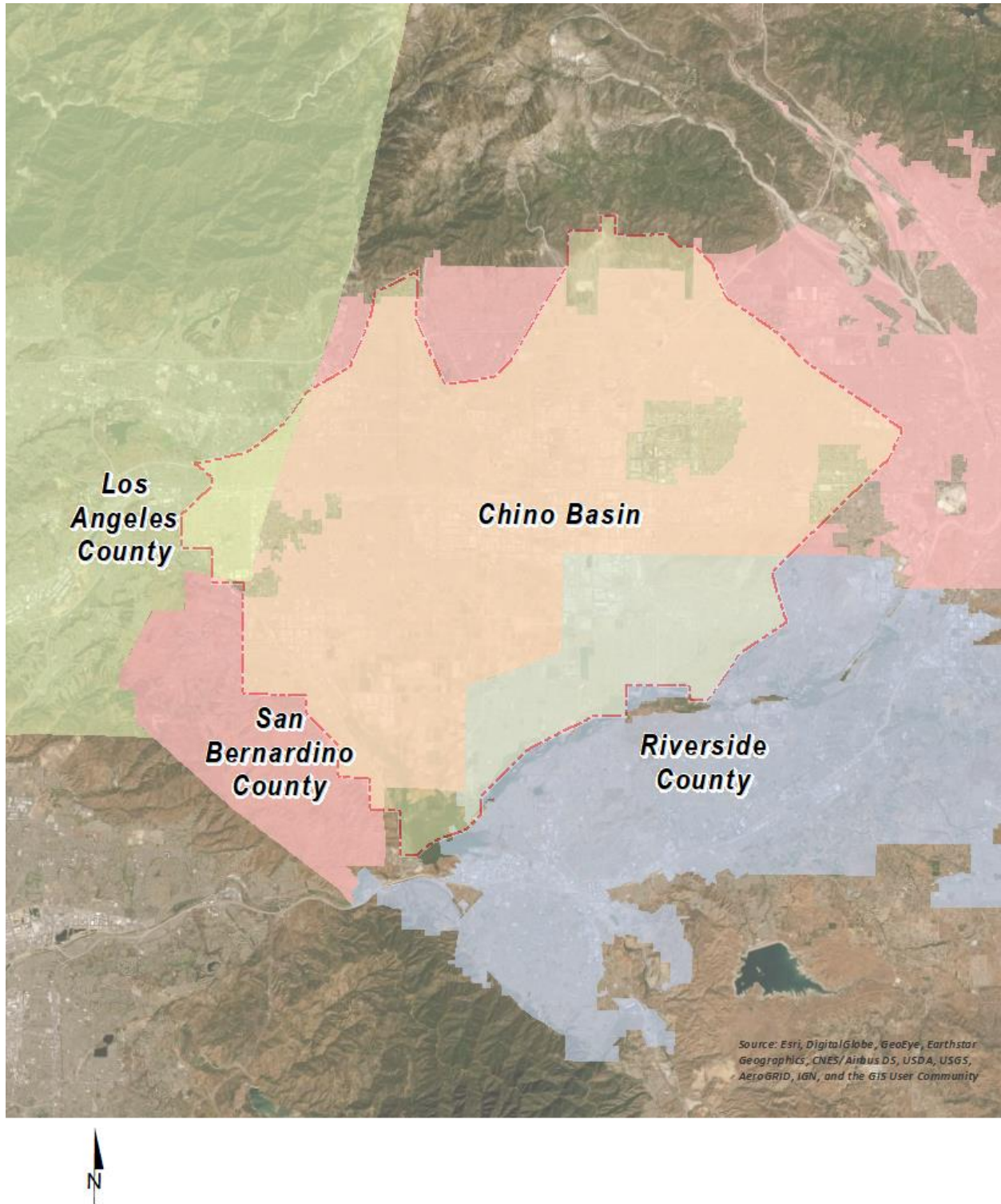
This Project Category includes the construction of 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood managed aquifer recharge (MAR) facilities, new municipal separate storm sewer

system (MS4) compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 acre-feet (af) (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af within this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

PROJECT CATEGORY 4: DESALTERS AND WATER TREATMENT FACILITIES

The projects proposed under this category are: upgrades at Inland Empire Utilities Agency's (IEUA) existing Treatment Plants, a new advanced water treatment plant (discussed in IEUA's 2017 FMP PEIR), improvements to the Water Facilities Authority (WFA) Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities.

EXHIBIT 1-A: PROJECT LOCATION MAP



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2 EXISTING CONDITIONS

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

2.1 OVERVIEW

The most recent data for California's estimated total energy consumption is from 2017 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:

- Approximately 7,881 trillion British Thermal Unit (BTU) of energy was consumed; (2);
- Approximately 2,137 billion cubic feet of natural gas (2)

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

- Gasoline demand in the transportation sector is expected to decline from approximately 15.8 billion gallons in 2017 to between 12.3 billion and 12.7 billion gallons in 2030 (3)
- Diesel demand in the transportation sector is expected to rise, increasing from approximately 3.7 billion diesel gallons in 2015 to approximately 4.7 billion in 2030 (3)
 - Data from the Department of Energy states that approximately 3.9 billion gallons of diesel fuel were consumed in 2017 (4)

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

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

In 2018, total system electric generation for California was 285,488 gigawatt hours (GWh). California's massive electricity in-state generation system generated approximately 194,842 GWh which accounted for approximately 68% of the electricity it uses; the rest was imported from the Pacific Northwest (14%) and the U.S. Southwest (18%) (6). Natural gas is the main source for electricity generation at 47% of the total in-state electric generation system power as shown in Table 2-1.

TABLE 2-1: TOTAL ELECTRICITY SYSTEM POWER (CALIFORNIA 2018)

Fuel Type	California In-State Generation	Percent of California In-State	Northwest Imports (GWh)	Southwest Imports (GWh)	California Power Mix (GWh)	Percent California Power Mix
Coal	294	0.15%	399	8,740	9,433	3.30%
Large Hydro	22,096	11.34%	7,418	985	30,499	10.68%
Natural Gas	90,691	46.54%	49	8,904	99,644	34.91%
Nuclear	18,268	9.38%	0	7,573	25,841	9.05%
Oil	35	0.02%	0	0	35	0.01%
Other	430	0.22%	0	9	439	0.15%
Renewables	63,028	32.35%	14,074	12,400	89,502	31.36%
Biomass	5,909	3.03%	772	26	6,707	2.35%
Geothermal	11,528	5.92%	171	1,269	12,968	4.54%
Small Hydro	4,248	2.18%	334	1	4,583	1.61%
Solar	27,265	13.99%	174	5,094	32,533	11.40%
Wind	14,078	7.23%	12,623	6,010	32,711	11.46%
Unspecified Sources of Power	N/A	N/A	17,576	12,519	30,095	10.54%
Total	194,842	100%	39,517	51,130	285,488	100%

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

2.2 ELECTRICITY

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 had revealed the extent to which the South Coast 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). If the resource development outlined in the preliminary plan continues as detailed, reliability in Southern California would likely be assured; however, tight resource margins have led energy agencies and the California Air Resources Board (CARB) to develop a contingency plan. This contingency plan was discussed at a public workshop in Los Angeles on August 20, 2014 and is detailed within this Section (11).

Electricity is 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 (12).

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

Part of the ISO's charge is to plan and coordinate grid enhancements to ensure that electrical power is provided to California consumers. To this end, transmission owners (investor-owned utilities such as SCE) 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 2018. As indicated in Table 2-2, the 2018 SCE Power Mix has renewable energy at 36% of the overall energy resources. Geothermal resources are at 8%, wind power is at 13%, large hydroelectric sources are at 1%, solar energy is at 13%, and coal is at 0%. Biomass and waste sources have increased by 1% since 2017. Natural gas remains at 17% since 2017 (14).

TABLE 2-2: SCE 2018 POWER CONTENT MIX

Energy Resources	2018 SCE Power Mix
<i>Eligible Renewable</i>	36%
Biomass & waste	1%
Geothermal	8%
Small Hydroelectric	1%
Solar	13%
Wind	13%
<i>Coal</i>	0%
<i>Large Hydroelectric</i>	4%
<i>Natural Gas</i>	17%
<i>Nuclear</i>	6%
<i>Other</i>	0%
Unspecified Sources of power*	37%
Total	100%

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

2.3 NATURAL GAS

The usage associated with natural gas use were calculated using the California Emissions Estimator Model (CalEEMod) v2016.3.2 model. The following summary of natural gas resources and service providers, delivery systems, and associated regulation is excerpted from information provided by the California Public Utilities Commission (CPUC).

“The CPUC regulates natural gas utility service for approximately 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.

The vast majority of California’s natural gas customers are residential and small commercial customers, referred to as “core” customers, who accounted for approximately 32% of the natural gas delivered by California utilities in 2012. Large consumers, like electric generators and industrial customers, referred to as “noncore” customers, accounted for approximately 68% of the natural gas delivered by California utilities in 2012.

The PUC regulates the California utilities’ natural gas rates and natural gas services, including in-state transportation over the utilities’ transmission and distribution pipeline systems, storage, procurement, metering and billing. Most of the natural gas used in California comes from out-of-state natural gas basins. In 2012, California customers received 35% of their natural gas supply from basins located in the Southwest, 16% from Canada, 40% from the Rocky Mountains, and 9% from basins located within California. California gas utilities may soon also begin receiving biogas into their pipeline systems.

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 consumers are the Gas Transmission Northwest Pipeline, Kern River Pipeline, Transwestern Pipeline, El Paso Pipeline, Ruby Pipeline, Questar Southern Trails and Mojave Pipeline. 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, the PUC often participates in FERC regulatory proceedings to represent the interests of California natural gas consumers.

Most of the natural gas transported via the interstate pipelines, as well as some of the California-produced natural gas, is delivered into the PG&E and SoCalGas intrastate natural gas transmission pipeline systems (commonly referred to as California’s “backbone” natural gas pipeline system). Natural gas on the utilities’ backbone pipeline systems is then delivered into the local transmission and distribution pipeline systems, or to natural gas storage fields. Some large noncore customers take natural gas directly off the high-pressure backbone pipeline systems, while core customers and other noncore customers take natural gas off the utilities’ distribution pipeline systems. The PUC has regulatory jurisdiction over 150,000 miles of utility-owned natural gas pipelines, which transported 82% of the total amount of natural gas delivered to California’s gas consumers in 2012.

SDG&E and Southwest Gas’ southern division are wholesale customers of SoCalGas, and currently receive all of their natural gas from the SoCalGas system (Southwest Gas also

provides natural gas distribution service in the Lake Tahoe area). Some other municipal wholesale customers are the cities of Palo Alto, Long Beach, and Vernon, which are not regulated by the CPUC.

