CARLSBAD
CLOVIS
IRVINE
LOS ANGELES
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROSEVILLE
SAN LUIS OBISPO

MEMORANDUM

DATE: October 20, 2022

TO: Aimee Halligan, Administrative Manager
Orange County Waste & Recycling

FROM: Amy Fischer, Principal
Cara Carlucci, Associate

SUBJECT: Air Quality, Energy, and Greenhouse Gas Emissions Memorandum for the Bee Canyon Greenery Phase 1C Project

This air quality, energy, and greenhouse gas (GHG) analysis has been prepared to evaluate the potential air quality, energy, and GHG impacts and prescribe mitigation measures, as appropriate, for the proposed Bee Canyon Greenery (BCG) Phase 1C Project (project) located at the Frank R. Bowerman (FRB) Landfill in an unincorporated portion of Orange County, California. This impact analysis follows the guidelines identified by the South Coast Air Quality Management District (SCAQMD) in its *California Environmental Quality Act (CEQA) Air Quality Handbook* (1993) and associated updates. This memorandum provides a project-specific air quality, energy, and GHG impact analysis by examining the impacts of the proposed uses on adjacent sensitive uses as well as the impacts of the proposed uses on the project site.

PROJECT DESCRIPTION

The existing FRB Landfill receives approximately 850 tons per day (tpd) of processed green material (PGM). The proposed project would compost approximately 876 tpd of PGM. Orange County Waste & Recycling (OCWR) is proposing a number of changes to BCG as part of Phase 1C of the facility development, including additional feedstock materials; increasing the maximum daily tonnage received at the facility to up to 876 tpd; expanding the facility by approximately 7.3 acres to a total of 37.3 acres; clarifying chipping and grinding activities; utilizing new composting technologies and processing methods; and allowing for compost give away events.

BCG currently utilizes windrow composting as the primary means to compost feedstock. As the demand grows for compost production and as OCWR expands feedstock materials beyond green materials, other technologies need to be considered. The Covered Aerated Static Pile (CASP) technology utilizes a tarp system equipped with a blower to induce forced aeration for the Process to Further Reduce Pathogens (PFRP) while also serving as an emission control technology under SCAQMD rules. Operation of the proposed project would also require the use of a chipper/grinder, conveyor, and cover turner. Existing electrical power will be available at the BCG at the time of CASP implementation; therefore, the blowers would be operated via the existing electrical system. In addition, it is anticipated that the CASP composting operations would require approximately 84,600

to 116,730 gallons of water per day for operation as compared to the current open windrow operation that is estimated to use up to 262,476 gallons per day.

The FRB Landfill is currently open from 7:00 a.m. to 5:00 p.m., Monday through Saturday. The proposed project would require up to 5 additional daily employees at the FRB Landfill. The additional 26 tpd of PGM intake would require up to 2 dump trucks, and the 876 tpd of compost delivery would require approximately 44 dump trucks with a 20-ton capacity. The proposed project would have the same hours of operation. The 5 daily employees and the 46 total daily trucks would generate approximately 102 average daily trips (ADT), including 10 worker trips and 92 truck trips or 194 ADT in passenger car equivalent (PCE).

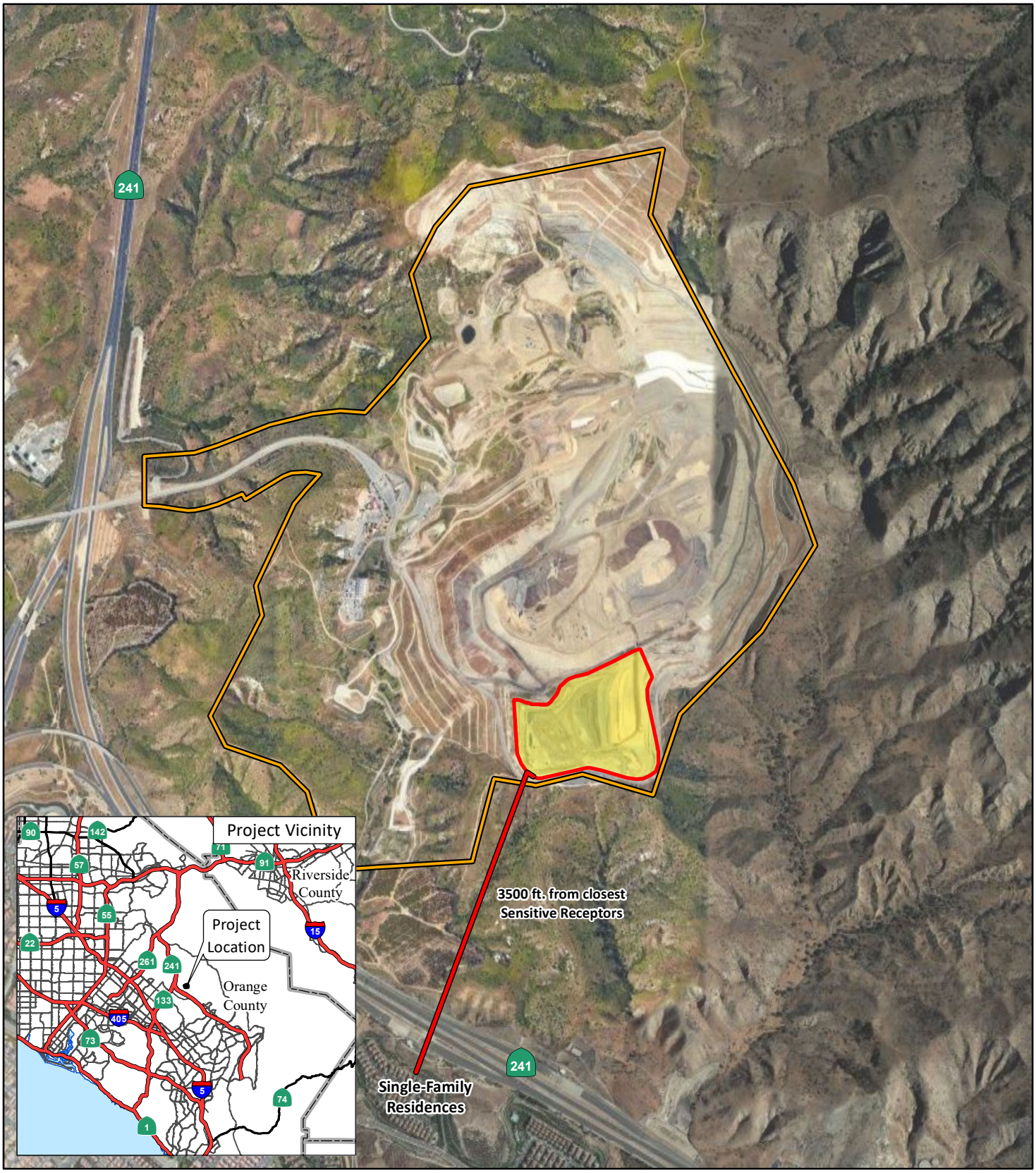
Construction of the proposed project is expected to begin in July 2024 and occur for approximately 3 to 5 months. It is assumed that construction of the proposed project would require the use of one backhoe, four light duty pickup trucks, one forklift, and paving equipment.

Existing Sensitive Land Uses in the Project Area

The project site is surrounded primarily by the existing FRB Landfill and open space, with some light industrial and residential development (Figures 1 and 2). The areas adjacent to the project site include the following uses:

- **North:** Open space
- **South:** Single-family residences and open space within the city of Irvine
- **West:** Light industrial development
- **East:** Open space

For the purposes of this analysis, sensitive receptors are areas of population that have an increased sensitivity to air pollution or environmental contaminants. Sensitive receptor locations include residences, schools, daycare centers, hospitals, and similar uses that are sensitive to air quality. Impacts on sensitive receptors are of particular concern because those receptors are the populations most vulnerable to the effects of air pollution. The closest sensitive receptor locations to the project site include the single-family residences across State Route 241 (SR-241) within the city of Irvine. The distance from the edge of the composting facility to the closest residential building is approximately 3,500 feet (ft).



LSA

FIGURE 1

LEGEND

Project Location

FRB Property Limits

N

0 750 1500

FEET

SOURCE: Google Imagery (2022)

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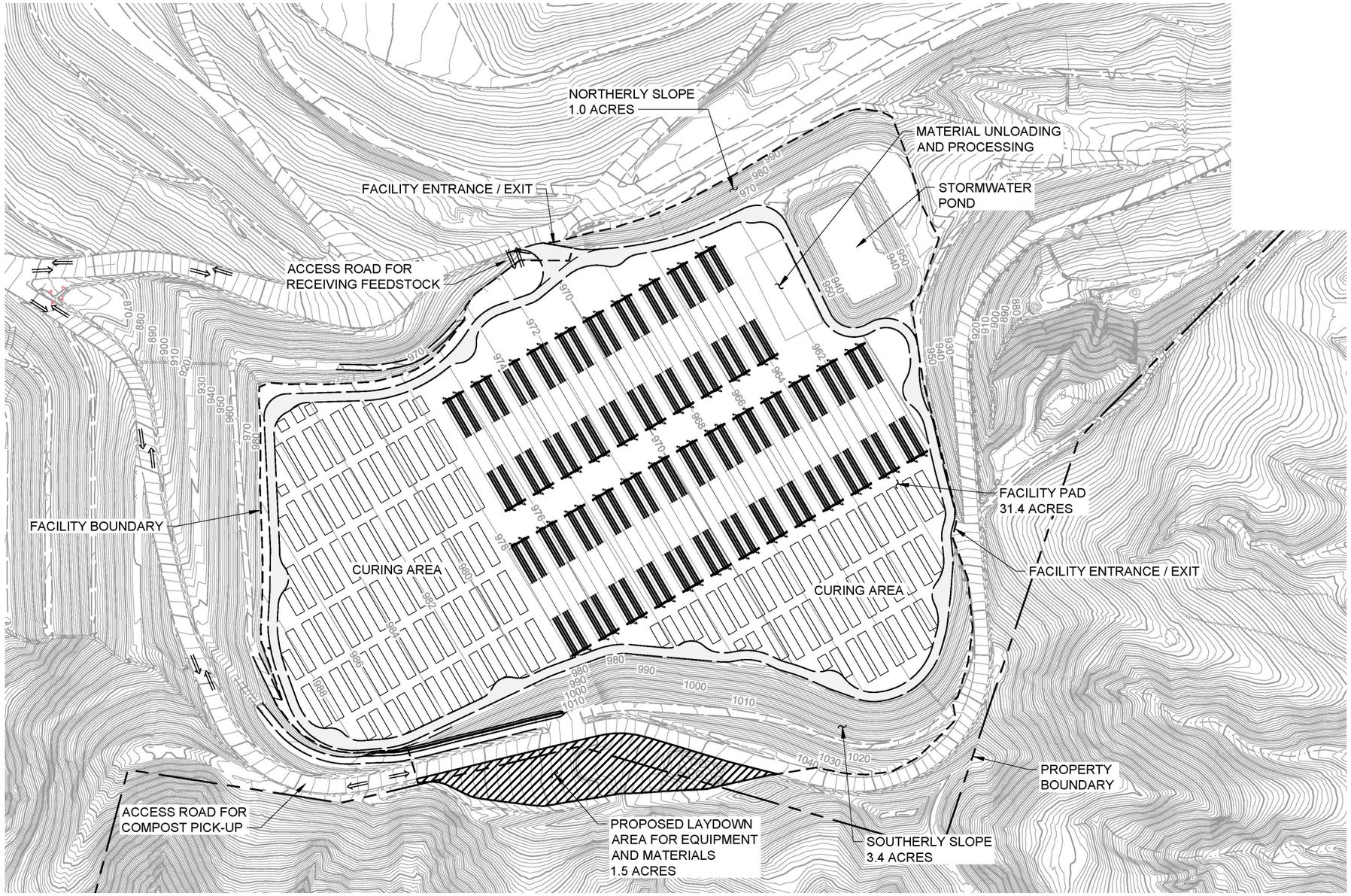
Bee Canyon Greenery

Project Location



LSA

FIGURE 2

N

0 125 250

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SOURCE: Tetra Tech

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Bee Canyon Greenery

Site Plan

ENVIRONMENTAL SETTING

Air Quality Background

Air quality is primarily a function of local climate, local sources of air pollution, and regional pollution transport. The amount of a given pollutant in the atmosphere is determined by the amount of the pollutant released and the atmosphere's ability to transport and dilute the pollutant. The major determinants of transport and dilution are wind, atmospheric stability, terrain, and, for photochemical pollutants, sunshine.