Some of the natural gas delivered to California customers may be delivered directly to them without being transported over the regulated utility systems. For example, the Kern River/Mojave pipeline system can deliver natural gas directly to some large customers, “bypassing” the utilities’ systems. Much of California-produced natural gas is also delivered directly to large consumers.

PG&E and SoCalGas own and operate several natural gas storage fields that are located in northern and southern California. 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 natural gas demand and allow California natural gas customers to secure natural gas supplies more efficiently. (A portion of the Gill Ranch facility is owned by PG&E).

California’s regulated utilities do not own any natural gas production facilities. All of the natural gas sold by these utilities must be purchased from suppliers and/or marketers. The price of natural gas sold by suppliers and marketers was deregulated by the FERC in the mid-1980’s and is determined by “market forces.” However, the PUC decides whether California’s utilities have taken reasonable steps in order to minimize the cost of natural gas purchased on behalf of their core customers.” (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 PUC 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 2018, the Department of Motor Vehicles (DMV) identified 35 million registered vehicles in California (16), and those vehicles (as noted previously) consume an estimated 19 billion gallons of fuel each year¹. 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 170,000 miles of highways and major roadways, more than 27 million passenger vehicles and light trucks, and almost 8 million medium- and heavy-duty vehicles (16). While gasoline consumption has been declining since 2008 it is still by far the dominant fuel. Petroleum comprises about 92% of all transportation energy use, excluding fuel consumed for aviation and most marine vessels (17). Nearly 19 billion

¹ Fuel consumptions estimated utilizing information from EMFAC2014.

gallons of on-highway fuel are burned each year, including 15.1 billion gallons of gasoline (including ethanol) and 3.9 billion gallons of diesel fuel (including biodiesel and renewable diesel). In 2016, Californians also used 194 million therms of natural gas as a transportation fuel (18), or the equivalent of 155 million gallons of gasoline.

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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 are three federal agencies with substantial influence over energy policies and programs. On the state level, the PUC 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. Project consistency with applicable federal and state regulations is also presented in *italicized* text.

3.1 FEDERAL REGULATIONS

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. *Transportation and access to the Project site is provided primarily 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.*

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

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. *The Project site is located along major transportation corridors with proximate access to the Interstate freeway system and 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.*

3.2 CALIFORNIA REGULATIONS

INTEGRATED ENERGY POLICY REPORT

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 2018 IEPR was adopted February 20, 2019, and continues to work towards improving electricity, natural gas, and transportation fuel energy use in California. The 2018 IEPR focuses on a variety of topics such as including the environmental performance of the electricity generation system, landscape-scale planning, the response to the gas leak at the Aliso Canyon natural gas storage facility, transportation fuel supply reliability issues, updates on Southern California electricity reliability, methane leakage, climate adaptation activities for the energy sector, climate and sea level rise scenarios, and the California Energy Demand Forecast (19). *Electricity would be provided to the Project by Southern California Edison (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 2018 IEPR.*

STATE OF CALIFORNIA ENERGY PLAN

The CEC is responsible for preparing the State Energy Plan, which identifies emerging trends related to energy supply, demand, conservation, public health and safety, and the maintenance of a healthy economy. The Plan calls for the state to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators and encouragement of urban designs that reduce VMT and accommodate pedestrian and bicycle access. *The Project does not generate a substantive amount of vehicular travel would not otherwise interfere with, nor obstruct implementation of the State of California Energy Plan.*

CALIFORNIA CODE TITLE 24, PART 6, ENERGY EFFICIENCY STANDARDS

California Code of Regulations 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 GHG emissions. The 2019 version of Title 24 was adopted by the CEC and went into effect on January 1, 2020. The 2019 Title 24 standards go into

effect on January 1, 2020 and are applicable to building permit applications submitted on or after that date. The 2019 Title 24 standards require solar photovoltaic systems for new homes, establish requirements for newly constructed healthcare facilities, encourage demand responsive technologies for residential buildings, update indoor and outdoor lighting for nonresidential buildings. The CEC anticipates that single-family homes built with the 2019 standards will use approximately 7% less energy compared to the residential homes built under the 2016 standards. Additionally, after implementation of solar photovoltaic systems, homes built under the 2019 standards will about 53% less energy than homes built under the 2016 standards. Nonresidential buildings will use approximately 30% less energy due to lighting upgrades (20). *The 2019 version of Title 24 was adopted by the CEC and became effective on January 1, 2020.*

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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* (21), this report analyzes the project's anticipated energy use 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

In addition, Appendix F of the *State CEQA Guidelines* (22), 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.

4.2 METHODOLOGY

Information from the CalEEMod Version 2016.3.2 outputs for the *2020 Optimum Basin Management Program Update Air Quality Impact Analysis* (AQIA) (Urban Crossroads, Inc.) (23) was utilized in this analysis, detailing Project related construction equipment, transportation energy demands, and facility energy demands. These outputs can be referenced in Appendices 4.1 through 4.4.

4.3 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.

Because few details are known at this time regarding construction of specific projects, it is assumed that construction any Project facilities may occur simultaneously. As a conservative measure, and in order to identify the maximum daily emissions, this AQIA assumes that the Project would construct the following features simultaneously:

PROJECT CATEGORY 1

- 20 monitoring wells
- 10 production wells
- 65,000 linear feet (LF) of associated conveyance pipeline

PROJECT CATEGORY 2

- 200,000 LF of conveyance pipeline

PROJECT CATEGORY 3

- One new storage reservoir on a 100-acre site
- 60,000 LF of associated conveyance pipeline

PROJECT CATEGORY 4

- One new water treatment facility on a 10-acre site
- One new regional water treatment facility on a 10-acre site
- 60,000 LF of associated conveyance pipeline

4.3.1 CONSTRUCTION DURATION

Based on information provided in the Project Description, construction activities for Project Categories 1 and 2 are expected to occur over a 12-month period while construction activities for Project Categories 3 and 4 will occur over an 18-month period.

4.3.2 CONSTRUCTION EQUIPMENT

Associated equipment was based on information provided by the Project Description. Please refer to specific detailed modeling inputs/outputs contained in Appendices 4.1 through 4.4 of this AQIA. A detailed summary of construction equipment is provided at Table 4-1.

TABLE 4-1: CONSTRUCTION EQUIPMENT ASSUMPTIONS (1 OF 2)

Equipment	CalEEMod Equivalent	Amount	Hours Per Day
Project Category 1			
Bore/Drill Rigs	Bore/Drill Rigs	1	8
Cement Trucks	Off-Highway Trucks	1	8
Project Category 2			
Backhoes	Tractor/Loaders/Backhoes	2	8
Dump Trucks	Off-Highway Trucks	2	8
Excavators	Excavators	2	8
Pavers	Pavers	2	8
Rollers	Rollers	2	8
Water Trucks	Off-Highway Trucks	20	8

TABLE 4-1: CONSTRUCTION EQUIPMENT ASSUMPTIONS (2 OF 2)

Equipment		Amount	Hours Per Day
Project Category 3			
Bulldozers	Rubber Tired Dozers	2	8
Dump Trucks	Off-Highway Trucks	4	8
Excavators	Excavators	2	8
Loaders	Tractors/Loaders/Backhoes	2	8
Scrapers	Scrapers	7	8
Water Trucks	Off-Highway Trucks	2	
Project Category 4			
Backhoes	Tractors/Loaders/Backhoes	3	8
Compactors	Plate Compactors	3	8
Concrete Trucks	Off-Highway Trucks	3	8
Cranes	Cranes	3	8
Delivery Trucks	Off-Highway Trucks	3	8
Dump Trucks	Off-Highway Trucks	3	8
Graders	Graders	3	8
Loaders	Tractors/Loaders/Backhoes	3	8
Other Trucks	Off-Highway Trucks	3	8
Water Trucks	Off-Highway Trucks	3	8

Source: Construction equipment based on information provided by the Project Description.

4.3.3 CONSTRUCTION ELECTRICITY USAGE ESTIMATES

As shown on Table 4-2, the total power cost of the on-site electricity usage during the construction of the proposed Project is estimated to be approximately \$199,551,950.11.

TABLE 4-2: PROJECT CONSTRUCTION POWER COST

Project	Power Cost (per 1,000 SF of construction area per month) ²	Total Construction Area Size (1,000 SF)	Construction Duration (months)	Project Construction Power Cost
Project Category 1	\$2.32	477.500	12	\$13,293.60
Project Category 2	\$2.32	1,400.000	12	\$38,976.00
Project Category 3	\$2.32	4,776,000.000	18	\$199,445,760.00
Project Category 4	\$2.32	1,291.200	18	\$53,920.51
TOTAL PROJECT CONSTRUCTION POWER COST				\$199,551,950.11

Additionally, as of January 1, 2020, SCE's general service rate schedule (GS-1) for an industrial land uses is \$0.08 per kilowatt hours (kWh) of electricity (24). As shown on Table 4-3, the total electricity usage from on-site Project construction related activities is estimated to be approximately 2,497,677,578 kWh.

TABLE 4-3: PROJECT CONSTRUCTION ELECTRICITY USAGE

Project	Cost per kWh	Project Construction Electricity Usage (kWh)
Project Category 1	\$0.08	166,388
Project Category 2	\$0.08	487,840
Project Category 3	\$0.08	2,496,348,457
Project Category 4	\$0.08	674,892
TOTAL PROJECT CONSTRUCTION ELECTRICITY		2,497,677,578

¹Assumes the Project will be under the GS-1 General Industrial service rate under SCE

4.3.4 CONSTRUCTION EQUIPMENT FUEL ESTIMATES

Fuel consumed by construction equipment would be the primary energy resource expended over the course of Project construction. Project construction activity timeline estimates, construction equipment schedules, equipment power ratings, load factors, and associated fuel consumption estimates are presented in Table 4-4. 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 (25). For the purposes of this analysis, the calculations are based on all construction equipment being diesel-powered which is

² The 2017 *National Construction Estimator*, Richard Pray (2017) (29), the typical power cost per 1,000 sf of construction per month is estimated to be \$2.32.

TABLE 4-4: CONSTRUCTION EQUIPMENT FUEL CONSUMPTION ESTIMATES

Equipment	HP Rating	Quantity	Usage Hours	Load Factor	HP-hrs/day	Total Fuel Consumption (gal. diesel fuel)
Project Category 1						
Bore/Drill Rigs	221	1	8	0.50	884	17,489
Off-Highway Trucks	402	1	8	0.38	1,222	24,177
PROJECT CATEGORY 1 - CONSTRUCTION FUEL DEMAND (GALLONS DIESEL FUEL)						41,666
Project Category 2						
Excavators	158	2	8	0.38	961	19,005
Off-Highway Trucks	402	22	8	0.38	26,886	531,902
Pavers	130	2	8	0.42	874	17,283
Rollers	80	2	8	0.38	486	9,623
Tractors/Loaders/Backhoes	97	2	8	0.37	574	11,361
PROJECT CATEGORY 2 - CONSTRUCTION FUEL DEMAND (GALLONS DIESEL FUEL)						589,174
Project Category 3						
Excavators	158	2	8	0.38	961	28,560
Off-Highway Trucks	402	6	8	0.38	7,332	217,993
Rubber Tired Dozers	247	2	8	0.40	1,581	46,997
Scrapers	367	7	8	0.48	9,865	293,283
Tractors/Loaders/Backhoes	97	2	8	0.37	574	17,072
PROJECT CATEGORY 3 - CONSTRUCTION FUEL DEMAND (GALLONS DIESEL FUEL)						603,904
Project Category 4						
Cranes	231	3	8	0.29	1,608	47,538
Graders	187	1	8	0.41	613	18,136
Off-Highway Trucks	402	15	8	0.38	18,331	542,009
Plate Compactors	8	3	8	0.43	83	2,441
Tractors/Loaders/Backhoes	97	6	8	0.37	1,723	50,937
PROJECT CATEGORY 4 - CONSTRUCTION FUEL DEMAND (GALLONS DIESEL FUEL)						661,060
TOTAL CONSTRUCTION FUEL DEMAND (GALLONS DIESEL FUEL)						1,895,803

standard practice consistent with industry standards. Diesel fuel would be supplied by existing commercial fuel providers serving the region.

As presented in Table 4-4, Project construction activities would consume an estimated 1,895,803 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.

4.3.5 CONSTRUCTION WORKER FUEL ESTIMATES

It is assumed that all construction worker trips are from light duty autos (LDA) along area roadways. With respect to estimated VMT, the construction worker trips would generate an estimated 1,308,120 VMT (23). Data regarding Project related construction worker trips were based on CalEEMod defaults utilized within the AQIA.

Vehicle fuel efficiencies for LDA were estimated using information generated within the 2014 version of the Emissions FACTor model (EMFAC) developed by the CARB. EMFAC2014 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 (26). EMFAC2014 was run for the LDA vehicle class within the California sub-area for a 2021 calendar year. Data from EMFAC2014 is shown in Appendix 4.5.

As generated by EMFAC2014, an aggregated fuel economy of LDAs ranging from model year 1974 to model year 2021 are estimated to have a fuel efficiency of 31.28 miles per gallon (mpg). Table 4-5 provides an estimated annual fuel consumption resulting from the Project generated by LDAs related to construction worker trips. Based on Table 4-5, it is estimated that 41,824 gallons of fuel will be consumed related to construction worker trips during full construction of the proposed Project. Project 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.

TABLE 4-5: CONSTRUCTION WORKER FUEL CONSUMPTION ESTIMATES

Project	Worker Trips / Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Project Category 1	10	30	109,800	31.28	3,511
Project Category 2	28	40	409,920	31.28	13,106
Project Category 3	6	40	132,000	31.28	4,220
Project Category 4	30	40	656,400	31.28	20,987
TOTAL CONSTRUCTION WORKER FUEL CONSUMPTION					41,824

4.3.6 CONSTRUCTION HAULING FUEL ESTIMATES

With respect to estimated VMT, the construction hauling trips would generate an estimated 7,407,000 VMT along area roadways (23). 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. Vehicle fuel efficiencies for MHDTs and HHDTs were estimated using information generated within EMFAC2014. For purposes of this analysis, EMFAC2014 was run for the MHDT and HHDT vehicle class within the California sub-area for the 2021 construction year. Data from EMFAC2014 is shown in Appendix 4.5.

As generated by EMFAC2014, the aggregated fuel economy of MHDTs and HHDTs ranging from model year 1974 to model year 2021 are presented in Table 4-6. Based on Table 4-6, it is estimated that 73,789 gallons of fuel would be consumed in relation to construction vendor trips (MHDTs). Table 4-7 shows the estimated fuel economy of HHDTs accessing the Project site. Based on Table 4-7, fuel consumption from construction vendor and hauling trips (HHDTs) will total approximately 1,071,773 gallons of fuel would be consumed in relation to construction vendor trips (HHDTs) during construction of the Project. The total fuel consumption from construction vendor trips (MHDTs and HHDTs) is 1,145,562 gallons. 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.

TABLE 4-6: CONSTRUCTION VENDOR FUEL CONSUMPTION ESTIMATES – MHDT

Construction Activity	Vendor Trips / Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Vendor					
Project Category 1	15	50	274,500	8.82	31,114
Project Category 2	10	40	146,400	8.82	16,594
Project Category 3	3	40	66,000	8.82	7,481
Project Category 4	8	40	164,100	8.82	18,600
TOTAL FUEL CONSUMPTION – VENDOR (MHDT)					73,789

TABLE 4-7: CONSTRUCTION VENDOR/HAULING FUEL CONSUMPTION ESTIMATES – HHDT (1 OF 2)

Construction Activity	Vendor Trips / Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Vendor					
Project Category 1	15	50	274,500	6.30	43,547
Project Category 2	10	40	146,400	6.30	23,225
Project Category 3	3	40	66,000	6.30	10,470
Project Category 4	8	40	164,100	6.30	26,033

TABLE 4-7: CONSTRUCTION VENDOR/HAULING FUEL CONSUMPTION ESTIMATES – HHDT (2 OF 2)

Construction Activity	Vendor Trips / Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Hauling					
Project Category 3	370	30	6,105,000	6.30	968,499
TOTAL FUEL CONSUMPTION – VENDOR/HAULING (HHDT)					1,071,773

4.3.7 CONSTRUCTION ENERGY EFFICIENCY/CONSERVATION MEASURES

The equipment used for Project construction would conform to CARB regulations and California emissions standards. 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.

The Project would utilize construction contractors which practice compliance 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.

Additionally, certain incidental construction-source energy efficiencies would likely accrue through implementation of California regulations and best available control measures (BACM). More specifically, California Code of Regulations 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. To this end, “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 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.

Indirectly, construction energy efficiencies and energy conservation would be achieved for the proposed development through energy efficiencies realized from bulk purchase, transport and use of construction materials.

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

In terms of operational energy demands, the proposed Project involves the construction of wells, conveyance facilities and ancillary facilities, storage basins, recharge facilities, storage bands, desalters and water treatment facilities, and associated improvements. The proposed Project does not include any substantive new stationary or mobile sources of emissions, and therefore, by its very nature, will not generate substantive amounts of energy demand from Project operations. The Project does not propose a trip-generating land use or facilities that would generate any substantive amount of on-going energy demands. While it is anticipated that the Project would require intermittent maintenance, such maintenance would be minimal requiring a negligible amount of traffic trips on an annual basis. Therefore, there is no significant operational impact associated with 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 proposed Project is assumed to be around \$199,551,950.11. Additionally, based on the assumed power cost, it is estimated that the total electricity usage during construction is calculated to be around 2,497,677,578 kWh.

Construction equipment used by the Project would result in single event consumption of approximately 1,895,803 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.

California Code of Regulations (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 construction of the proposed Project would result in the estimated fuel consumption of 41,824 gallons of fuel. Additionally, fuel consumption from construction hauling trips will total approximately 1,145,562 gallons. Diesel fuel would be supplied by County and regional commercial vendors. Indirectly, construction energy efficiencies and energy conservation would be achieved through the use of bulk purchases, transport and use of construction materials. The 2018 IEPR released by the CEC has shown that fuel efficiencies are getting better within on and off-road vehicle engines due to more stringent government requirements (19). As supported by the preceding discussions, Project construction energy consumption would not be considered inefficient, wasteful, or otherwise unnecessary.

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5 CONCLUSION

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 would not result in the inefficient, wasteful or unnecessary consumption of energy. Further, the energy demands of the Project can be accommodated within the context of available resources and energy delivery systems. 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.

Energy Impact-2: Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

The Project includes construction activity and associated improvements and would not result in the inefficient, wasteful, or unnecessary consumption of energy. In fact, the proposed Project involves the construction of wells, conveyance facilities and ancillary facilities, storage basins, recharge facilities, storage bands, desalters and water treatment facilities, and associated improvements which would result in a more efficient process and consequently reduce a wasteful use of energy. Further, the Project would not cause or result in the need for additional energy producing facilities or energy delivery systems.

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7 CERTIFICATIONS

The contents of this energy report represent an accurate depiction of the environmental impacts associated with the proposed 2020 Optimum Basin Management Program Update Project. The information contained in this energy report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 336-5987.

Haseeb Qureshi
Associate Principal
URBAN CROSSROADS, INC.
260 E. Baker, Suite 200
Costa Mesa, CA 92626
(949) 336-5987
hqureshi@urbanxroads.com

EDUCATION

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

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

PROFESSIONAL AFFILIATIONS

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

PROFESSIONAL CERTIFICATIONS

Environmental Site Assessment – American Society for Testing and Materials • June 2013
Planned Communities and Urban Infill – Urban Land Institute • June 2011
Indoor Air Quality and Industrial Hygiene – EMSL Analytical • April 2008
Principles of Ambient Air Monitoring – California Air Resources Board • August 2007
AB2588 Regulatory Standards – Trinity Consultants • November 2006
Air Dispersion Modeling – Lakes Environmental • June 2006

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APPENDIX 4.1:

CALEEMOD PROJECT CATEGORY 1 ANNUAL CONSTRUCTION EMISSIONS MODEL OUTPUTS

OBMPU - Project Category 1 (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

OBMPU - Project Category 1 (Construction - Unmitigated)
San Bernardino-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	22.50	1000sqft	0.52	22,500.00	0
Other Non-Asphalt Surfaces	455.00	1000sqft	10.45	455,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	32
Climate Zone	10			Operational Year	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Other Asphalt Surfaces = 20 Monitoring Wells and Production Wells; Other Non-Asphalt Surfaces = Conveyance

Construction Phase - Analysis assumes 20 Monitoring Wells, 10 Production Wells, and 65,000 LF of conveyance to be constructed in a single year.

Off-road Equipment - Equipment based on information provided in the Project Description

Trips and VMT - Based on information provided in the Project Description

Grading - Based on the Project Description, the average area of disturbance of each well site is anticipated to be half an acre or less.