A region's topographic features have a direct correlation with air pollution flow and therefore are used to determine the boundary of air basins. The project site is in Orange County and is within the jurisdiction of SCAQMD, which regulates air quality in the South Coast Air Basin (Basin).

The Basin comprises approximately 10,000 square miles and covers all of Orange County and the urban parts of Los Angeles, Riverside, and San Bernardino Counties. The Basin is on a coastal plain with connecting broad valleys and low hills to the east. Regionally, the Basin is bounded by the Pacific Ocean to the southwest and high mountains to the east, forming the inland perimeter.

Both State and federal governments have established health-based Ambient Air Quality Standards for six criteria air pollutants: carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead (Pb), and suspended particulate matter (PM). In addition, the State has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles.

These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety. Two criteria pollutants, O_3 and NO_2, are considered regional pollutants because they (or their precursors) affect air quality on a regional scale. Pollutants such as CO, SO_2, and Pb are considered local pollutants that tend to accumulate in the air locally.

Because of the conservative nature of the thresholds and the basin-wide context of individual project emissions, there is no known direct correlation between a single project and localized air quality-related health effects. One individual project that generates emissions exceeding a threshold does not necessarily result in adverse health effects for residents in the project vicinity. This condition is especially true when the criteria pollutants exceeding thresholds are those with regional effects, such as O_3 precursors like nitrogen oxides (NO_x) and volatile organic compounds (VOCs).

Occupants of facilities such as schools, daycare centers, parks and playgrounds, hospitals, and nursing and convalescent homes are considered to be more sensitive than the general public to air pollutants because these population groups have increased susceptibility to respiratory disease. Persons engaged in strenuous work or exercise also have increased sensitivity to poor air quality. Residential areas are considered more sensitive to air quality conditions, compared to commercial and industrial areas, because people generally spend longer periods of time at their residences, with greater associated exposure to ambient air quality conditions. Recreational uses are also considered sensitive compared to commercial and industrial uses due to greater exposure to ambient air quality conditions associated with exercise.

Local Air Quality

Air quality monitoring stations are located throughout the nation and are maintained by the local air districts and State air quality regulating agencies. Data collected at permanent monitoring stations are used by the United States Environmental Protection Agency (EPA) to identify regions as "attainment" or "nonattainment" depending on whether the regions meet the requirements stated in the applicable National Ambient Air Quality Standards (NAAQS). Nonattainment areas are imposed with additional restrictions as required by the EPA. In addition, different classifications of attainment (e.g., marginal, moderate, serious, severe, and extreme) are used to classify each air basin in the State on a pollutant-by-pollutant basis. The classifications are used as a foundation to create air quality management strategies to improve air quality and to comply with the NAAQS. As shown in Table A, the Basin is designated as nonattainment by federal standards for O_3 and $PM_{2.5}$ and nonattainment by State standards for O_3, PM_{10}, and $PM_{2.5}$.

Table A: Attainment Status of Criteria Pollutants in the South Coast Air Basin

Pollutant	State	Federal
O_3 1-hour	Nonattainment	N/A
O_3 8-hour	Nonattainment	Extreme Nonattainment
PM_{10}	Nonattainment	Attainment/Maintenance
$PM_{2.5}$	Nonattainment	Nonattainment
CO	Attainment	Attainment/Maintenance
NO_2	Attainment	Unclassified/Attainment (1-hour) Attainment/Maintenance (Annual)
SO_2	Attainment	Unclassified/Attainment
Lead	Attainment[1]	Unclassified/Attainment[1]
All Others	Attainment/Unclassified	Attainment/Unclassified

Source: NAAQS and CAAQS Attainment Status for South Coast Air Basin (SCAQMD 2016). Available online at: www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/naaqs-caaqs-feb2016.pdf (accessed April 2022). Nonattainment Areas for Criteria Pollutants (Green Book) (EPA 2019). Website: www.epa.gov/green-book (accessed April 2022).

[1] Only the Los Angeles County portion of the South Coast Air Basin is in nonattainment for lead.

CAAQS = California Ambient Air Quality Standards
CO = carbon monoxide
EPA = United States Environmental Protection Agency
N/A = not applicable
NAAQS = National Ambient Air Quality Standards
NO_2 = nitrogen dioxide
O_3 = ozone
PM_{10} = particulate matter less than 10 microns in diameter
$PM_{2.5}$ = particulate matter less than 2.5 microns in diameter
SCAQMD = South Coast Air Quality Management District
SO_2 = sulfur dioxide

SCAQMD, together with the California Air Resources Board (CARB), maintains ambient air quality monitoring stations in the Basin. The air quality monitoring station closest to the project area is the 26081 ambient air quality monitoring station in Mission Viejo. The air quality trends from this station are used to represent the ambient air quality in the project area. The Mission Viejo station monitors CO, O_3, PM_{10}, and $PM_{2.5}$. The closest station monitoring NO_2 is the 812 W. Vermont Street Anaheim station. SO_2 is no longer monitored in the area. The Mission Viejo station is approximately 5.5 miles southeast of the project site, and the Anaheim station is approximately 14.5 miles northwest of the project site. The air quality trends from these two stations are used to represent the ambient air

quality in the project area. Ambient air quality in the project area from 2019 to 2021 is shown in Table B.

Table B: Ambient Air Quality at Nearby Monitoring Stations

Pollutant	Standard	2019	2020	2021
Carbon Monoxide (CO) – Mission Viejo Monitoring Station				
Maximum 1-hour concentration (ppm)		0.9	1.7	2.2
Number of days exceeded:	State: >20 ppm	0	0	0
	Federal: >35 ppm	0	0	0
Maximum 8-hour concentration (ppm)		0.8	0.8	0.8
Number of days exceeded:	State: >9 ppm	0	0	0
	Federal: >9 ppm	0	0	0
Ozone (O_3) – Mission Viejo Monitoring Station				
Maximum 1-hour concentration (ppm)		0.106	0.171	0.105
Number of days exceeded:	State: >0.09 ppm	2	20	ND
Maximum 8-hour concentration (ppm)		0.088	0.123	0.081
Number of days exceeded:	State: >0.07 ppm	11	34	8
	Federal: >0.08 ppm	11	32	8
Coarse Particulates (PM_{10}) – Mission Viejo Monitoring Station				
Maximum 24-hour concentration (µg/m^3)		45.1	56.2	35.0
Number of days exceeded:	State: >50 µg/m^3	0	2	0
	Federal: >150 µg/m^3	0	0	0
Annual arithmetic average concentration (µg/m^3)		17.1	18.3	ND
Exceeded for the year:	State: >20 µg/m^3	No	No	ND
	Federal: >50 µg/m^3	No	No	ND
Fine Particulates ($PM_{2.5}$) – Mission Viejo Monitoring Station				
Maximum 24-hour concentration (µg/m^3)		20.8	44.8	28.7
Number of days exceeded:	Federal: >35 µg/m^3	0	2	0
Annual arithmetic average concentration (µg/m^3)		7.1	9.3	8.3
Exceeded for the year:	State: >12 µg/m^3	No	No	No
	Federal: >12 µg/m^3	No	No	No
Nitrogen Dioxide (NO_2) – Anaheim Monitoring Station				
Maximum 1-hour concentration (ppm)		0.059	0.070	0.072
Number of days exceeded:	State: >0.250 ppm	0	0	0
Annual arithmetic average concentration (ppm)		0.019	0.019	0.019
Exceeded for the year:	Federal: >0.053 ppm	No	No	No

Sources: CARB, Top 4 Summary: Select Pollutant, Years, & Area (Website: https://www.arb.ca.gov/adam/topfour/topfour1.php; accessed April 2022), and EPA, Outdoor Air Quality Data: Monitor Values Report (Website: https://www.epa.gov/outdoor-air-quality-data/monitor-values-report; accessed April 2022).
µg/m^3 = micrograms per cubic meter
CARB = California Air Resources Board
EPA = United States Environmental Protection Agency
ND = No data. There were insufficient (or no) data to determine the value.
ppm = parts per million

Pollutant monitoring results for the years 2019 to 2021 indicate that air quality in the project vicinity has generally been good. As indicated in the monitoring results, no violations of the federal PM_{10} standard occurred during the 3-year period. The State PM_{10} standard was exceeded twice in 2020 but was not exceeded in 2019 or 2021. Similarly, the State $PM_{2.5}$ standard was exceeded twice in 2020 but was not exceeded in 2019 or 2021. The State 1-hour O_3 standard was exceeded twice in 2019, 20 times in 2020, and an unknown number of times in 2021. In addition, the State 8-hour O_3 standard

was exceeded 11 times in 2019, 34 times in 2020, and eight times in 2021, and the federal 8-hour O_3 standard was exceeded 11 times in 2019, 32 times in 2020, and eight times in 2021. The CO and NO_2 standards were not exceeded during the 3-year period.

Climate/Meteorology

Air quality in the planning area is affected by not only various emission sources (e.g., mobile and industry) but also atmospheric conditions (e.g., wind speed, wind direction, temperature, and rainfall). The combination of topography, low mixing height, abundant sunshine, and emissions from the second-largest urban area in the United States gives the Basin some of the worst air pollution in the nation.

The annual average temperature varies little throughout the Basin, ranging from the low to middle 60s degrees Fahrenheit (°F). With a more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas. The climatological station closest to the site is the Irvine Ranch station.[1] The monthly average maximum temperature recorded at this station ranges from 69.9°F in January to 90.1°F in August, with an annual average maximum of 78.4°F. The monthly average minimum temperature recorded at this station ranges from 45.3°F in February to 60.0°F in August, with an annual average minimum of 51.8°F. These levels are still representative of the project area.

The majority of annual rainfall in the Basin occurs between November and April. Summer rainfall is minimal and is generally limited to scattered thundershowers in coastal regions and slightly heavier showers in the eastern portion of the Basin and along the coastal side of the mountains. Average monthly rainfall at the Irvine Ranch station varies from 3.11 inches in February to 0.29 inch or less between May and September, with an annual total of 13.05 inches. Patterns in monthly and yearly rainfall totals are unpredictable due to fluctuations in the weather.

The Basin experiences a persistent temperature inversion (increasing temperature with increasing altitude) as a result of the Pacific high. This inversion limits the vertical dispersion of air contaminants, holding them relatively near the ground. As the sun warms the ground and the lower air layer, the temperature of the lower air layer approaches the temperature of the base of the inversion (upper) layer until the inversion layer finally breaks, allowing vertical mixing with the lower layer. This phenomenon is observed in midafternoon to late afternoon on hot summer days, when the air appears to clear up suddenly. Winter inversions frequently break by midmorning.

Winds in the project area blow predominantly from the south-southwest, with relatively low velocities. Wind speeds in the project area average about 6 miles per hour (mph). Summer wind speeds average slightly higher than winter wind speeds. Low average wind speeds, together with a persistent temperature inversion, limit the vertical dispersion of air pollutants throughout the Basin. Strong, dry, north or northeasterly winds, known as Santa Ana winds, occur during the fall and winter months, dispersing air contaminants. The Santa Ana conditions tend to last for several days at a time.