Construction Off-road Equipment Mitigation - Rule 403

OBMPU - Project Category 1 (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	30.00	366.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblGrading	AcresOfGrading	0.00	183.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblTripsAndVMT	VendorTripLength	6.90	50.00
tblTripsAndVMT	VendorTripNumber	0.00	30.00
tblTripsAndVMT	WorkerTripLength	14.70	30.00
tblTripsAndVMT	WorkerTripNumber	5.00	10.00

2.0 Emissions Summary

OBMPU - Project Category 1 (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

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					
2021	0.2250	3.0834	1.4999	0.0124	0.3871	0.0582	0.4453	0.0932	0.0538	0.1469	0.0000	1,148.6848	1,148.6848	0.1371	0.0000	1,152.1116
2022	5.5000e-004	7.0400e-003	3.8800e-003	3.0000e-005	0.0978	1.2000e-004	0.0980	0.0107	1.1000e-004	0.0108	0.0000	3.1271	3.1271	3.7000e-004	0.0000	3.1365
Maximum	0.2250	3.0834	1.4999	0.0124	0.3871	0.0582	0.4453	0.0932	0.0538	0.1469	0.0000	1,148.6848	1,148.6848	0.1371	0.0000	1,152.1116

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					
2021	0.2250	3.0834	1.4999	0.0124	0.3279	0.0582	0.3861	0.0868	0.0538	0.1405	0.0000	1,148.6844	1,148.6844	0.1371	0.0000	1,152.1112
2022	5.5000e-004	7.0400e-003	3.8800e-003	3.0000e-005	0.0386	1.2000e-004	0.0388	4.3100e-003	1.1000e-004	4.4300e-003	0.0000	3.1271	3.1271	3.7000e-004	0.0000	3.1365
Maximum	0.2250	3.0834	1.4999	0.0124	0.3279	0.0582	0.3861	0.0868	0.0538	0.1405	0.0000	1,148.6844	1,148.6844	0.1371	0.0000	1,152.1112

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	24.41	0.00	21.79	12.31	0.00	8.10	0.00	0.00	0.00	0.00	0.00	0.00

OBMPU - Project Category 1 (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2021	3-31-2021	0.8098	0.8098
2	4-1-2021	6-30-2021	0.8084	0.8084
3	7-1-2021	9-30-2021	0.8173	0.8173
4	10-1-2021	12-31-2021	0.8278	0.8278
5	1-1-2022	3-31-2022	0.0075	0.0075
		Highest	0.8278	0.8278

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0381	6.0000e-005	6.1000e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0119	0.0119	3.0000e-005	0.0000	0.0126
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0381	6.0000e-005	6.1000e-003	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0119	0.0119	3.0000e-005	0.0000	0.0126

OBMPU - Project Category 1 (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

2.2 Overall Operational**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0381	6.0000e-005	6.1000e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0119	0.0119	3.0000e-005	0.0000	0.0126
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0381	6.0000e-005	6.1000e-003	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0119	0.0119	3.0000e-005	0.0000	0.0126

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

3.0 Construction Detail**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2021	1/1/2022	7	366	

Acres of Grading (Site Preparation Phase): 0

OBMPU - Project Category 1 (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

Acres of Grading (Grading Phase): 183**Acres of Paving: 10.97****Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)****OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Bore/Drill Rigs	1	8.00	221	0.50
Grading	Excavators	0	8.00	158	0.38
Grading	Graders	0	8.00	187	0.41
Grading	Off-Highway Trucks	1	8.00	402	0.38
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Scrapers	0	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	2	10.00	30.00	0.00	30.00	50.00	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

OBMPU - Project Category 1 (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

3.2 Grading - 2021**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					0.0970	0.0000	0.0970	0.0105	0.0000	0.0105	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1577	1.5122	1.0363	4.1300e-003		0.0520	0.0520		0.0478	0.0478	0.0000	362.6760	362.6760	0.1173	0.0000	365.6084
Total	0.1577	1.5122	1.0363	4.1300e-003	0.0970	0.0520	0.1490	0.0105	0.0478	0.0583	0.0000	362.6760	362.6760	0.1173	0.0000	365.6084

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	0.0522	1.5589	0.3402	7.8700e-003	0.2492	6.0000e-003	0.2552	0.0718	5.7400e-003	0.0776	0.0000	752.4943	752.4943	0.0189	0.0000	752.9660
Worker	0.0151	0.0123	0.1234	3.7000e-004	0.0408	2.5000e-004	0.0411	0.0108	2.3000e-004	0.0111	0.0000	33.5146	33.5146	9.0000e-004	0.0000	33.5372
Total	0.0673	1.5712	0.4636	8.2400e-003	0.2901	6.2500e-003	0.2963	0.0827	5.9700e-003	0.0886	0.0000	786.0088	786.0088	0.0198	0.0000	786.5032

OBMPU - Project Category 1 (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

3.2 Grading - 2021**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					0.0378	0.0000	0.0378	4.0900e-003	0.0000	4.0900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1577	1.5122	1.0363	4.1300e-003		0.0520	0.0520		0.0478	0.0478	0.0000	362.6756	362.6756	0.1173	0.0000	365.6080
Total	0.1577	1.5122	1.0363	4.1300e-003	0.0378	0.0520	0.0898	4.0900e-003	0.0478	0.0519	0.0000	362.6756	362.6756	0.1173	0.0000	365.6080

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	0.0522	1.5589	0.3402	7.8700e-003	0.2492	6.0000e-003	0.2552	0.0718	5.7400e-003	0.0776	0.0000	752.4943	752.4943	0.0189	0.0000	752.9660
Worker	0.0151	0.0123	0.1234	3.7000e-004	0.0408	2.5000e-004	0.0411	0.0108	2.3000e-004	0.0111	0.0000	33.5146	33.5146	9.0000e-004	0.0000	33.5372
Total	0.0673	1.5712	0.4636	8.2400e-003	0.2901	6.2500e-003	0.2963	0.0827	5.9700e-003	0.0886	0.0000	786.0088	786.0088	0.0198	0.0000	786.5032

OBMPU - Project Category 1 (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

3.2 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					0.0970	0.0000	0.0970	0.0105	0.0000	0.0105	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.8000e-004	3.1400e-003	2.7000e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.0000e-004	1.0000e-004	0.0000	0.9945	0.9945	3.2000e-004	0.0000	1.0026
Total	3.8000e-004	3.1400e-003	2.7000e-003	1.0000e-005	0.0970	1.1000e-004	0.0972	0.0105	1.0000e-004	0.0106	0.0000	0.9945	0.9945	3.2000e-004	0.0000	1.0026

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.3000e-004	3.8700e-003	8.7000e-004	2.0000e-005	6.8000e-004	1.0000e-005	7.0000e-004	2.0000e-004	1.0000e-005	2.1000e-004	0.0000	2.0441	2.0441	5.0000e-005	0.0000	2.0453
Worker	4.0000e-005	3.0000e-005	3.1000e-004	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0885	0.0885	0.0000	0.0000	0.0886
Total	1.7000e-004	3.9000e-003	1.1800e-003	2.0000e-005	7.9000e-004	1.0000e-005	8.1000e-004	2.3000e-004	1.0000e-005	2.4000e-004	0.0000	2.1326	2.1326	5.0000e-005	0.0000	2.1339

OBMPU - Project Category 1 (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

3.2 Grading - 2022**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0378	0.0000	0.0378	4.0900e-003	0.0000	4.0900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.8000e-004	3.1400e-003	2.7000e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.0000e-004	1.0000e-004	0.0000	0.9945	0.9945	3.2000e-004	0.0000	1.0026
Total	3.8000e-004	3.1400e-003	2.7000e-003	1.0000e-005	0.0378	1.1000e-004	0.0380	4.0900e-003	1.0000e-004	4.1900e-003	0.0000	0.9945	0.9945	3.2000e-004	0.0000	1.0026

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.3000e-004	3.8700e-003	8.7000e-004	2.0000e-005	6.8000e-004	1.0000e-005	7.0000e-004	2.0000e-004	1.0000e-005	2.1000e-004	0.0000	2.0441	2.0441	5.0000e-005	0.0000	2.0453
Worker	4.0000e-005	3.0000e-005	3.1000e-004	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0885	0.0885	0.0000	0.0000	0.0886
Total	1.7000e-004	3.9000e-003	1.1800e-003	2.0000e-005	7.9000e-004	1.0000e-005	8.1000e-004	2.3000e-004	1.0000e-005	2.4000e-004	0.0000	2.1326	2.1326	5.0000e-005	0.0000	2.1339

4.0 Operational Detail - Mobile

OBMPU - Project Category 1 (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

OBMPU - Project Category 1 (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.553113	0.036408	0.180286	0.116335	0.016165	0.005101	0.018218	0.063797	0.001357	0.001565	0.005903	0.000808	0.000944
Other Non-Asphalt Surfaces	0.553113	0.036408	0.180286	0.116335	0.016165	0.005101	0.018218	0.063797	0.001357	0.001565	0.005903	0.000808	0.000944

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

[illegible]

OBMPU - Project Category 1 (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

5.2 Energy by Land Use - NaturalGas

Unmitigated

[illegible]

Mitigated

[illegible]

OBMPU - Project Category 1 (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

6.0 Area Detail**6.1 Mitigation Measures Area**

OBMPU - Project Category 1 (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0381	6.0000e-005	6.1000e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0119	0.0119	3.0000e-005	0.0000	0.0126
Unmitigated	0.0381	6.0000e-005	6.1000e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0119	0.0119	3.0000e-005	0.0000	0.0126

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	6.6400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0309					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.7000e-004	6.0000e-005	6.1000e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0119	0.0119	3.0000e-005	0.0000	0.0126
Total	0.0381	6.0000e-005	6.1000e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0119	0.0119	3.0000e-005	0.0000	0.0126

OBMPU - Project Category 1 (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

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	6.6400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0309					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.7000e-004	6.0000e-005	6.1000e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0119	0.0119	3.0000e-005	0.0000	0.0126
Total	0.0381	6.0000e-005	6.1000e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0119	0.0119	3.0000e-005	0.0000	0.0126

7.0 Water Detail**7.1 Mitigation Measures Water**

OBMPU - Project Category 1 (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

OBMPU - Project Category 1 (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

7.2 Water by Land Use**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

8.0 Waste Detail**8.1 Mitigation Measures Waste****Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

OBMPU - Project Category 1 (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

8.2 Waste by Land Use**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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OBMPU - Project Category 1 (Construction - Unmitigated) - San Bernardino-South Coast County, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

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

User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

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APPENDIX 4.2:

CALEEMOD PROJECT CATEGORY 2 ANNUAL CONSTRUCTION EMISSIONS MODEL OUTPUTS

OBMPU - Project Category 2 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

OBMPU - Project Category 2 (Construction - Mitigated)
San Bernardino-South Coast County, Annual

1.0 Project Characteristics**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	1,400.00	1000sqft	32.14	1,400,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	32
Climate Zone	10			Operational Year	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MW hr)	702.44	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Other Non-Asphalt Surfaces = Conveyance

Construction Phase - Analysis assumes 100,000 LF of Conveyance Pipelines (Recycled and Potable Water) and 100,000 LF of Conveyance Pipelines (Surplus and Supplemental Water Supply) constructed per year

Off-road Equipment - Equipment based on information provided in the Project Description

Trips and VMT - Based on information provided in the Project Description

Grading - Based on the Project Description, the average area of disturbance of each site is anticipated to be half an acre or less.

Construction Off-road Equipment Mitigation - All equipment operating at >150 hp are required to be equipped with Tier 4 or better engines. Increase watering to 4 times per day.

OBMPU - Project Category 2 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	22.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	45.00	366.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	PhaseEndDate	3/4/2021	1/1/2022
tblGrading	AcresOfGrading	0.00	183.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblTripsAndVMT	VendorTripLength	6.90	40.00
tblTripsAndVMT	VendorTripNumber	0.00	20.00
tblTripsAndVMT	WorkerTripLength	14.70	40.00
tblTripsAndVMT	WorkerTripNumber	75.00	28.00

2.0 Emissions Summary

OBMPU - Project Category 2 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

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					
2021	2.8272	25.1858	18.8805	0.0644	0.3824	0.9469	1.3293	0.0893	0.8713	0.9605	0.0000	5,688.459 2	5,688.459 2	1.6823	0.0000	5,730.516 5
2022	6.7700e-003	0.0537	0.0488	1.8000e-004	0.0978	1.9900e-003	0.0998	0.0107	1.8300e-003	0.0125	0.0000	15.5680	15.5680	4.6100e-003	0.0000	15.6832
Maximum	2.8272	25.1858	18.8805	0.0644	0.3824	0.9469	1.3293	0.0893	0.8713	0.9605	0.0000	5,688.459 2	5,688.459 2	1.6823	0.0000	5,730.516 5

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					
2021	0.9831	6.1804	28.4430	0.0644	0.3106	0.2233	0.5338	0.0815	0.2127	0.2942	0.0000	5,688.453 0	5,688.453 0	1.6823	0.0000	5,730.510 3
2022	2.5900e-003	0.0158	0.0777	1.8000e-004	0.0260	5.4000e-004	0.0266	2.9400e-003	5.2000e-004	3.4600e-003	0.0000	15.5680	15.5680	4.6100e-003	0.0000	15.6832
Maximum	0.9831	6.1804	28.4430	0.0644	0.3106	0.2233	0.5338	0.0815	0.2127	0.2942	0.0000	5,688.453 0	5,688.453 0	1.6823	0.0000	5,730.510 3

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	65.22	75.45	-50.67	0.00	29.91	76.41	60.79	15.52	75.58	69.41	0.00	0.00	0.00	0.00	0.00	0.00

OBMPU - Project Category 2 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2021	3-31-2021	6.9048	1.7638
2	4-1-2021	6-30-2021	6.9751	1.7770
3	7-1-2021	9-30-2021	7.0518	1.7966
4	10-1-2021	12-31-2021	7.0582	1.8030
5	1-1-2022	3-31-2022	0.0605	0.0184
		Highest	7.0582	1.8030

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1116	1.6000e-004	0.0179	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0347	0.0347	9.0000e-005	0.0000	0.0370
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.1116	1.6000e-004	0.0179	0.0000	0.0000	6.0000e-005	6.0000e-005	0.0000	6.0000e-005	6.0000e-005	0.0000	0.0347	0.0347	9.0000e-005	0.0000	0.0370

OBMPU - Project Category 2 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

2.2 Overall Operational**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1116	1.6000e-004	0.0179	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0347	0.0347	9.0000e-005	0.0000	0.0370
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.1116	1.6000e-004	0.0179	0.0000	0.0000	6.0000e-005	6.0000e-005	0.0000	6.0000e-005	6.0000e-005	0.0000	0.0347	0.0347	9.0000e-005	0.0000	0.0370

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

3.0 Construction Detail**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2021	1/1/2022	7	366	

Acres of Grading (Site Preparation Phase): 0

OBMPU - Project Category 2 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

Acres of Grading (Grading Phase): 183**Acres of Paving: 32.14****Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)****OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	0	8.00	187	0.41
Grading	Off-Highway Trucks	22	8.00	402	0.38
Grading	Pavers	2	8.00	130	0.42
Grading	Rollers	2	8.00	80	0.38
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Scrapers	0	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	30	28.00	20.00	0.00	40.00	40.00	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

OBMPU - Project Category 2 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

3.2 Grading - 2021**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					0.0970	0.0000	0.0970	0.0105	0.0000	0.0105	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.7437	24.2599	18.2373	0.0587		0.9428	0.9428		0.8673	0.8673	0.0000	5,156.8990	5,156.8990	1.6679	0.0000	5,198.5951
Total	2.7437	24.2599	18.2373	0.0587	0.0970	0.9428	1.0398	0.0105	0.8673	0.8778	0.0000	5,156.8990	5,156.8990	1.6679	0.0000	5,198.5951

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	0.0290	0.8805	0.1909	4.2500e-003	0.1329	3.2100e-003	0.1362	0.0383	3.0700e-003	0.0414	0.0000	406.7751	406.7751	0.0111	0.0000	407.0529
Worker	0.0545	0.0454	0.4523	1.3800e-003	0.1524	9.4000e-004	0.1533	0.0405	8.6000e-004	0.0413	0.0000	124.7851	124.7851	3.3400e-003	0.0000	124.8685
Total	0.0835	0.9259	0.6432	5.6300e-003	0.2853	4.1500e-003	0.2895	0.0788	3.9300e-003	0.0827	0.0000	531.5602	531.5602	0.0145	0.0000	531.9213

OBMPU - Project Category 2 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

3.2 Grading - 2021**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					0.0252	0.0000	0.0252	2.7200e-003	0.0000	2.7200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.8996	5.2545	27.7997	0.0587		0.2191	0.2191		0.2088	0.2088	0.0000	5,156.8929	5,156.8929	1.6678	0.0000	5,198.5889
Total	0.8996	5.2545	27.7997	0.0587	0.0252	0.2191	0.2444	2.7200e-003	0.2088	0.2115	0.0000	5,156.8929	5,156.8929	1.6678	0.0000	5,198.5889

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	0.0290	0.8805	0.1909	4.2500e-003	0.1329	3.2100e-003	0.1362	0.0383	3.0700e-003	0.0414	0.0000	406.7751	406.7751	0.0111	0.0000	407.0529
Worker	0.0545	0.0454	0.4523	1.3800e-003	0.1524	9.4000e-004	0.1533	0.0405	8.6000e-004	0.0413	0.0000	124.7851	124.7851	3.3400e-003	0.0000	124.8685
Total	0.0835	0.9259	0.6432	5.6300e-003	0.2853	4.1500e-003	0.2895	0.0788	3.9300e-003	0.0827	0.0000	531.5602	531.5602	0.0145	0.0000	531.9213

OBMPU - Project Category 2 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

3.2 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					0.0970	0.0000	0.0970	0.0105	0.0000	0.0105	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.5500e-003	0.0514	0.0472	1.6000e-004		1.9800e-003	1.9800e-003		1.8200e-003	1.8200e-003	0.0000	14.1334	14.1334	4.5700e-003	0.0000	14.2477
Total	6.5500e-003	0.0514	0.0472	1.6000e-004	0.0970	1.9800e-003	0.0990	0.0105	1.8200e-003	0.0123	0.0000	14.1334	14.1334	4.5700e-003	0.0000	14.2477

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	7.0000e-005	2.1900e-003	4.9000e-004	1.0000e-005	3.6000e-004	1.0000e-005	3.7000e-004	1.0000e-004	1.0000e-005	1.1000e-004	0.0000	1.1050	1.1050	3.0000e-005	0.0000	1.1057
Worker	1.4000e-004	1.1000e-004	1.1400e-003	0.0000	4.2000e-004	0.0000	4.2000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3295	0.3295	1.0000e-005	0.0000	0.3298
Total	2.1000e-004	2.3000e-003	1.6300e-003	1.0000e-005	7.8000e-004	1.0000e-005	7.9000e-004	2.1000e-004	1.0000e-005	2.2000e-004	0.0000	1.4345	1.4345	4.0000e-005	0.0000	1.4355

OBMPU - Project Category 2 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

3.2 Grading - 2022**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0252	0.0000	0.0252	2.7200e-003	0.0000	2.7200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.3800e-003	0.0135	0.0761	1.6000e-004		5.3000e-004	5.3000e-004		5.1000e-004	5.1000e-004	0.0000	14.1334	14.1334	4.5700e-003	0.0000	14.2477
Total	2.3800e-003	0.0135	0.0761	1.6000e-004	0.0252	5.3000e-004	0.0258	2.7200e-003	5.1000e-004	3.2300e-003	0.0000	14.1334	14.1334	4.5700e-003	0.0000	14.2477

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	7.0000e-005	2.1900e-003	4.9000e-004	1.0000e-005	3.6000e-004	1.0000e-005	3.7000e-004	1.0000e-004	1.0000e-005	1.1000e-004	0.0000	1.1050	1.1050	3.0000e-005	0.0000	1.1057
Worker	1.4000e-004	1.1000e-004	1.1400e-003	0.0000	4.2000e-004	0.0000	4.2000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3295	0.3295	1.0000e-005	0.0000	0.3298
Total	2.1000e-004	2.3000e-003	1.6300e-003	1.0000e-005	7.8000e-004	1.0000e-005	7.9000e-004	2.1000e-004	1.0000e-005	2.2000e-004	0.0000	1.4345	1.4345	4.0000e-005	0.0000	1.4355

4.0 Operational Detail - Mobile

OBMPU - Project Category 2 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.553113	0.036408	0.180286	0.116335	0.016165	0.005101	0.018218	0.063797	0.001357	0.001565	0.005903	0.000808	0.000944

OBMPU - Project Category 2 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

[illegible]

OBMPU - Project Category 2 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

5.2 Energy by Land Use - NaturalGas

Unmitigated

[illegible]

Mitigated

[illegible]

OBMPU - Project Category 2 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

6.0 Area Detail**6.1 Mitigation Measures Area**

OBMPU - Project Category 2 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1116	1.6000e-004	0.0179	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0347	0.0347	9.0000e-005	0.0000	0.0370
Unmitigated	0.1116	1.6000e-004	0.0179	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0347	0.0347	9.0000e-005	0.0000	0.0370