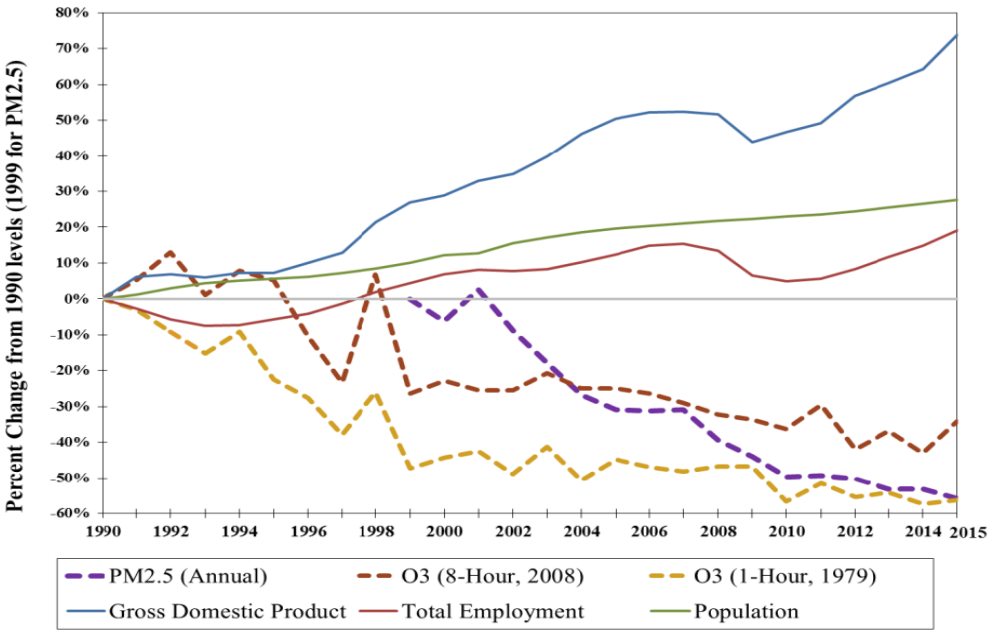
[1] Western Regional Climate Center (WRCC). Recent Climate in the West. Website: http://www.wrcc.dri.edu, (accessed April 2022).

The combination of stagnant wind conditions and low inversions produces the greatest pollutant concentrations. On days of no inversion or high wind speeds, ambient air pollutant concentrations are the lowest. During periods of low inversions and low wind speeds, air pollutants generated in urbanized areas are transported predominantly on shore into Riverside and San Bernardino Counties. In the winter, the greatest pollution problems are CO and NO_x because of extremely low inversions and air stagnation during the night and early morning hours. In the summer, the longer daylight hours and brighter sunshine combine to cause a reaction between hydrocarbons and NO_x to form photochemical smog. Smog is a general term for naturally occurring fog that has become mixed with smoke or pollution. In this context, it is better described as a form of air pollution produced by the photochemical reaction of sunlight with pollutants that have been released into the atmosphere, especially by automotive emissions.

Regional Air Quality Trends

Criteria Pollutants. As previously discussed, the proposed project is under the jurisdiction of SCAQMD, which is responsible for formulating and implementing the air quality management plan (AQMP) for the Basin in order to bring the area into compliance with federal and State air quality standards. Air quality in the Basin has improved as a result of the development of SCAQMD rules and control programs and the development and application of cleaner technology. Ambient levels of O_3, NO_X, VOCs, and CO have been generally decreasing since 1975. The levels of PM_{10} and $PM_{2.5}$ in the air have decreased since 1975, and direct emissions of $PM_{2.5}$ have decreased, although direct emissions of PM_{10} have shown little change. As stated in the SCAQMD 2016 AQMP for the Basin, the overall population of the region is expected to continue to increase beyond 2023. Despite this population growth, air quality has improved significantly over the years, primarily due to the impacts of air quality control programs at the local, State, and federal levels.

Figure 3 shows the trends since 1990 of the 8-hour O_3 levels, 1-hour O_3 levels, and annual average $PM_{2.5}$ concentrations (since 1999) compared to the regional gross domestic product, total employment, and population.



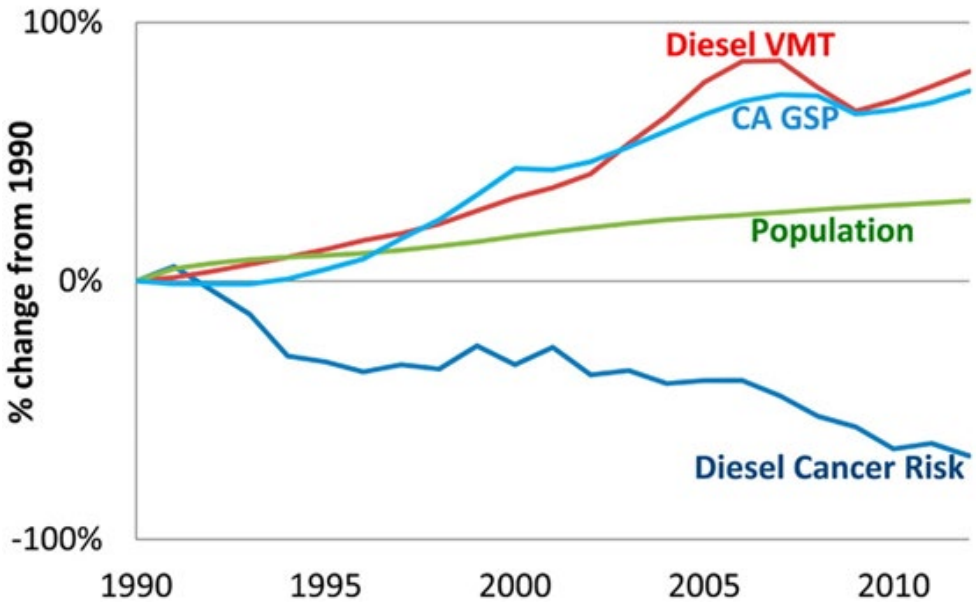
Source: Final Report: Multiple Air Toxics Exposure Study in the South Coast Air Basin (SCAQMD 2015).

Figure 3: South Coast Air Basin Percent Change in Air Quality and Demographic Data

The 2007–2009 recession decreased gross domestic product and employment, but they have recovered, as shown on Figure 3. However, the O_3 and $PM_{2.5}$ levels continue to trend downward despite increasing economic activity and population, demonstrating that it is possible to maintain a healthy economy while improving public health through air quality improvements.

Toxic Air Contaminants Trends. In 1984, CARB adopted regulations to reduce toxic air contaminant (TAC) emissions from mobile and stationary sources, as well as consumer products. A CARB study showed that ambient concentrations and emissions of the seven TACs responsible for the most cancer risk from airborne exposure declined by 76 percent between 1990 and 2012.[1] Concentrations of diesel particulate matter (DPM), a key TAC, declined by 68 percent between 1990 and 2012, despite a 31 percent increase in State population and an 81 percent increase in diesel vehicle miles traveled (VMT), as shown on Figure 4.

[1] Propper, Wong, Bui, Austin, Vance, Alvarado, Croes, and Luo. 2015. Ambient and Emission Trends of Toxic Air Contaminants in California. *American Chemical Society: Environmental Science & Technology*. Website: pubs.acs.org/doi/full/10.1021/acs.est.5b02766 (accessed April 2022).



Source: Ambient and Emission Trends of Toxic Air Contaminants in California (Propper, Wong, Bui, Austin, Vance, Alvarado, Croes, and Luo. 2015).

Figure 4: California Population, Gross State Product, Diesel Cancer Risk, and Diesel Vehicle Miles Traveled

The study also found that the significant reductions in cancer risk to California residents from the implementation of air toxics controls are likely to continue. SCAQMD has conducted four *Multiple Air Toxics Exposure Study in the South Coast Air Basin* (MATES) studies that document a decrease in cancer risk of 57 percent between the last two editions (i.e., between 2005 and 2015).

Energy Background

Electricity

Electricity is a man-made resource. The production of electricity requires the consumption or conversion of energy resources (including water, wind, oil, gas, coal, solar, geothermal, and nuclear resources) into energy. Electricity is used for a variety of purposes (e.g., lighting, heating, cooling, and refrigeration, and for operating appliances, computers, electronics, machinery, and public transportation systems).

According to the most recent data available, in 2020, California's electricity was generated primarily by natural gas (37.06 percent), renewable sources (33.09 percent), large hydroelectric (12.21 percent), nuclear (9.33 percent), coal (2.74 percent), and other and unspecified sources. Total electric generation in California in 2020 was 272,576 gigawatt-hours (GWh), down 2 percent from the 2019 total generation of 277,704 GWh.[1]

[1] California Energy Commission (CEC). 2021a. *2020 Total System Electric Generation*. Website: https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2020-total-system-electric-generation (accessed April 2022).

The project site is within the service territory of Southern California Edison (SCE). According to the California Energy Commission (CEC), total electricity consumption in the SCE service area in 2020 was 83,533 GWh (83,532,630,620 kilowatt hours [kWh]).[1] Total electricity consumption in Orange County in 2020 was 19,733 GWh (19,733,139,603 kWh).[2]

Natural Gas

Natural gas is a nonrenewable fossil fuel. Fossil fuels are formed when layers of decomposing plant and animal matter are exposed to intense heat and pressure under the surface of the Earth over millions of years. Natural gas is a combustible mixture of hydrocarbon compounds (primarily methane) that is used as a fuel source. Natural gas is found in naturally occurring reservoirs in deep underground rock formations. Natural gas is used for a variety of uses (e.g., heating buildings, generating electricity, and powering appliances such as stoves, washing machines and dryers, gas fireplaces, and gas grills).

Natural gas consumed in California is used for electricity generation (45 percent), residential uses (21 percent), industrial uses (25 percent), and commercial uses (9 percent). California continues to depend on out-of-state imports for nearly 90 percent of its natural gas supply.[3]

The Southern California Gas Company (SoCalGas) is the natural gas service provider for the project site. According to the CEC, total natural gas consumption in the SoCalGas service area in 2020 was 5,231 million therms (5,231,452,869 therms).[4] Total natural gas consumption in Orange County in 2020 was 595 million therms (594,632,076 therms).[5]

Fuel

Petroleum is also a nonrenewable fossil fuel. Petroleum is a thick, flammable, yellow-to-black mixture of gaseous, liquid, and solid hydrocarbons that occurs naturally beneath the Earth's surface. Petroleum is primarily recovered by oil drilling. It is refined into a large number of consumer products, primarily fuel oil, gasoline, and diesel.

The average fuel economy for light-duty vehicles (autos, pickup trucks, vans, and sport utility vehicles) in the United States has steadily increased from about 14.9 miles per gallon (mpg) in 1980 to 22.9 mpg in 2020.[6] Federal fuel economy standards have changed substantially since the Energy

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1 CEC. 2021b. Electricity Consumption by Entity. Website: ecdms.energy.ca.gov/elecbyutil.aspx (accessed April 2022).

2 CEC. 2021c. Electricity Consumption by County. Website: ecdms.energy.ca.gov/elecbycounty.aspx (accessed April 2022).

3 CEC. 2021d. Supply and Demand of Natural Gas in California. Website: https://www.energy.ca.gov/data-reports/energy-almanac/californias-natural-gas-market/supply-and-demand-natural-gas-california (accessed April 2022).

4 CEC. 2021e. Gas Consumption by Entity. Website: ecdms.energy.ca.gov/gasbyutil.aspx (accessed April 2022).

5 CEC. 2021f. Gas Consumption by County. Website: ecdms.energy.ca.gov/gasbycounty.aspx (accessed April 2022).

6 U.S. Department of Transportation (DOT). "Table 4-23: Average Fuel Efficiency of U.S. Light Duty Vehicles." Website: https://www.bts.gov/content/average-fuel-efficiency-us-light-duty-vehicles (accessed April 2022).

Independence and Security Act was passed in 2007. The Act, which originally mandated a national fuel economy standard of 35 mpg by year 2020,[1] applies to cars and light trucks of Model Years 2011 through 2020. In March 2020, the EPA and National Highway Traffic Safety Administration (NHTSA) finalized the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks, further detailed below.