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	0.0195					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0905					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.6600e-003	1.6000e-004	0.0179	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0347	0.0347	9.0000e-005	0.0000	0.0370
Total	0.1116	1.6000e-004	0.0179	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0347	0.0347	9.0000e-005	0.0000	0.0370

OBMPU - Project Category 2 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

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	0.0195					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0905					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.6600e-003	1.6000e-004	0.0179	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0347	0.0347	9.0000e-005	0.0000	0.0370
Total	0.1116	1.6000e-004	0.0179	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0347	0.0347	9.0000e-005	0.0000	0.0370

7.0 Water Detail**7.1 Mitigation Measures Water**

OBMPU - Project Category 2 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

OBMPU - Project Category 2 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

7.2 Water by Land Use**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

8.0 Waste Detail**8.1 Mitigation Measures Waste****Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

OBMPU - Project Category 2 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

8.2 Waste by Land Use**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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OBMPU - Project Category 2 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

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

Equipment Type	Number
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11.0 Vegetation

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APPENDIX 4.3:

CALEEMOD PROJECT CATEGORY 3 ANNUAL CONSTRUCTION EMISSIONS MODEL OUTPUTS

OBMPU - Project Category 3 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

OBMPU - Project Category 3 (Construction - Mitigated)
San Bernardino-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	100.00	Acre	100.00	4,356,000.00	0
Other Non-Asphalt Surfaces	420.00	1000sqft	9.64	420,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	32
Climate Zone	10			Operational Year	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Other Non-Asphalt Surfaces = Conveyance; Other Asphalt Surfaces = Storage Basin

Construction Phase - As a conservative measure, analysis assumes the construction of one New Storage Basin (Chino Institute for Men + the associated pipeline)

Off-road Equipment - Equipment based on information provided in the Project Description

Trips and VMT - Based on information provided in the Project Description

Grading - Based on the Project Description, the average area of disturbance of each site is anticipated to be 2 acres on any given day.

Construction Off-road Equipment Mitigation - All equipment operating at >150 hp are required to be equipped with Tier 4 or better engines. Increase watering to 4 times per day.

OBMPU - Project Category 3 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	310.00	550.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblGrading	AcresOfGrading	3,850.00	1,100.00
tblGrading	MaterialExported	0.00	333,333.33
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	7.00
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripNumber	41,667.00	370.00
tblTripsAndVMT	VendorTripLength	6.90	40.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	WorkerTripLength	14.70	40.00
tblTripsAndVMT	WorkerTripNumber	48.00	6.00

2.0 Emissions Summary

OBMPU - Project Category 3 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

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					
2021	2.4061	25.2290	16.5486	0.0417	2.8771	1.0179	3.8950	1.2954	0.9365	2.2319	0.0000	3,671.991 9	3,671.991 9	1.1400	0.0000	3,700.492 0
2022	1.0567	10.4270	7.7467	0.0211	1.7570	0.4174	2.1744	0.6895	0.3840	1.0735	0.0000	1,861.664 1	1,861.664 1	0.5782	0.0000	1,876.120 1
Maximum	2.4061	25.2290	16.5486	0.0417	2.8771	1.0179	3.8950	1.2954	0.9365	2.2319	0.0000	3,671.991 9	3,671.991 9	1.1400	0.0000	3,700.492 0

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					
2021	0.5662	3.0672	19.0371	0.0417	0.8050	0.1056	0.9106	0.3526	0.1023	0.4549	0.0000	3,671.987 8	3,671.987 8	1.1400	0.0000	3,700.487 8
2022	0.2821	1.4995	9.6389	0.0211	0.4870	0.0494	0.5364	0.1876	0.0481	0.2357	0.0000	1,861.662 0	1,861.662 0	0.5782	0.0000	1,876.117 9
Maximum	0.5662	3.0672	19.0371	0.0417	0.8050	0.1056	0.9106	0.3526	0.1023	0.4549	0.0000	3,671.987 8	3,671.987 8	1.1400	0.0000	3,700.487 8

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	75.50	87.19	-18.03	0.00	72.12	89.20	76.16	72.79	88.61	79.11	0.00	0.00	0.00	0.00	0.00	0.00

OBMPU - Project Category 3 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2021	3-31-2021	6.8131	0.8949
2	4-1-2021	6-30-2021	6.8869	0.9029
3	7-1-2021	9-30-2021	6.9626	0.9128
4	10-1-2021	12-31-2021	6.9645	0.9148
5	1-1-2022	3-31-2022	5.5857	0.8658
6	4-1-2022	6-30-2022	5.6462	0.8738
7	7-1-2022	9-30-2022	0.2482	0.0384
		Highest	6.9645	0.9148

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3758	6.0000e-005	6.6500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0129	0.0129	3.0000e-005	0.0000	0.0138
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.3758	6.0000e-005	6.6500e-003	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0129	0.0129	3.0000e-005	0.0000	0.0138

OBMPU - Project Category 3 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

2.2 Overall Operational**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3758	6.0000e-005	6.6500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0129	0.0129	3.0000e-005	0.0000	0.0138
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.3758	6.0000e-005	6.6500e-003	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0129	0.0129	3.0000e-005	0.0000	0.0138

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

3.0 Construction Detail**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2021	7/4/2022	7	550	

Acres of Grading (Site Preparation Phase): 0

OBMPU - Project Category 3 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

Acres of Grading (Grading Phase): 1100**Acres of Paving: 109.64****Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)****OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	0	8.00	187	0.41
Grading	Off-Highway Trucks	6	8.00	402	0.38
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Scrapers	7	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	19	6.00	6.00	370.00	40.00	40.00	30.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

OBMPU - Project Category 3 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

3.2 Grading - 2021**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					2.8002	0.0000	2.8002	1.2741	0.0000	1.2741	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.3848	24.9187	16.3883	0.0400		1.0166	1.0166		0.9353	0.9353	0.0000	3,510.4618	3,510.4618	1.1354	0.0000	3,538.8457
Total	2.3848	24.9187	16.3883	0.0400	2.8002	1.0166	3.8168	1.2741	0.9353	2.2093	0.0000	3,510.4618	3,510.4618	1.1354	0.0000	3,538.8457

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	9.8000e-004	0.0364	6.1800e-003	1.3000e-004	4.3800e-003	1.2000e-004	4.4900e-003	1.1700e-003	1.1000e-004	1.2800e-003	0.0000	12.7579	12.7579	6.0000e-004	0.0000	12.7729
Vendor	8.6900e-003	0.2642	0.0573	1.2800e-003	0.0399	9.6000e-004	0.0409	0.0115	9.2000e-004	0.0124	0.0000	122.0325	122.0325	3.3300e-003	0.0000	122.1159
Worker	0.0117	9.7300e-003	0.0969	3.0000e-004	0.0327	2.0000e-004	0.0329	8.6700e-003	1.8000e-004	8.8500e-003	0.0000	26.7397	26.7397	7.1000e-004	0.0000	26.7575
Total	0.0214	0.3103	0.1604	1.7100e-003	0.0769	1.2800e-003	0.0782	0.0213	1.2100e-003	0.0226	0.0000	161.5301	161.5301	4.6400e-003	0.0000	161.6463

OBMPU - Project Category 3 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

3.2 Grading - 2021**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					0.7281	0.0000	0.7281	0.3313	0.0000	0.3313	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.5449	2.7568	18.8767	0.0400		0.1043	0.1043		0.1011	0.1011	0.0000	3,510.4577	3,510.4577	1.1354	0.0000	3,538.8415
Total	0.5449	2.7568	18.8767	0.0400	0.7281	0.1043	0.8324	0.3313	0.1011	0.4323	0.0000	3,510.4577	3,510.4577	1.1354	0.0000	3,538.8415

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	9.8000e-004	0.0364	6.1800e-003	1.3000e-004	4.3800e-003	1.2000e-004	4.4900e-003	1.1700e-003	1.1000e-004	1.2800e-003	0.0000	12.7579	12.7579	6.0000e-004	0.0000	12.7729
Vendor	8.6900e-003	0.2642	0.0573	1.2800e-003	0.0399	9.6000e-004	0.0409	0.0115	9.2000e-004	0.0124	0.0000	122.0325	122.0325	3.3300e-003	0.0000	122.1159
Worker	0.0117	9.7300e-003	0.0969	3.0000e-004	0.0327	2.0000e-004	0.0329	8.6700e-003	1.8000e-004	8.8500e-003	0.0000	26.7397	26.7397	7.1000e-004	0.0000	26.7575
Total	0.0214	0.3103	0.1604	1.7100e-003	0.0769	1.2800e-003	0.0782	0.0213	1.2100e-003	0.0226	0.0000	161.5301	161.5301	4.6400e-003	0.0000	161.6463

OBMPU - Project Category 3 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

3.2 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					1.7162	0.0000	1.7162	0.6782	0.0000	0.6782	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0465	10.2841	7.6713	0.0203		0.4168	0.4168		0.3835	0.3835	0.0000	1,780.881 4	1,780.881 4	0.5760	0.0000	1,795.280 7
Total	1.0465	10.2841	7.6713	0.0203	1.7162	0.4168	2.1331	0.6782	0.3835	1.0617	0.0000	1,780.881 4	1,780.881 4	0.5760	0.0000	1,795.280 7

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.7000e-004	0.0167	3.0400e-003	7.0000e-005	3.9900e-003	5.0000e-005	4.0400e-003	1.0300e-003	5.0000e-005	1.0700e-003	0.0000	6.3920	6.3920	3.0000e-004	0.0000	6.3995
Vendor	4.1300e-003	0.1217	0.0272	6.4000e-004	0.0202	4.2000e-004	0.0206	5.8300e-003	4.0000e-004	6.2200e-003	0.0000	61.3266	61.3266	1.6400e-003	0.0000	61.3677
Worker	5.5500e-003	4.4400e-003	0.0451	1.4000e-004	0.0166	1.0000e-004	0.0167	4.3900e-003	9.0000e-005	4.4900e-003	0.0000	13.0641	13.0641	3.3000e-004	0.0000	13.0722
Total	0.0102	0.1429	0.0754	8.5000e-004	0.0408	5.7000e-004	0.0413	0.0113	5.4000e-004	0.0118	0.0000	80.7827	80.7827	2.2700e-003	0.0000	80.8393

OBMPU - Project Category 3 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

3.2 Grading - 2022**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4462	0.0000	0.4462	0.1763	0.0000	0.1763	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2720	1.3566	9.5635	0.0203		0.0489	0.0489		0.0475	0.0475	0.0000	1,780.879 3	1,780.879 3	0.5760	0.0000	1,795.278 6
Total	0.2720	1.3566	9.5635	0.0203	0.4462	0.0489	0.4951	0.1763	0.0475	0.2239	0.0000	1,780.879 3	1,780.879 3	0.5760	0.0000	1,795.278 6