Gasoline is the most used transportation fuel in California, with 97 percent of all gasoline being consumed by light-duty cars, pickup trucks, and sport utility vehicles. According to the most recent data available, total gasoline consumption in California was 289,918 thousand barrels or 1,464.7 trillion British Thermal Units (BTU) in 2020.[2] Of the total gasoline consumption, 273,289 thousand barrels or 1,380.7 trillion BTU were consumed for transportation.[3] Based on fuel consumption data obtained from EMFAC2021, approximately 1,251.6 million gallons of gasoline and approximately 151.4 million gallons of diesel will be consumed from vehicle trips in Orange County in 2022.

Greenhouse Gases and Global Climate Change Background

Global climate change (GCC) is the observed increase in the average temperature of the Earth's atmosphere and oceans in recent decades. The Earth's average near-surface atmospheric temperature rose 0.6 ± 0.2° Celsius (°C) or 1.1 ± 0.4° Fahrenheit (°F) in the 20th century. The prevailing scientific opinion on climate change is that most of the warming observed over the last 50 years is attributable to human activities. The increased amounts of carbon dioxide (CO_2) and other GHGs are the primary causes of the human-induced component of warming. GHGs are released by the burning of fossil fuels, land clearing, agriculture, and other activities and lead to an increase in the greenhouse effect.[4]

GHGs are present in the atmosphere naturally, are released by natural sources, or are formed from secondary reactions taking place in the atmosphere. The following gases are widely seen as the principal contributors to human-induced GCC:

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1 U.S. Department of Energy. 2007. "Energy Independence & Security Act of 2007." Website: https://www.afdc.energy.gov/laws/eisa (accessed April 2022).

2 A British Thermal Unit is defined as the amount of heat required to raise the temperature of one pound of water by one degree Fahrenheit.

3 U.S. Department of Energy, EIA. 2021a. California State Profile and Energy Estimates. Table F3: Motor gasoline consumption, price, and expenditure estimates, 2020. Website: eia.gov/state/seds/data.php?incfile=/state/seds/sep_fuel/html/fuel_mg.html&sid=CA (accessed April 2022).

4 The temperature on Earth is regulated by a system commonly known as the "greenhouse effect." Just as the glass in a greenhouse allows heat from sunlight in and reduces the heat escaping, greenhouse gases (GHGs) like carbon dioxide, methane, and nitrous oxide in the atmosphere keep the Earth at a relatively even temperature. Without the greenhouse effect, the Earth would be a frozen globe; thus, although an excess of GHGs results in global warming, the naturally occurring greenhouse effect is necessary to keep our planet at a comfortable temperature.

- CO_2
- Methane (CH_4)
- Nitrous oxide (N_2O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulfur hexafluoride (SF_6)

Over the last 200 years, humans have caused substantial quantities of GHGs to be released into the atmosphere. These extra emissions are increasing GHG concentrations in the atmosphere and enhancing the natural greenhouse effect, which is believed to be causing global warming. While man-made GHGs include naturally occurring GHGs such as CO_2, CH_4, and N_2O, some gases, like HFCs, PFCs, and SF_6, are completely new to the atmosphere.

Certain gases, such as water vapor, are short-lived in the atmosphere. Others remain in the atmosphere for significant periods of time, contributing to climate change in the long term. Water vapor is excluded from the list of GHGs above because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation. For the purposes of this GHG emissions analysis, the term "GHGs" will refer collectively to the six gases listed above only.

These gases vary considerably in terms of Global Warming Potential (GWP), which is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The GWP is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and the length of time the gas remains in the atmosphere ("atmospheric lifetime"). The GWP of each gas is measured relative to CO_2, the most abundant GHG. The definition of GWP for a particular GHG is the ratio of heat trapped by 1 unit mass of the GHG to the ratio of heat trapped by 1 unit mass of CO_2 over a specified time period. GHG emissions are typically measured in terms of pounds or tons of CO_2 equivalent (CO_2e). Table C shows the GWP for each type of GHG. For example, SF_6 is 22,800 times more potent at contributing to global warming than CO_2.

Table C: Global Warming Potential of Greenhouse Gases

Gas	Atmospheric Lifetime (Years)	Global Warming Potential (100-Year Time Horizon)
Carbon Dioxide (CO_2)	50–200	1
Methane (CH_4)	12	25
Nitrous Oxide (N_2O)	114	298
HFC-23	270	14,800
HFC-134a	14	1,430
HFC-152a	1.4	124
PFC: Tetrafluoromethane (CF_4)	50,000	7,390
PFC: Hexafluoromethane (C_2F_6)	10,000	12,200
Sulfur Hexafluoride (SF_6)	3,200	22,800

Source: *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the IPCC* (IPCC 2007).
HFC = hydrofluorocarbon
IPCC = Intergovernmental Panel on Climate Change
PFC = perfluorocarbon

REGULATORY SETTING

This section provides regulatory background information for air quality, energy, and GHG.

Air Quality

Applicable federal, State, regional, and local air quality regulations are discussed below.

Federal Regulations

The 1970 Federal Clean Air Act (CAA) authorized the establishment of national health-based air quality standards and set deadlines for their attainment. The CAA Amendments of 1990 changed deadlines for attaining national standards as well as the remedial actions required for areas of the nation that exceed the standards. Under the CAA, State and local agencies in areas that exceed the national standards are required to develop State Implementation Plans to demonstrate how they will achieve the national standards by specified dates.

State Regulations

In 1988, the California Clean Air Act (CCAA) required that all air districts in the State endeavor to achieve and maintain California Ambient Air Quality Standards (CAAQS) for CO, O_3, SO_2, and NO_2 by the earliest practical date. The CCAA provides districts with authority to regulate indirect sources and mandates that air quality districts focus particular attention on reducing emissions from transportation and area-wide emission sources. Each nonattainment district is required to adopt a plan to achieve a 5 percent annual reduction, averaged over consecutive 3-year periods, in district-wide emissions of each nonattainment pollutant or its precursors. A Clean Air Plan shows how a district would reduce emissions to achieve air quality standards. Generally, the State standards for these pollutants are more stringent than the national standards.

CARB is the State's "clean air agency." CARB's goals are to attain and maintain healthy air quality, protect the public from exposure to toxic air contaminants, and oversee compliance with air pollution rules and regulations.

Regional Regulations

The proposed project would be required to comply with regional rules that assist in reducing short-term air pollutant emissions. SCAQMD Rule 403 requires that fugitive dust be controlled with best available control measures so the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. In addition, SCAQMD Rule 403 requires implementation of dust suppression techniques to prevent fugitive dust from creating a nuisance off site. SCAQMD Rule 1113 limits the VOC content of architectural coatings. Applicable dust suppression techniques from SCAQMD Rule 403 and low VOC content in paints under SCAQMD Rule 1113 are summarized below. Implementation of these dust suppression techniques can reduce the fugitive dust generation (and thus the PM_{10} component). Compliance with these rules would reduce impacts on nearby sensitive receptors.

South Coast Air Quality Management District Rule 403 Measures.

- Water active sites at least two times daily (locations where grading is to occur will be thoroughly watered prior to earthmoving).
- All trucks hauling dirt, sand, soil, or other loose materials are to be covered or should maintain at least 2 ft of freeboard in accordance with the requirements of California Vehicle Code (CVC) Section 23114 (freeboard means vertical space between the top of the load and top of the trailer).
- Traffic speeds on all unpaved roads shall be reduced to 15 mph or less.

South Coast Air Quality Management District Rule 1113 Measures. SCAQMD Rule 1113 governs the sale, use, and manufacturing of architectural coating and limits the VOC content in paints and paint solvents. This rule regulates the VOC content of paints available during construction and operation of the proposed project. Therefore, all paints and solvents used during construction and operation of the proposed project must comply with SCAQMD Rule 1113.

City of Irvine ACHIEVES Resolution. On August 11, 2021, the City of Irvine adopted a resolution to address climate change in Irvine's environment, values, and energy sources. Known as the Irvine ACHIEVES resolution, it is a key component in the City's Climate Action and Adaptation Plan, and lays out strategies for climate planning efforts, including a carbon neutral goal by 2030. Operation of the proposed project would not conflict with this resolution.

Energy

Applicable federal, State, regional, and local energy regulations are discussed below.

Federal Regulations

Energy Policy Act of 2005. The Energy Policy Act of 2005 seeks to reduce reliance on nonrenewable energy resources and provide incentives to reduce current demand on these resources. For example, under this Act, consumers and businesses can obtain federal tax credits for purchasing fuel-efficient appliances and products (including hybrid vehicles), building energy-efficient buildings, and improving the energy efficiency of commercial buildings. Additionally, tax credits are available for the installation of qualified fuel cells, stationary microturbine power plants, and solar power equipment.

Safer Affordable Fuel-Efficient Vehicles Rule. On March 21, 2020, the EPA and NHTSA finalized the SAFE Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks. The SAFE Vehicles Rule amends certain existing Corporate Average Fuel Economy and tailpipe CO_2 emissions standards for passenger cars and light trucks and establishes new standards, all covering model years 2021 through 2026. More specifically, NHTSA set new Corporate Average Fuel Economy standards for model years 2022 through 2026 and amended its 2021 model year Corporate Average Fuel Economy standards, and the EPA amended its CO_2 emission standards for model years 2021 and later.

State Regulations

Senate Bill 1389, Energy: Planning and Forecasting. In 2002, the State Legislature passed and Governor Gray Davis signed Senate Bill (SB) 1389, which required the CEC to develop an integrated energy plan every 2 years for electricity, natural gas, and transportation fuels for the California

Energy Policy Report. 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 fewest environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators in implementing incentive programs for zero emission vehicles and their infrastructure needs and encouragement of urban designs that reduce VMT and accommodate pedestrian and bicycle access.

In compliance with the requirements of SB 1389, the CEC adopts an Integrated Energy Policy Report every 2 years and an update every other year. The most recently adopted report includes the *2021 Integrated Energy Policy Report*[1] and the *2022 Integrated Energy Policy Report Update.*[2] The *Integrated Energy Policy Report* covers a broad range of topics, including decarbonizing buildings, integrating renewables, energy efficiency, energy equity, integrating renewable energy, updates on Southern California electricity reliability, climate adaptation activities for the energy sector, natural gas assessment, transportation energy demand forecast, and the California Energy Demand Forecast. The *Integrated Energy Policy Report* provides the results of the CEC's assessments of a variety of energy issues facing California. Many of these issues will require action if the State is to meet its climate, energy, air quality, and other environmental goals while maintaining energy reliability and controlling costs.

Renewable Portfolio Standard. SB 1078 established the California Renewable Portfolio Standards program in 2002. SB 1078 initially required that 20 percent of electricity retail sales be served by renewable resources by 2017; however, this standard has become more stringent over time. In 2006, SB 107 accelerated the standard by requiring that the 20 percent mandate be met by 2010. In April 2011, SB 2 required that 33 percent of electricity retail sales be served by renewable resources by 2020. In 2015, SB 350 established tiered increases to the Renewable Portfolio Standards of 40 percent by 2024, 45 percent by 2027, and 50 percent by 2030. In 2018, SB 100 increased the requirement to 60 percent by 2030 and required that all of the State's electricity come from carbon-free resources by 2045. SB 100 took effect on January 1, 2019.[3]

Regional Regulations

There are no regional energy regulations that apply to the proposed project.

Greenhouse Gas Emissions

This section describes regulations related to global climate change at the federal, State, and local level.

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1 CEC. 2021. *2021 Integrated Energy Policy Report*. California Energy Commission. Docket Number: 21-IEPR-01.

2 CEC. 2022. *2020 Integrated Energy Policy Report Update*. California Energy Commission. Docket Number: 22-IEPR-01.

3 California Public Utilities Commission (CPUC). 2019. Renewables Portfolio Standard Program. Website: cpuc.ca.gov/rps (accessed May 2022).

Federal Regulations

The United States has historically had a voluntary approach to reducing GHG emissions. However, on April 2, 2007, the United States Supreme Court ruled that the EPA has the authority to regulate CO_2 emissions under the CAA.

While there currently are no adopted federal regulations for the control or reduction of GHG emissions, the EPA commenced several actions in 2009 to implement a regulatory approach to global climate change, including the 2009 EPA final rule for mandatory reporting of GHGs from large GHG emission sources in the United States. Additionally, the EPA Administrator signed an endangerment finding action in 2009 under the CAA, finding that seven GHGs (CO_2, CH_4, N_2O, HFCs, NF_3, PFCs, and SF_6) constitute a threat to the public health and welfare, and that the combined emissions from motor vehicles cause and contribute to global climate change, leading to national GHG emission standards.

State Regulations

CARB is the lead agency for implementing climate change regulations in the State. Since its formation, CARB has worked with the public, the business sector, and local governments to find solutions to California's air pollution problems. Key efforts by the State are described below.

Assembly Bill 32 (2006), California Global Warming Solutions Act. California's major initiative for reducing GHG emissions is Assembly Bill (AB) 32, which was passed by the State Legislature on August 31, 2006. This effort aims at reducing GHG emissions to 1990 levels by 2020. CARB established the level of GHG emissions in 1990 at 427 million metric tons (MMT) CO_2e. The emissions target of 427 MMT requires the reduction of 169 MMT from the State's projected business-as-usual 2020 emissions of 596 MMT. AB 32 requires CARB to prepare a Scoping Plan that outlines the main State strategies for meeting the 2020 deadline and to reduce GHGs that contribute to GCC. The Scoping Plan was approved by CARB on December 11, 2008, and contains the main strategies that California will implement to achieve the reduction of approximately 169 MMT CO_2e, or approximately 30 percent, from the State's projected 2020 emissions level of 596 MMT CO_2e under a business-as-usual scenario (this is a reduction of 42 MMT CO_2e, or almost 10 percent from 2002–2004 average emissions). The Scoping Plan also includes CARB-recommended GHG reductions for each emissions sector of the State's GHG inventory.

On August 24, 2011, CARB unanimously approved both the new supplemental assessment and reapproved its Scoping Plan, which provides the overall roadmap and rule measures to carry out AB 32. CARB also approved a more robust CEQA equivalent document supporting the supplemental analysis of the cap-and-trade program. The cap-and-trade took effect on January 1, 2012, with an enforceable compliance obligation that began January 1, 2013.

CARB approved the First Update to the Climate Change Scoping Plan on May 22, 2014. The First Update identifies opportunities to leverage existing and new funds to further drive GHG emission reductions through strategic planning and targeted low carbon investments. The First Update defines CARB climate change priorities until 2020 and sets the groundwork to reach long-term goals set forth in Executive Orders (EOs) S-3-05 and B-16-2012. The Update highlights California's progress toward meeting the "near-term" 2020 GHG emission reduction goals as defined in the initial Scoping Plan. It also evaluates how to align the State's "longer-term" GHG reduction strategies with other State

policy priorities for water, waste, natural resources, clean energy, transportation, and land use. CARB released a second update to the Scoping Plan, the 2017 Scoping Plan,[1] to reflect the 2030 target set by EO B-30-15 and codified by SB 32.

Senate Bill 375 (2008). Signed into law on October 1, 2008, SB 375 supplements GHG reductions from new vehicle technology and fuel standards with reductions from more efficient land use patterns and improved transportation. Under the law, CARB approved GHG reduction targets in February 2011 for California's 18 federally designated regional planning bodies, known as Metropolitan Planning Organizations (MPOs). CARB may update the targets every 4 years and must update them every 8 years. MPOs, in turn, must demonstrate how their plans, policies, and transportation investments meet the targets set by CARB through Sustainable Community Strategies (SCS). The SCSs are included with the Regional Transportation Plan, a report required by State law. However, if an MPO finds that its SCS will not meet the GHG reduction target, it may prepare an Alternative Planning Strategy (APS). The APS identifies the impediments to achieving the targets.

Executive Order B-30-15 (2015). Governor Jerry Brown signed EO B-30-15 on April 29, 2015, which added the immediate target of:

- GHG emissions should be reduced to 40 percent below 1990 levels by 2030.

All State agencies with jurisdiction over sources of GHG emissions were directed to implement measures to achieve reductions of GHG emissions to meet the 2030 and 2050 targets. CARB was directed to update the AB 32 Scoping Plan to reflect the 2030 target, and, therefore, is moving forward with the update process. The mid-term target is critical to help frame the suite of policy measures, regulations, planning efforts, and investments in clean technologies and infrastructure needed to continue reducing emissions.

Senate Bill 350 (2015) Clean Energy and Pollution Reduction Act. SB 350, signed by Governor Jerry Brown on October 7, 2015, updates and enhances AB 32 by introducing the following set of objectives in clean energy, clean air, and pollution reduction for 2030:

- Raise California's renewable portfolio standard from 33 percent to 50 percent
- Increase energy efficiency in buildings by 50 percent by the year 2030

The 50 percent renewable energy standard will be implemented by the California Public Utilities Commission (CPUC) for the private utilities and by the CEC for municipal utilities. Each utility must submit a procurement plan showing it will purchase clean energy to displace other nonrenewable resources. The 50 percent increase in energy efficiency in buildings must be achieved through the use of existing energy efficiency retrofit funding and regulatory tools already available to State energy agencies under existing law. The addition made by this legislation requires State energy agencies to plan for and implement those programs in a manner that achieves the energy efficiency target.

Senate Bill 32, California Global Warming Solutions Act of 2016, and Assembly Bill 197. In the summer of 2016, the Legislature passed, and the Governor signed, SB 32 and AB 197. SB 32 affirms

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1 California Air Resources Board (CARB). 2017. *California's 2017 Climate Change Scoping Plan*. November.

the importance of addressing climate change by codifying into statute the GHG emissions reductions target of at least 40 percent below 1990 levels by 2030 contained in Governor Brown's April 2015 EO B-30-15. SB 32 builds on AB 32 and keeps us on the path toward achieving the State's 2050 objective of reducing emissions to 80 percent below 1990 levels, consistent with an Intergovernmental Panel on Climate Change (IPCC) analysis of the emission trajectory that would stabilize atmospheric GHG concentrations at 450 parts per million (ppm) CO_2e and reduce the likelihood of catastrophic impacts from climate change.

The companion bill to SB 32, AB 197, provides additional direction to CARB related to the adoption of strategies to reduce GHG emissions. Additional direction in AB 197 meant to provide easier public access to air emissions data that are collected by CARB was posted in December 2016.

Senate Bill 100. On September 10, 2018, Governor Brown signed SB 100, which raises California's renewable portfolio standard requirements to 60 percent by 2030, with interim targets, and 100 percent by 2045. The bill also establishes a State policy that eligible renewable energy resources and zero-carbon resources supply 100 percent of all retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all State agencies by December 31, 2045. Under the bill, the State cannot increase carbon emissions elsewhere in the Western grid or allow resource shuffling to achieve the 100 percent carbon-free electricity target.

Executive Order B-55-18.EO B-55-18, signed on September 10, 2018, sets a goal "to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter." EO B-55-18 directs CARB to work with relevant State agencies to ensure future Scoping Plans identify and recommend measures to achieve the carbon neutrality goal. The goal of carbon neutrality by 2045 is in addition to other statewide goals, meaning not only should emissions be reduced to 80 percent below 1990 levels by 2050, but that, by no later than 2045, the remaining emissions be offset by equivalent net removals of CO_2e from the atmosphere, including through sequestration in forests, soils, and other natural landscapes.

Regional Regulations

South Coast Air Quality Management District. In 2008, SCAQMD formed a Working Group to identify GHG emissions thresholds for land use projects that could be used by local lead agencies in the Basin. The Working Group developed several different options that are contained in the SCAQMD 2008 draft guidance document titled *Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans* that could be applied by lead agencies. On September 28, 2010, SCAQMD Working Group Meeting #15 provided further guidance, including a tiered approach for evaluating GHG emissions for development projects where SCAQMD is not the lead agency. SCAQMD has not presented a finalized version of these thresholds to the governing board.

SCAQMD identifies the emissions level for which a project would not be expected to substantially conflict with any State legislation adopted to reduce statewide GHG emissions. As such, the utilization of a service population represents the rates of emissions needed to achieve a fair share of the State's mandated emissions reductions. Overall, SCAQMD identifies a GHG efficiency level that, when applied statewide or to a defined geographic area, would meet the 2020 and post-2020 emission targets as required by AB 32 and SB 32. If projects are able to achieve targeted rates of emissions per the service population, the State would be able to accommodate expected population

growth and achieve economic development objectives while also abiding by AB 32's emissions target and future post-2020 targets.

Southern California Association of Governments. The Southern California Association of Governments (SCAG) is a regional council consisting of the following six counties: Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. In total, the SCAG region encompasses 191 cities and over 38,000 square miles within Southern California. SCAG is the MPO serving the region under federal law and serves as the Joint Powers Authority, the Regional Transportation Planning Agency, and the Council of Governments under State law. As the Regional Transportation Planning Agency, SCAG prepares long-range transportation plans for the Southern California region, including the Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) and the 2008 Regional Comprehensive Plan (RCP).

On September 3, 2020, SCAG adopted Connect SoCal–The 2020–2045 Regional Transportation Plan/Sustainable Communities Strategy (2020–2045 RTP/SCS). In general, the SCS outlines a development pattern for the region, which, when integrated with the transportation network and other transportation measures and policies, would reduce VMT from automobiles and light-duty trucks and thereby reduce GHG emissions from these sources. For the SCAG region, CARB has set GHG reduction targets at 8 percent below 2005 per capita emissions levels by 2020, and 19 percent below 2005 per capita emissions levels by 2035. The RTP/SCS lays out a strategy for the region to meet these targets. Overall, the SCS is meant to provide growth strategies that will achieve the regional GHG emissions reduction targets. Land use strategies to achieve the region's targets include planning for new growth around high-quality transit areas and livable corridors and creating neighborhood mobility areas to integrate land use and transportation and plan for more active lifestyles. However, the SCS does not require that local General Plans, Specific Plans, or zoning be consistent with the SCS; instead, it provides incentives to governments and developers for consistency.

METHODOLOGY

Construction Emissions

Construction activities can generate a substantial amount of air pollution. Construction activities are considered temporary; however, short-term impacts can contribute to exceedances of air quality standards. Construction activities include site preparation, earthmoving, and general construction. The emissions generated from these common construction activities include fugitive dust from soil disturbance, fuel combustion from mobile heavy-duty diesel- and gasoline-powered equipment, portable auxiliary equipment, and worker commute trips. The California Emissions Estimator Model (CalEEMod) Version 2020.4.0 computer program was used to calculate emissions from on-site construction equipment and emissions from worker and vehicle trips to the site.

Construction of the proposed project is expected to begin in July 2024 and occur for approximately 3 to 5 months. It is assumed that construction of the proposed project would require the use of one backhoe, four light duty pickup trucks, one forklift, and paving equipment. In addition, this analysis assumes the use of Tier 2 construction equipment.

Operational Emissions

Consistent with the SCAQMD guidance for estimating emissions associated with land use development projects, CalEEMod was used to calculate the long-term operational emissions associated with the proposed project. For the purposes of evaluating the proposed project, the county in CalEEMod was specified as Orange County, and the climate zone of 8 was selected. Based on this climate zone, CalEEMod assumed a wind speed of 2.2 meters per second (4.9 mph) and precipitation frequency of 30 days per year. The operational year was assumed to be 2024. The CalEEMod analysis assumed 7.3 acres of asphalt surfaces.