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.7000e-004	0.0167	3.0400e-003	7.0000e-005	3.9900e-003	5.0000e-005	4.0400e-003	1.0300e-003	5.0000e-005	1.0700e-003	0.0000	6.3920	6.3920	3.0000e-004	0.0000	6.3995
Vendor	4.1300e-003	0.1217	0.0272	6.4000e-004	0.0202	4.2000e-004	0.0206	5.8300e-003	4.0000e-004	6.2200e-003	0.0000	61.3266	61.3266	1.6400e-003	0.0000	61.3677
Worker	5.5500e-003	4.4400e-003	0.0451	1.4000e-004	0.0166	1.0000e-004	0.0167	4.3900e-003	9.0000e-005	4.4900e-003	0.0000	13.0641	13.0641	3.3000e-004	0.0000	13.0722
Total	0.0102	0.1429	0.0754	8.5000e-004	0.0408	5.7000e-004	0.0413	0.0113	5.4000e-004	0.0118	0.0000	80.7827	80.7827	2.2700e-003	0.0000	80.8393

4.0 Operational Detail - Mobile

OBMPU - Project Category 3 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

OBMPU - Project Category 3 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.553113	0.036408	0.180286	0.116335	0.016165	0.005101	0.018218	0.063797	0.001357	0.001565	0.005903	0.000808	0.000944
Other Non-Asphalt Surfaces	0.553113	0.036408	0.180286	0.116335	0.016165	0.005101	0.018218	0.063797	0.001357	0.001565	0.005903	0.000808	0.000944

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

[illegible]

OBMPU - Project Category 3 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

5.2 Energy by Land Use - NaturalGas

Unmitigated

[illegible]

Mitigated

[illegible]

OBMPU - Project Category 3 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

6.0 Area Detail**6.1 Mitigation Measures Area**

OBMPU - Project Category 3 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3758	6.0000e-005	6.6500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0129	0.0129	3.0000e-005	0.0000	0.0138
Unmitigated	0.3758	6.0000e-005	6.6500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0129	0.0129	3.0000e-005	0.0000	0.0138

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	0.0664					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3087					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	6.2000e-004	6.0000e-005	6.6500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0129	0.0129	3.0000e-005	0.0000	0.0138
Total	0.3758	6.0000e-005	6.6500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0129	0.0129	3.0000e-005	0.0000	0.0138

OBMPU - Project Category 3 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

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	0.0664					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3087					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	6.2000e-004	6.0000e-005	6.6500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0129	0.0129	3.0000e-005	0.0000	0.0138
Total	0.3758	6.0000e-005	6.6500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0129	0.0129	3.0000e-005	0.0000	0.0138

7.0 Water Detail**7.1 Mitigation Measures Water**

OBMPU - Project Category 3 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

OBMPU - Project Category 3 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

7.2 Water by Land Use**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

8.0 Waste Detail**8.1 Mitigation Measures Waste****Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

OBMPU - Project Category 3 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

8.2 Waste by Land Use**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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OBMPU - Project Category 3 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

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APPENDIX 4.4:

CALEEMOD PROJECT CATEGORY 4 ANNUAL CONSTRUCTION EMISSIONS MODEL OUTPUTS

OBMPU - Project Category 4 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

OBMPU - Project Category 4 (Construction - Mitigated)
San Bernardino-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	871.20	1000sqft	20.00	871,200.00	0
Other Non-Asphalt Surfaces	420.00	1000sqft	9.64	420,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	32
Climate Zone	10			Operational Year	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

OBMPU - Project Category 4 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

Project Characteristics -

Land Use - General Light Industry = Water Treatment and Regional Water Treatment Facility; Other Non-Asphalt Surfaces = Conveyance

Construction Phase - Analysis assumes construction of a single Water Treatment and Regional Water Treatment Facility and Pipelines that would be constructed within an 18-month period

Off-road Equipment - Based on information provided in the Project Description

Trips and VMT - Based on information provided in the Project Description

Grading - Based on the Project Description, the average area of disturbance of each site is anticipated to be 2 acres on any given day.

Vehicle Trips - Construction Run Only.

Energy Use - Construction Run Only.

Water And Wastewater - Construction Run Only.

Solid Waste - Construction Run Only.

Construction Off-road Equipment Mitigation - All equipment operating at >150 hp are required to be equipped with Tier 3 or better engines. Increase watering to 4 times per day.

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	15.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	45.00	547.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	PhaseEndDate	3/4/2021	7/1/2022
tblEnergyUse	LightingElect	2.93	0.00
tblEnergyUse	NT24E	5.02	0.00
tblEnergyUse	NT24NG	17.13	0.00
tblEnergyUse	T24E	2.20	0.00

OBMPU - Project Category 4 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

tblEnergyUse	T24NG	15.36	0.00
tblGrading	AcresOfGrading	273.50	1,092.00
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Cranes
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	6.00
tblSolidWaste	SolidWasteGenerationRate	1,080.29	0.00
tblTripsAndVMT	VendorTripLength	6.90	40.00
tblTripsAndVMT	VendorTripNumber	0.00	15.00
tblTripsAndVMT	WorkerTripLength	14.70	40.00
tblTripsAndVMT	WorkerTripNumber	70.00	30.00
tblVehicleTrips	CC_TTP	28.00	0.00
tblVehicleTrips	CNW_TTP	13.00	0.00
tblVehicleTrips	CW_TTP	59.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	0.00
tblVehicleTrips	ST_TR	1.32	0.00
tblVehicleTrips	SU_TR	0.68	0.00
tblVehicleTrips	WD_TR	6.97	0.00
tblWater	IndoorWaterUseRate	201,465,000.00	0.00

2.0 Emissions Summary

OBMPU - Project Category 4 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

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					
2021	2.2745	21.0672	14.4930	0.0489	0.8420	0.8017	1.6437	0.1346	0.7381	0.8727	0.0000	4,313.671 0	4,313.671 0	1.2614	0.0000	4,345.205 1
2022	0.9992	8.4042	6.8262	0.0243	0.7102	0.3153	1.0254	0.0985	0.2903	0.3888	0.0000	2,147.958 5	2,147.958 5	0.6289	0.0000	2,163.680 9
Maximum	2.2745	21.0672	14.4930	0.0489	0.8420	0.8017	1.6437	0.1346	0.7381	0.8727	0.0000	4,313.671 0	4,313.671 0	1.2614	0.0000	4,345.205 1

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					
2021	0.8033	5.0725	21.4100	0.0489	0.4135	0.1973	0.6108	0.0883	0.1873	0.2757	0.0000	4,313.666 4	4,313.666 4	1.2614	0.0000	4,345.200 5
2022	0.3857	2.3767	10.6393	0.0243	0.2817	0.0864	0.3680	0.0522	0.0824	0.1346	0.0000	2,147.956 2	2,147.956 2	0.6289	0.0000	2,163.678 6
Maximum	0.8033	5.0725	21.4100	0.0489	0.4135	0.1973	0.6108	0.0883	0.1873	0.2757	0.0000	4,313.666 4	4,313.666 4	1.2614	0.0000	4,345.200 5

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	63.68	74.72	-50.33	0.00	55.21	74.60	63.33	39.70	73.78	67.48	0.00	0.00	0.00	0.00	0.00	0.00

OBMPU - Project Category 4 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2021	3-31-2021	5.7539	1.4472
2	4-1-2021	6-30-2021	5.8126	1.4581
3	7-1-2021	9-30-2021	5.8765	1.4741
4	10-1-2021	12-31-2021	5.8817	1.4794
5	1-1-2022	3-31-2022	4.6486	1.3647
6	4-1-2022	6-30-2022	4.6957	1.3753
7	7-1-2022	9-30-2022	0.0516	0.0151
		Highest	5.8817	1.4794

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	3.5864	1.5000e-004	0.0165	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0320	0.0320	8.0000e-005	0.0000	0.0342
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	3.5864	1.5000e-004	0.0165	0.0000	0.0000	6.0000e-005	6.0000e-005	0.0000	6.0000e-005	6.0000e-005	0.0000	0.0320	0.0320	8.0000e-005	0.0000	0.0342

OBMPU - Project Category 4 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

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	3.5864	1.5000e-004	0.0165	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0320	0.0320	8.0000e-005	0.0000	0.0342
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	3.5864	1.5000e-004	0.0165	0.0000	0.0000	6.0000e-005	6.0000e-005	0.0000	6.0000e-005	6.0000e-005	0.0000	0.0320	0.0320	8.0000e-005	0.0000	0.0342

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

3.0 Construction Detail**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2021	7/1/2022	7	547	

Acres of Grading (Site Preparation Phase): 0

OBMPU - Project Category 4 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

Acres of Grading (Grading Phase): 1092**Acres of Paving: 9.64****Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)****OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Off-Highway Trucks	15	8.00	402	0.38
Grading	Excavators	0	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Cranes	3	8.00	231	0.29
Grading	Plate Compactors	3	8.00	8	0.43
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Scrapers	0	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	6	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	28	30.00	15.00	0.00	40.00	40.00	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

OBMPU - Project Category 4 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

3.2 Grading - 2021**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					0.5790	0.0000	0.5790	0.0625	0.0000	0.0625	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.1944	20.3582	13.8652	0.0442		0.7983	0.7983		0.7349	0.7349	0.0000	3,874.8914	3,874.8914	1.2495	0.0000	3,906.1278
Total	2.1944	20.3582	13.8652	0.0442	0.5790	0.7983	1.3773	0.0625	0.7349	0.7974	0.0000	3,874.8914	3,874.8914	1.2495	0.0000	3,906.1278

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	0.0217	0.6604	0.1432	3.1900e-003	0.0997	2.4100e-003	0.1021	0.0287	2.3000e-003	0.0311	0.0000	305.0813	305.0813	8.3300e-003	0.0000	305.2896
Worker	0.0584	0.0486	0.4846	1.4800e-003	0.1633	1.0000e-003	0.1643	0.0434	9.2000e-004	0.0443	0.0000	133.6983	133.6983	3.5700e-003	0.0000	133.7877
Total	0.0801	0.7090	0.6278	4.6700e-003	0.2630	3.4100e-003	0.2664	0.0721	3.2200e-003	0.0753	0.0000	438.7796	438.7796	0.0119	0.0000	439.0773

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3.2 Grading - 2021**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					0.1506	0.0000	0.1506	0.0163	0.0000	0.0163	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.7232	4.3635	20.7822	0.0442		0.1939	0.1939		0.1841	0.1841	0.0000	3,874.8868	3,874.8868	1.2495	0.0000	3,906.1232
Total	0.7232	4.3635	20.7822	0.0442	0.1506	0.1939	0.3444	0.0163	0.1841	0.2004	0.0000	3,874.8868	3,874.8868	1.2495	0.0000	3,906.1232