As discussed in the Project Description, once operational, the proposed project would generate 102 ADT, including 10 worker trips and 92 truck trips. Operation of the proposed project would also require the use of a 950 horsepower (HP) chipper/grinder, a 62 HP conveyor, and a 76 HP cover turner, which were included in CalEEMod. Based on information provided by OCWR, all equipment would be used 6 days per week and would be used 8 hours per day. Electric power would be available; as such, the proposed project would not require a diesel generator. In addition, it is anticipated CASP composting operations would require approximately 84,600 to 116,730 gallons of water per day for operation, which was included in CalEEMod. CalEEMod output sheets are provided as attachments to this memorandum.

Energy

Energy use consumed by the proposed project would be associated with electricity and fuel used for on-site off-road equipment and vehicle trips associated with the project. The project would not consume any natural gas during operation. The analysis is based on data included in the CalEEMod output.

Greenhouse Gas Analysis

GHG emissions associated with the proposed project would occur over the short term from construction activities, consisting primarily of emissions from equipment exhaust. There would also be minimal long-term GHG emissions associated with project-related vehicular trips or other sources. Recognizing that the field of GHG analysis is rapidly evolving, the approaches advocated most recently indicate that lead agencies should calculate, or estimate, emissions from vehicular traffic, energy consumption, water conveyance and treatment, waste generation, construction activities, and any other significant source of emissions within the project area.

THRESHOLDS OF SIGNIFICANCE

The *State CEQA Guidelines* indicate that a project would normally have a significant adverse air quality impact if project-generated pollutant emissions would do any of the following:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project is nonattainment under applicable federal or State ambient air quality standards (AAQS);
- Expose sensitive receptors to substantial pollutant concentrations; or

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

A quantitative odor analysis is being conducted separately; therefore, this criterion is not further addressed below.

In addition, the *State CEQA Guidelines* indicate that a project would normally have a significant adverse energy impact 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.

The *State CEQA Guidelines* indicate that a project would normally have a significant adverse GHG emissions impact if the project would:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or

- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

Regional Emissions Thresholds

SCAQMD has established daily emissions thresholds for construction and operation of a proposed project in the Basin. The emissions thresholds were established based on the attainment status of the Basin with regard to air quality standards for specific criteria pollutants. Because the concentration standards were set at a level that protects public health with an adequate margin of safety, these emissions thresholds are regarded as conservative and would overstate an individual project's contribution to health risks.

Table D lists the CEQA significance thresholds for construction and operational emissions established for the Basin. Projects in the Basin with construction- or operation-related emissions that exceed any of their respective emission thresholds would be considered significant under SCAQMD guidelines. These thresholds, which SCAQMD developed and that apply throughout the Basin, apply as both project and cumulative thresholds. If a project exceeds these standards, it is considered to have a project-specific and cumulative impact.

Table D: Regional Thresholds for Construction and Operational Emissions

Emissions Source	Pollutant Emissions Threshold (lbs/day)					
	VOCs	NO_X	CO	PM_{10}	$PM_{2.5}$	SO_X
Construction	75	100	550	150	55	150
Operations	55	55	550	150	55	150

Source: Air Quality Significance Thresholds (SCAQMD 2019).
CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
SCAQMD = South Coast Air Quality Management District
SO_X = sulfur oxides
VOCs = volatile organic compounds

Local Microscale Concentration Standards

The significance of localized project impacts under CEQA depends on whether ambient CO levels in the vicinity of the project are above or below State and federal CO standards. Because ambient CO levels are below the standards throughout the Basin, a project would be considered to have a significant CO impact if project emissions result in an exceedance of one or more of the 1-hour or 8-hour standards. The following are applicable local emission concentration standards for CO:

- California State 1-hour CO standard of 20 ppm
- California State 8-hour CO standard of 9 ppm

Localized Impacts Analysis

SCAQMD published its *Final Localized Significance Threshold Methodology* in July 2008,[1] recommending that all air quality analyses include an assessment of air quality impacts to nearby sensitive receptors. This guidance was used to analyze potential localized air quality impacts associated with construction of the proposed project. Localized significance thresholds (LSTs) are developed based on the size or total area of the emissions source, the ambient air quality in the source receptor area, and the distance to the project. Sensitive receptors include residences, schools, hospitals, and similar uses that are sensitive to adverse air quality.

LSTs are based on the ambient concentrations of that pollutant within the project Source Receptor Area (SRA) and the distance to the nearest sensitive receptor. For the proposed project, the appropriate SRA for the LST is the Central Orange County Coastal area (SRA 20). SCAQMD provides LST screening tables for 25-, 50-, 100-, 200-, and 500-meter (82-, 164-, 328-, 656-, and 1,640 ft) source-receptor distances. As identified above, the closest sensitive receptor locations to the project site include the single-family residences across SR-241, located approximately 3,500 ft from the project site. An LST analysis was completed to show the construction and operational impacts conservatively at a distance of 500 meters (1,640 ft) to the nearest sensitive receptors southeast of the project site. Based on the anticipated construction equipment, it is assumed that the maximum daily disturbed acreage for the proposed project would be 1.5 acres during construction. Once operational, the proposed project would expand the facility by approximately 7.3 acres to a total of

[1] South Coast Air Quality Management District (SCAQMD). 2008. *Final Localized Significance Threshold Methodology*. July. Website: http://www.aqmd. gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/final-lst-methodology-document.pdf (accessed May 2022).

37.3 acres; therefore, the maximum 5-acre threshold was used. Table E lists the emissions thresholds that apply during project construction and operation.

Table E: Localized Significance Thresholds

Emissions Source	Pollutant Emissions Threshold (lbs/day)			
	NO_X	CO	PM_{10}	$PM_{2.5}$
Construction (1.5-acre, 500-meter distance)	227	7,167	140	80
Operation (5-acre, 500-meter distance)	307	10,458	45	28

Source: *Final Localized Significance Threshold Methodology* (SCAQMD 2008).
CO = carbon monoxide
ft = foot/feet
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
SCAQMD = South Coast Air Quality Management District

Global Climate Change

To provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents, SCAQMD has convened a GHG CEQA Significance Threshold Working Group (Working Group). Based on the last Working Group meeting held in September 2010 (Meeting No. 15), SCAQMD proposed to adopt a tiered approach for evaluating GHG emissions for development projects where SCAQMD is not the lead agency:

- **Tier 1. Exemptions:** If a project is exempt from CEQA, project-level and cumulative GHG emissions are less than significant.

- **Tier 2. Consistency with a Locally Adopted GHG Reduction Plan:** If the project complies with a GHG emissions reduction plan or mitigation program that avoids or substantially reduces GHG emissions in the project's geographic area (i.e., city or county), project-level and cumulative GHG emissions are less than significant.

- **Tier 3. Numerical Screening Threshold:** If GHG emissions are less than the numerical screening-level threshold, project-level and cumulative GHG emissions are less than significant.

  For projects that are not exempt or where no qualifying GHG reduction plans are directly applicable, SCAQMD requires an assessment of GHG emissions. SCAQMD, under Option 1, proposed a "bright-line" screening-level threshold of 3,000 metric tons (MT) CO_2e per year for all land use types or, under Option 2, the following land-use-specific thresholds: 1,400 MT CO_2e for commercial projects, 3,500 MT CO_2e for residential projects, or 3,000 MT CO_2e for mixed-use projects. This bright-line threshold is based on a review of the Governor's Office of Planning and Research (OPR) database of CEQA projects. Based on that review of 711 CEQA projects, 90 percent of CEQA projects would exceed the bright-line thresholds identified above. Therefore, projects that do not exceed the bright-line threshold would have a nominal and therefore less than cumulatively considerable impact on GHG emissions.

- **Tier 4. Performance Standards:** If emissions exceed the numerical screening threshold, a more detailed review of the project's GHG emissions is warranted. SCAQMD has proposed an efficiency target for projects that exceed the bright-line threshold. The current recommended approach is

per-capita efficiency targets. SCAQMD is not recommending the use of a percent emissions reduction target. Instead, SCAQMD proposed a 2020 efficiency target of 4.8 MT CO_2e per year per service population for project-level analyses and 6.6 MT CO_2e per year per service population for plan-level projects (e.g., program-level projects such as General Plans). The GHG efficiency metric divides annualized GHG emissions by the service population, which is the sum of residents and employees, per the following equation:

Rate of Emission= GHG Emissions (MT CO_2e/yr) ÷ Service Population

The efficiency evaluation consists of comparing the project's efficiency metric to efficiency targets. Efficiency targets represent the maximum quantity of emissions each resident and employee in California could emit in various years based on emission levels necessary to achieve the statewide GHG emissions reduction goals. A project that results in a lower rate of emissions would be more efficient than a project with a higher rate of emissions, based on the same service population. The metric considers GHG reduction measures integrated into a project's design and operation (or through mitigation). The per capita efficiency targets are based on the AB 32 GHG reduction target and 2020 GHG emissions inventory prepared for CARB's 2008 Scoping Plan.

Because the project would begin operations in the post-2020 timeframe, the 2020 numerical screening threshold of 3,000 MT CO_2e and the efficiency target of 4.8 MT CO_2e per year per service population would need to be adjusted to reflect the State's post-2020 GHG reduction goals.

CARB has completed a Scoping Plan, which will be utilized by SCAQMD to establish the 2030 GHG efficiency threshold. SCAQMD has yet to publish a quantified GHG efficiency threshold for the 2030 target. A scaled threshold consistent with State goals detailed in SB 32, EO B-30-15, and EO S-3-05 to reduce GHG emissions by 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050, respectively, was developed for 2024, when construction of the proposed project would be completed. Though SCAQMD has not published a quantified threshold beyond 2020, this assessment uses a threshold of 2,520 MT CO_2e per year or 4.0 MT CO_2e per year per service population, which was calculated for the project operational year of 2024 based on the GHG reduction goals of SB 32 and EO B-30-15.

For the purpose of this analysis, the proposed project will be compared to the adjusted screening-level Tier 3 Numerical Screening Threshold of 2,520 MT CO_2e per year. The proposed project will also be evaluated for compliance with SCAG's 2020–2045 RTP/SCS, which establishes an overall GHG target for the project region consistent with the post-2020 GHG reduction goals of SB 32.

IMPACTS AND MITIGATION

This section identifies the air quality, energy, and GHG impacts associated with implementation of the proposed project.

Air Quality Impacts

This section describes potential air quality impacts associated with the proposed project.

Consistency with Applicable Air Quality Plans

A consistency determination plays an essential role in local agency project review by linking local planning and unique individual projects to the air quality plans. A consistency determination fulfills the CEQA goal of fully informing local agency decision-makers of the environmental costs of the project under consideration at a stage early enough to ensure that air quality concerns are addressed. Only new or amended General Plan elements, Specific Plans, and significantly unique projects need to undergo a consistency review due to the air quality plan strategy being based on projections from local General Plans.

The AQMP is based on regional growth projections developed by SCAG. The proposed project would increase the green waste composting operation at the FRB Landfill. The proposed project would not house any persons, occupy more than 40 acres of land, or encompass more than 650,000 square feet of floor area. Thus, the proposed project would not be defined as a regionally significant project under CEQA and, therefore, it does not meet SCAG's Intergovernmental Review criteria.

Pursuant to the methodology provided in SCAQMD's 1993 *CEQA Air Quality Handbook* (currently being revised), consistency with the Basin's 2016 AQMP is affirmed when a project (1) would not increase the frequency or severity of an air quality standards violation or cause a new violation, and (2) is consistent with the growth assumptions in the AQMP. Consistency review is presented as follows:

1. The proposed project would result in short-term construction and long-term operational pollutant emissions that are all less than the CEQA significance emissions thresholds established by SCAQMD, as demonstrated below; therefore, the proposed project would not result in an increase in the frequency or severity of an air quality standards violation or cause a new air quality standards violation.

2. SCAQMD's *CEQA Air Quality Handbook* indicates that consistency with AQMP growth assumptions must be analyzed for new or amended General Plan elements, Specific Plans, and significant projects. Significant projects include airports, electrical generating facilities, petroleum and gas refineries, designation of oil drilling districts, water ports, solid waste disposal sites, and offshore drilling facilities. The proposed project would increase the green waste composting operation at the existing FRB Landfill consistent with State standards for solid waste diversion; therefore, the proposed project is not defined as a significant project as defined by the SCAQMD *CEQA Air Quality Handbook*.