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	0.0217	0.6604	0.1432	3.1900e-003	0.0997	2.4100e-003	0.1021	0.0287	2.3000e-003	0.0311	0.0000	305.0813	305.0813	8.3300e-003	0.0000	305.2896
Worker	0.0584	0.0486	0.4846	1.4800e-003	0.1633	1.0000e-003	0.1643	0.0434	9.2000e-004	0.0443	0.0000	133.6983	133.6983	3.5700e-003	0.0000	133.7877
Total	0.0801	0.7090	0.6278	4.6700e-003	0.2630	3.4100e-003	0.2664	0.0721	3.2200e-003	0.0753	0.0000	438.7796	438.7796	0.0119	0.0000	439.0773

OBMPU - Project Category 4 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

3.2 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					0.5790	0.0000	0.5790	0.0625	0.0000	0.0625	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.9618	8.0830	6.5373	0.0221		0.3137	0.3137		0.2889	0.2889	0.0000	1,932.867 2	1,932.867 2	0.6233	0.0000	1,948.448 5
Total	0.9618	8.0830	6.5373	0.0221	0.5790	0.3137	0.8928	0.0625	0.2889	0.3514	0.0000	1,932.867 2	1,932.867 2	0.6233	0.0000	1,948.448 5

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	0.0102	0.2994	0.0669	1.5800e-003	0.0497	1.0200e-003	0.0507	0.0143	9.8000e-004	0.0153	0.0000	150.8303	150.8303	4.0400e-003	0.0000	150.9313
Worker	0.0273	0.0218	0.2220	7.1000e-004	0.0814	4.9000e-004	0.0819	0.0216	4.5000e-004	0.0221	0.0000	64.2611	64.2611	1.6000e-003	0.0000	64.3011
Total	0.0375	0.3212	0.2888	2.2900e-003	0.1311	1.5100e-003	0.1326	0.0359	1.4300e-003	0.0374	0.0000	215.0914	215.0914	5.6400e-003	0.0000	215.2324

OBMPU - Project Category 4 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

3.2 Grading - 2022**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1506	0.0000	0.1506	0.0163	0.0000	0.0163	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3483	2.0555	10.3505	0.0221		0.0849	0.0849		0.0809	0.0809	0.0000	1,932.8649	1,932.8649	0.6233	0.0000	1,948.4462
Total	0.3483	2.0555	10.3505	0.0221	0.1506	0.0849	0.2354	0.0163	0.0809	0.0972	0.0000	1,932.8649	1,932.8649	0.6233	0.0000	1,948.4462

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	0.0102	0.2994	0.0669	1.5800e-003	0.0497	1.0200e-003	0.0507	0.0143	9.8000e-004	0.0153	0.0000	150.8303	150.8303	4.0400e-003	0.0000	150.9313
Worker	0.0273	0.0218	0.2220	7.1000e-004	0.0814	4.9000e-004	0.0819	0.0216	4.5000e-004	0.0221	0.0000	64.2611	64.2611	1.6000e-003	0.0000	64.3011
Total	0.0375	0.3212	0.2888	2.2900e-003	0.1311	1.5100e-003	0.1326	0.0359	1.4300e-003	0.0374	0.0000	215.0914	215.0914	5.6400e-003	0.0000	215.2324

4.0 Operational Detail - Mobile

OBMPU - Project Category 4 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

OBMPU - Project Category 4 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.553113	0.036408	0.180286	0.116335	0.016165	0.005101	0.018218	0.063797	0.001357	0.001565	0.005903	0.000808	0.000944
Other Non-Asphalt Surfaces	0.553113	0.036408	0.180286	0.116335	0.016165	0.005101	0.018218	0.063797	0.001357	0.001565	0.005903	0.000808	0.000944

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

[illegible]

OBMPU - Project Category 4 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

5.2 Energy by Land Use - NaturalGas

Unmitigated

[illegible]

Mitigated

[illegible]

OBMPU - Project Category 4 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

6.0 Area Detail**6.1 Mitigation Measures Area**

OBMPU - Project Category 4 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

	ROG	NOx	CO	SO2	Fugitive 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	3.5864	1.5000e-004	0.0165	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0320	0.0320	8.0000e-005	0.0000	0.0342
Unmitigated	3.5864	1.5000e-004	0.0165	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0320	0.0320	8.0000e-005	0.0000	0.0342

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	0.4096					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.1752					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.5400e-003	1.5000e-004	0.0165	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0320	0.0320	8.0000e-005	0.0000	0.0342
Total	3.5864	1.5000e-004	0.0165	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0320	0.0320	8.0000e-005	0.0000	0.0342

OBMPU - Project Category 4 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

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	0.4096					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.1752					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.5400e-003	1.5000e-004	0.0165	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0320	0.0320	8.0000e-005	0.0000	0.0342
Total	3.5864	1.5000e-004	0.0165	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0320	0.0320	8.0000e-005	0.0000	0.0342

7.0 Water Detail**7.1 Mitigation Measures Water**

OBMPU - Project Category 4 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

OBMPU - Project Category 4 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

7.2 Water by Land Use**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

8.0 Waste Detail**8.1 Mitigation Measures Waste****Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

OBMPU - Project Category 4 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

8.2 Waste by Land Use**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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OBMPU - Project Category 4 (Construction - Mitigated) - San Bernardino-South Coast County, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

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

Equipment Type	Number
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11.0 Vegetation

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APPENDIX 4.5:

EMFAC2014 MODEL OUTPUTS

EMFAC2014 (v1.0.7) Emissions Inventory

Region Type: County

Region: San Bernardino

Calendar Year: 2021

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	CalYr	VehClass	MdlYr	Speed	Fuel	Population	VMT	Fuel_Consumption	Fuel_Consumption	Total Fuel	VMT	Total VMT	Miles per Gallon	Vehicle Class
San Bernardino	2021	HHDT	Aggregated	Aggregated	GAS	125.9002107	16717.50413	3.423552402	3423.552402	667783.5564	16717.50413	4209421.238	6.30	HHDT
San Bernardino	2021	HHDT	Aggregated	Aggregated	DSL	24542.92266	4192703.734	664.360004	664360.004		4192703.734			
San Bernardino	2021	LDA	Aggregated	Aggregated	GAS	909207.5181	35199911.37	1171.881911	1171881.911	1181052.556	35199911.37	36939784.65	31.28	LDA
San Bernardino	2021	LDA	Aggregated	Aggregated	DSL	8792.69583	368580.8473	9.17064526	9170.64526		368580.8473			
San Bernardino	2021	LDA	Aggregated	Aggregated	ELEC	25849.69714	1371292.432	0	0		1371292.432			
San Bernardino	2021	LDT1	Aggregated	Aggregated	GAS	73635.44923	2489916.633	99.63468523	99634.68523	99718.79458	2489916.633	2493548.79	25.01	LDT1
San Bernardino	2021	LDT1	Aggregated	Aggregated	DSL	101.6427909	2418.284801	0.084109345	84.10934512		2418.284801			
San Bernardino	2021	LDT1	Aggregated	Aggregated	ELEC	34.48272391	1213.872315	0	0		1213.872315			
San Bernardino	2021	LDT2	Aggregated	Aggregated	GAS	309546.0379	12044583.12	535.7695589	535769.5589	536491.4517	12044583.12	12066830.72	22.49	LDT2
San Bernardino	2021	LDT2	Aggregated	Aggregated	DSL	510.5730144	22247.60261	0.721892821	721.8928209		22247.60261			
San Bernardino	2021	LHDT1	Aggregated	Aggregated	GAS	20120.25047	545735.4092	50.69078775	50690.78775	81054.43819	545735.4092	1157288.691	14.28	LHDT1
San Bernardino	2021	LHDT1	Aggregated	Aggregated	DSL	19532.32163	611553.2814	30.36365044	30363.65044		611553.2814			
San Bernardino	2021	LHDT2	Aggregated	Aggregated	GAS	3392.138812	112705.1992	11.01960873	11019.60873	23852.18706	112705.1992	353790.1324	14.83	LHDT2
San Bernardino	2021	LHDT2	Aggregated	Aggregated	DSL	6802.500203	241084.9332	12.83257832	12832.57832		241084.9332			
San Bernardino	2021	MCY	Aggregated	Aggregated	GAS	45247.5125	403007.7671	10.59030365	10590.30365	10590.30365	403007.7671	10590.30365	1.00	MCY
San Bernardino	2021	MDV	Aggregated	Aggregated	GAS	233176.3118	7886006.132	485.1973934	485197.3934	491039.0326	7886006.132	8023794.329	16.34	MDV
San Bernardino	2021	MDV	Aggregated	Aggregated	DSL	3243.875799	137788.1969	5.841639209	5841.639209		137788.1969			
San Bernardino	2021	MH	Aggregated	Aggregated	GAS	7006.601758	52861.43226	6.711216735	6711.216735	8137.886653	52861.43226	67822.77942	8.33	MH
San Bernardino	2021	MH	Aggregated	Aggregated	DSL	1887.003585	14961.34716	1.426669918	1426.669918		14961.34716			
San Bernardino	2021	MHDT	Aggregated	Aggregated	GAS	2091.977338	121940.1943	15.74990849	15749.90849	136107.7555	121940.1943	1200805.613	8.82	MHDT
San Bernardino	2021	MHDT	Aggregated	Aggregated	DSL	18704.77542	1078865.419	120.357847	120357.847		1078865.419			
San Bernardino	2021	OBUS	Aggregated	Aggregated	GAS	1010.911977	59331.66119	7.447531745	7447.531745	11603.10573	59331.66119	90555.25882	7.80	OBUS
San Bernardino	2021	OBUS	Aggregated	Aggregated	DSL	380.7199066	31223.59763	4.155573988	4155.573988		31223.59763			
San Bernardino	2021	SBUS	Aggregated	Aggregated	GAS	273.1903434	12901.3866	1.105241285	1105.241285	6860.647331	12901.3866	54527.98575	7.95	SBUS
San Bernardino	2021	SBUS	Aggregated	Aggregated	DSL	1096.414947	41626.59915	5.755406046	5755.406046		41626.59915			
San Bernardino	2021	UBUS	Aggregated	Aggregated	GAS	316.0138304	48311.18623	9.569447605	9569.447605	21525.10763	48311.18623	107911.4077	5.01	UBUS
San Bernardino	2021	UBUS	Aggregated	Aggregated	DSL	399.4700238	59600.22146	11.95566003	11955.66003		59600.22146			

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