Based on the consistency analysis presented above, the proposed project would be consistent with the regional AQMP.

Criteria Pollutant Analysis

The Basin is currently designated as nonattainment for the federal and State standards for O_3 and $PM_{2.5}$. In addition, the Basin is in nonattainment for the PM_{10} standard. The Basin's nonattainment status is attributed to the region's development history. Past, present, and future development projects contribute to the region's adverse air quality impacts on a cumulative basis. By its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size to, by itself, result in nonattainment of an ambient air quality standard. Instead, a project's individual emissions

contribute to existing cumulatively significant adverse air quality impacts. If a project's contribution to the cumulative impact is considerable, then the project's impact on air quality would be considered significant.

In developing thresholds of significance for air pollutants, SCAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. Therefore, additional analysis to assess cumulative impacts is not necessary. The following analysis assesses the potential project-level air quality impacts associated with construction and operation of the proposed project.

Construction Emissions. During construction, short-term degradation of air quality may occur due to the release of particulate emissions generated by grading, paving, and other activities. Emissions from construction equipment are also anticipated and would include CO, NO_x, VOCs, directly emitted PM ($PM_{2.5}$ and PM_{10}), and TACs such as DPM.

Project construction activities would include the construction of CASP Phase 1C modifications and paving activities. Construction-related effects on air quality from the proposed project would be greatest during the disturbance of soils. If not properly controlled, these activities would temporarily generate particulate emissions. Sources of fugitive dust would include disturbed soils at the construction site. Unless properly controlled, vehicles leaving the site would deposit dirt and mud on local streets, which could be an additional source of airborne dust after it dries. PM_{10} emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM_{10} emissions would depend on the soil moisture, silt content of soil, wind speed, and amount of operating equipment. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.

Water or other soil stabilizers can be used to control dust, resulting in emission reductions of 50 percent or more. SCAQMD has established Rule 403, Fugitive Dust, which would require the applicant to implement measures that would reduce the amount of PM generated during the construction period. The following Rule 403 measures were incorporated in the CalEEMod analysis:

- Water active sites at least two times daily (the locations where grading is to occur shall be thoroughly watered prior to earthmoving).

- Cover all trucks hauling dirt, sand, soil, or other loose materials, or maintain at least 2 ft (0.6 meter) of freeboard (vertical space between the top of the load and the top of the trailer) in accordance with the requirements of California Vehicle Code Section 23114.

- Reduce traffic speeds on all unpaved roads to 15 mph or less.

In addition to dust-related PM_{10} emissions, heavy trucks and construction equipment powered by gasoline and diesel engines would generate CO, SO_2, NO_x, VOCs, and some soot particulate ($PM_{2.5}$ and PM_{10}) in exhaust emissions. If construction activities were to increase traffic congestion in the area, CO and other emissions from traffic would increase slightly while those vehicles idle in traffic. These

emissions would be temporary in nature and limited to the immediate area surrounding the construction site.

Construction emissions were estimated for the project using CalEEMod. Table F lists the illustrative project construction schedule for the proposed project. Table G lists the potential construction equipment to be used during project construction. Construction-related emissions are presented in Table H. The CalEEMod output sheets are provided as attachments to this memorandum.

Table F: Illustrative Project Construction Schedule

Phase Name	Number of Days/Week	Total Number of Days
Construction of CASP Phase 1C Modifications	5	65
Paving	5	5

Source: Compiled by LSA (July 2022).

Table G: Diesel Construction Equipment Utilized by Construction Phase

Construction Phase	Off-Road Equipment Type	Off-Road Equipment Unit Amount	Hours Used per Day	Horsepower	Load Factor
Construction of CASP Phase 1C Modifications	Off-Highway Trucks	4	8	402	0.38
	Forklifts	1	8	89	0.20
	Tractors/Loaders/Backhoes	1	8	97	0.37
Base/Asphalt Paving	Pavers	2	8	130	0.42
	Paving Equipment	2	8	132	0.36
	Rollers	2	8	80	0.38

Source: Compiled by LSA (July 2022).

Table H: Project Construction Emissions

Project Construction	Maximum Pollutant Emissions (lbs/day)					
	VOCs	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Peak Daily Emissions	4.8	45.5	32.1	0.1	2.1	1.3
SCAQMD Thresholds	75.0	100.0	550.0	150	150.0	55.0
Exceeds?	**No**	**No**	**No**	**No**	**No**	**No**

Source: Compiled by LSA (July 2022).
CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
SCAQMD = South Coast Air Quality Management District
SO_X = sulfur oxides
VOCs = volatile organic compounds

As shown in Table H, construction emissions associated with the proposed project would not exceed the SCAQMD thresholds for VOCs, NO_X, CO, sulfur oxides (SO_x), $PM_{2.5,}$ or PM_{10} emissions. Therefore, construction of the proposed project would not result in a cumulatively considerable increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or State AAQS.

Operational Air Quality Impacts. Long-term air pollutant emission impacts are those typically associated with mobile sources (e.g., vehicle and truck trips), energy sources (e.g., electricity and natural gas), area sources (e.g., architectural coatings and the use of landscape maintenance equipment), and off-road sources (e.g., use of off-road equipment).

PM_{10} emissions result from running exhaust, tire and brake wear, and the entrainment of dust into the atmosphere from vehicles traveling on paved roadways. Entrainment of PM_{10} occurs when vehicle tires pulverize small rocks and pavement and the vehicle wakes generate airborne dust. The contribution of tire and brake wear is small compared to the other PM emission processes. Gasoline-powered engines have small rates of PM emissions compared with diesel-powered vehicles.

Existing electrical power will be available at the BCG at the time of CASP implementation; however, electricity use is expected to be minimal. In addition, area source emissions typically consist of direct sources of air emissions located at the project site, including architectural coatings and the use of landscape maintenance equipment. Area source emissions associated with the proposed project would be minimal and would be associated with site maintenance activities.

In addition, the proposed project's composting operation would require the use of off-road equipment, including a cover turner, a chipper/grinder, and a conveyor. This equipment would use fossil-based fuels to operate, resulting in off-road source emissions.

Long-term operational emissions associated with the proposed project were calculated using CalEEMod. The annual emissions associated with operation of the proposed project are identified in Table I for VOCs, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$.

Table I: Project Operational Emissions

Source	Pollutant Emissions (lbs/day)					
	VOCs	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Area Sources	0.1	<0.1	<0.1	0.0	0.0	0.0
Energy Sources	0.0	0.0	0.0	0.0	0.0	0.0
Mobile Sources	0.2	8.8	3.4	<0.1	1.4	0.4
Off-Road Sources	1.4	25.0	9.1	<0.1	0.6	0.5
Emissions	**1.7**	**33.8**	**12.5**	**0.1**	**1.9**	**0.9**
SCAQMD Thresholds	55.0	55.0	550.0	150.0	150.0	55.0
Exceeds?	**No**	**No**	**No**	**No**	**No**	**No**

Source: Compiled by LSA (July 2022).
CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
SCAQMD = South Coast Air Quality Management District
SO_X = sulfur oxides
VOCs = volatile organic compounds

The results shown in Table I indicate the proposed project would not exceed the significance criteria for VOCs, NO_X, CO, SO_X, PM_{10}, or $PM_{2.5}$ emissions during project operation; therefore, the proposed project would not result in a significant effect on regional air quality. Therefore, operation of the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or State AAQS.

Localized Significance Analysis. As identified above, the closest sensitive receptor locations to the project site include the single-family residences across SR-241, located approximately 3,500 ft from the project site. A localized significance thresholds (LST) analysis was completed to show the construction and operational impacts conservatively at a distance of 500 meters (1,640 ft) to the nearest sensitive receptors to the project site in SRA 20, based on a 1.5-acre project size during construction and 5-acre project size during operation. The results of the LST analysis, summarized in Table J and Table K, indicate that the proposed project would not result in an exceedance of SCAQMD LSTs during project construction or operation. Therefore, the proposed project would not result in the exposure of sensitive receptors to substantial pollutant concentrations.

Table J: Project Localized Construction Emissions

Source (in lbs/day)	NO_X	CO	PM_{10}	$PM_{2.5}$
On-Site Project Emissions	45.3	31.5	1.8	1.2
Localized Significance Threshold	227.0	7,167.0	140.0	80.0
Exceeds?	**No**	**No**	**No**	**No**

Source: Compiled by LSA (July 2022).
CO = carbon monoxide
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size

Table K: Project Localized Operational Emissions

Source (in lbs/day)	NO_X	CO	PM_{10}	$PM_{2.5}$
On-Site Project Emissions	25.4	9.3	<1.0	<1.0
Localized Significance Threshold	307.0	10,458.0	45.0	28.0
Exceeds?	**No**	**No**	**No**	**No**

Source: Compiled by LSA (July 2022).
CO = carbon monoxide
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size

Long-Term Microscale (CO Hot Spot) Analysis. Vehicle and truck trips associated with the proposed project would contribute to congestion at intersections and along roadway segments in the vicinity of the project site. Localized air quality impacts would occur when emissions from vehicular traffic increase as a result of the proposed project. The primary mobile-source pollutant of local concern is CO, a direct function of vehicle idling time and, thus, of traffic flow conditions. CO transport is extremely limited. Under normal meteorological conditions, it disperses rapidly with distance from the source. However, under certain extreme meteorological conditions, CO concentrations near a congested roadway or intersection may reach unhealthful levels, affecting local sensitive receptors (e.g., residents, schoolchildren, the elderly, and hospital patients).

Typically, high CO concentrations are associated with roadways or intersections operating at unacceptable levels of service or with extremely high traffic volumes. In areas with high ambient background CO concentrations, modeling is recommended to determine a project's effect on local CO levels.

An assessment of project-related impacts on localized ambient air quality requires that future ambient air quality levels be projected. Existing CO concentrations in the immediate project vicinity

are not available. Ambient CO levels monitored at the Mission Viejo Monitoring Station showed a highest recorded 1-hour concentration of 2.2 ppm (the State standard is 20 ppm) and a highest 8-hour concentration of 0.8 ppm (the State standard is 9 ppm) from 2019 to 2021.

The highest CO concentrations would normally occur during peak traffic hours; hence, CO impacts calculated under peak traffic conditions represent a worst-case analysis. Reduced speeds and vehicular congestion at intersections result in increased CO emissions.

Based on the trip generation prepared for the proposed project, the proposed project would generate 102 ADT, with 24 trips in the AM peak hour and 5 trips in the PM peak hour. As the proposed project would not generate 100 or more AM or PM peak hour trips, the proposed project did not meet the criteria for an evaluation of study area intersection or roadway segment level of service. Therefore, it is assumed that the addition of the proposed project traffic would not create any significant adverse impacts to nearby intersections.

Therefore, given the extremely low level of CO concentrations in the project area and the lack of traffic impacts at any intersections, project-related vehicles are not expected to contribute significantly to CO concentrations exceeding the State or federal CO standards. Because no CO hot spot would occur, as identified in the proposed project, there would be no project-related impacts on CO concentrations.

Health Risk on Nearby Sensitive Receptors

Although the project is not expected to exceed SCAQMD's numeric regional mass daily emission thresholds, this does not in itself constitute a less than significant health impact to the population adjacent to the project site and within the Basin.

SCAQMD's numeric regional thresholds are based in part on Section 180(e) of the CAA. (Please note that the numeric regional mass daily thresholds have not changed since their adoption as part of SCAQMD's *CEQA Air Quality Handbook* published in 1993.) The numeric regional mass daily thresholds are also intended to provide a means of consistency in significance determination within the environmental review process. Notwithstanding, simply exceeding SCAQMD's numeric regional mass daily thresholds does not constitute a particular health impact to an individual nearby. The reason for this is that the mass daily thresholds are in pounds per day emitted into the air, whereas health effects are determined based on the concentration of emissions in the air at a particular location (e.g., ppm by volume of air, or micrograms per cubic meter [$\mu g/m^3$] of air). State and federal ambient air quality standards were developed to protect the most susceptible population groups from adverse health effects and were established in terms of ppm or $\mu g/m^3$ for the applicable emissions.

For this reason, SCAQMD developed a methodology to assist lead agencies in analyzing localized air quality impacts from a proposed project as they relate to CO, NO_x, $PM_{2.5}$, and PM_{10}. This methodology is collectively referred to as the LSTs. The LSTs differ from the numeric regional mass daily thresholds because the LSTs are based on the amount of emissions generated from a project that is not expected to cause or contribute to an exceedance of the most stringent applicable federal or State AAQS, and are based on the ambient concentrations of the pollutant and the relative distance to the

nearest sensitive receptor (SCAQMD performed air dispersion modeling to determine what amount of emissions generated a particular concentration at a particular distance).

This air quality analysis evaluated the project's localized impact to air quality for emissions of CO, NO_x, $PM_{2.5}$, and PM_{10} by comparing the project's on-site emissions to SCAQMD's applicable LSTs (see Tables J and K). As shown in Tables J and K, the project would not result in emissions that exceed SCAQMD's LSTs. Therefore, the project would not be expected to exceed the most stringent applicable federal or State AAQS for emissions of NO_x, $PM_{2.5}$, and PM_{10}.

Energy Impacts

This section describes potential energy impacts associated with the proposed project.

Consumption of Energy Resources

The proposed project would increase the demand for energy through day-to-day operations and fuel consumption associated with project construction.

Construction Energy Usage. Construction of the proposed project would require energy for the manufacture and transportation of construction materials, and site preparation, grading, paving, and architectural coating activities. All or most of this energy would be derived from nonrenewable resources. Petroleum fuels (e.g., diesel and gasoline) would be the primary sources of energy for these activities. However, construction activities are not anticipated to result in an inefficient use of energy, as gasoline and diesel fuel would be supplied by construction contractors who would conserve the use of their supplies to minimize their costs on the project. Energy (i.e., fuel) usage on the project site during construction would be temporary in nature and would be relatively small in, comparison to the State's available energy sources.

Operational Energy Usage. Energy use consumed by the proposed project would be associated with electricity and fuel used for on-site off-road equipment and vehicle trips associated with the project. The project would not consume any natural gas during operation. Electricity use is expected to be minimal; therefore, this analysis focuses on fuel usage during project operation.

The proposed project would result in 1,502 VMT per day or 548,278 VMT per year. As discussed in the Project Description, once operational, the proposed project would generate 102 ADT, including 10 worker trips and 92 truck trips. Therefore, this analysis assumes that approximately 90 percent of the trips would use diesel fuel and approximately 10 percent of the trips would use gasoline. In Orange County in 2024, the average fuel economy for passenger vehicles is expected to be 27.4 mpg and the average fuel economy for heavy-heavy-duty trucks is 6.0 mpg of diesel.[1] Therefore, the proposed project would result in the consumption of approximately 1,962 gallons of gasoline per year and 84,421 gallons of diesel per year.

In addition, the proposed project would use off-road equipment on site, which would consume diesel. The proposed project would require the use of the following off-road equipment: a 950 HP chipper/grinder, a 62 HP conveyor, and a 76 HP cover turner. Based on information provided by

[1] CARB. EMFAC2021 Web Database. Website: https://arb.ca.gov/emfac/emissions-inventory (accessed May 2022).

OCWR, all equipment would be used 6 days per week and would be used 8 hours per day. Such equipment typically uses fossil-based fuels to operate, resulting in off-road source emissions. Fuel consumption of off-road equipment and the emergency backup generator was calculated based on the following equation:

Fuel Consumption = Horsepower * Load Factor * Specific Fuel Consumption

where the specific fuel consumption was assumed as 0.22 kilogram (7.75 ounces) per kW hour for a diesel engine.[1] Table L shows the annual fuel consumption of each type of off-road equipment and the total annual fuel consumption.

Table L: Diesel Fuel Consumption

Equipment	Quantity	Horsepower	Load Factor	Fuel Consumption (gallons/year)
Off-Road Equipment				
Cover Turner	1	76	0.42	7,070
Chipper/Grinder	1	950	0.42	27,850
Conveyor	1	62	0.42	5,427
Total Off-Road Equipment				**40,347**
Waste and Delivery Trucks				**84,421**
Total Diesel Fuel				**124,768**

Sources: Compiled by LSA (July 2022); *Fuel Consumption and Engine Load Factors of Equipment in Quarrying of Crushed Stone* (Mario Klanfar, Tomislav Korman, and Trpimir Kujundžić, February 2016).

In total, the waste and delivery truck trips and off-road equipment would consume approximately 124,768 gallons of diesel per year and passenger vehicle trips would consume approximately 1,962 gallons of gasoline per year. As discussed above, based on fuel consumption obtained from EMFAC2021, approximately 1,251.6 million gallons of gasoline and approximately 151.4 million gallons of diesel will be consumed from vehicle trips in Orange County in 2022. Therefore, diesel and gasoline demand generated by worker, waste trucks, and delivery truck trips and off-road equipment associated with the proposed project would be a minimal fraction of fuel consumption in Orange County. Therefore, implementation of the proposed project would not result in a substantial increase in transportation-related energy uses and would not result in the wasteful, inefficient, or unnecessary consumption of fuel.

Conflict with or Obstruction of a State or Local Plan for Renewable Energy or Energy Efficiency

The CEC's *2021 Integrated Energy Policy Report* and *2022 Integrated Energy Policy Report Update* provide the results of the CEC's assessments of a variety of energy issues facing California. As indicated above, energy usage on the project site during construction would be temporary in nature. In addition, once operational, energy and fuel usage associated with operation of the proposed project would be relatively small in comparison to the overall use in Orange County and the State's available energy resources. Therefore, energy impacts at the regional level would be negligible. Because California's energy conservation planning actions are conducted at a regional level, and

[1] Mario Klanfar, Tomislav Korman, and Trpimir Kujundžić. 2016. *Fuel Consumption and Engine Load Factors of Equipment in Quarrying of Crushed Stone*. February.

because the project's total impact on regional energy supplies would be minor, the proposed project would not conflict with or obstruct California's energy conservation plans as described in the CEC's *2021 Integrated Energy Policy Report* and *2022 Integrated Energy Policy Report Update*.

Greenhouse Gas Emissions Impacts

This section describes potential GHG impacts associated with the proposed project.

Generation of Greenhouse Gas Emissions

The proposed project would generate GHG emissions during both construction and operational phases of the proposed project, as discussed below.

Construction Greenhouse Gas Emissions. During construction of the proposed project, GHGs would be emitted through the operation of construction equipment and from worker and vendor vehicles, each of which typically uses fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs such as CO_2, CH_4, and N_2O. Furthermore, CH_4 is emitted during the fueling of heavy equipment. Exhaust emissions from on-site construction activities would vary daily as construction activity levels change.

As indicated above, SCAQMD does not have an adopted threshold of significance for construction-related GHG emissions. However, lead agencies are required to quantify and disclose GHG emissions that would occur during construction. SCAQMD then requires the construction GHG emissions to be amortized over the life of the project, defined as 30 years, added to the operational emissions, and compared to the applicable interim GHG significance threshold tier.

Construction activities produce combustion GHG emissions from various sources (e.g., utility engines and motor vehicles transporting the construction crew). Table M presents the CO_2e emissions for each phase of project construction based on the results from CalEEMod.

Table M: Project Construction Greenhouse Gas Emissions

Construction Phase	Total Emissions (MT/yr)			
	CO_2	CH_4	N_2O	CO_2e
Construction of CASP Phase 1C Modifications	172.2	<0.1	<0.1	173.7
Paving	5.4	<0.1	<0.1	5.5
Total Construction Emissions	**177.7**	**0.1**	**<0.1**	**179.2**
Amortized over 30 years				**6.0**

Source: Compiled by LSA (July 2022).
CH_4 = methane
CO_2 = carbon dioxide
CO_2e = carbon dioxide equivalent
MT/yr = metric tons per year
N_2O = nitrous oxide

Operational Greenhouse Gas Emissions. Long-term GHG emissions are typically generated from mobile and area sources as well as indirect emissions from sources associated with energy consumption. Mobile-source GHG emissions include project-generated vehicle trips to and from a project. Area-source emissions would be associated with activities such as landscaping and maintenance on the project site. Energy source emissions are typically generated at off-site utility providers as a result of increased electricity demand generated by a project. Waste source emissions

are typically generated from land use development projects that generate waste by land filling and other methods of disposal related to transporting and managing project-generated waste. The proposed project would allow for composting of green waste, which would reduce waste emissions when compared to landfilling of waste. Water source emissions associated with the proposed project are generated by water supply and conveyance, water treatment, water distribution, and wastewater treatment.

GHG emissions were estimated using CalEEMod. Table N shows the calculated GHG emissions for the proposed project. Additional calculation details are attached.

As discussed above, according to SCAQMD, a project would have less than significant GHG emissions if it would result in operational-related GHG emissions of less than 2,520 MT CO_2e per year. Based on the analysis results, the proposed project would result in 1,296.5 CO_2e per year, which would be below the numeric threshold of 2,520 MT CO_2e per year. Therefore, operation of the proposed project would not generate significant GHG emissions that would have a significant effect on the environment.

Table N: Operational Greenhouse Gas Emissions

Source	Pollutant Emissions (MT/yr)			
	Total CO_2	**CH_4**	**N_2O**	**CO_2e**
Area Sources	<0.1	0.0	0.0	<0.1
Energy Sources	0.0	0.0	0.0	0.0
Mobile Sources	727.3	0.1	0.1	763.3
Off-Road Sources	439.2	0.1	0.0	442.7
Waste Sources	0.0	0.0	0.0	0.0
Water Sources	83.9	<0.1	<0.1	84.4
Operational Emissions				**1,290.5**
Amortized Construction Emissions				6.0
Total Emissions				**1,296.5**
SCAQMD Tier 3 GHG Numerical Screening Threshold				**2,520.0**
Exceedance?				**No**

Source: Compiled by LSA (July 2022).
Note: Numbers in the table may not appear to add up correctly due to rounding of all numbers to two significant digits.
CH_4 = methane
CO_2 = carbon dioxide
CO_2e = carbon dioxide equivalent
GHG = greenhouse gas
MT/yr = metric tons per year
N_2O = nitrous oxide

Consistency with Greenhouse Gas Reduction Plans

CARB Scoping Plan. California's major initiative for reducing GHG emissions is AB 32, passed by the State Legislature on August 31, 2006. AB 32 is aimed at reducing GHG emissions to 1990 levels by 2020. AB 32 requires CARB both to prepare a Scoping Plan that outlines the main State strategies for meeting the 2020 deadline and to reduce GHGs that contribute to GCC. The AB 32 Scoping Plan has a range of GHG reduction actions, which include direct regulations, alternative compliance mechanisms, monetary and nonmonetary incentives, voluntary actions, market-based mechanisms (e.g., a cap-and-trade system), and an AB 32 implementation fee to fund the program.

EO B-30-15 added the immediate target of reducing GHG emissions to 40 percent below 1990 levels by 2030. CARB released a second update to the Scoping Plan, the 2017 Scoping Plan, to reflect the 2030 target set by EO B-30-15 and codified by SB 32. SB 32 affirms the importance of addressing climate change by codifying into statute the GHG emissions reduction target of at least 40 percent below 1990 levels by 2030 contained in EO B-30-15. SB 32 builds on AB 32 and keeps us on the path toward achieving the State's 2050 objective of reducing emissions to 80 percent below 1990 levels. The companion bill to SB 32 (i.e., AB 197) provides additional direction to CARB related to the adoption of strategies to reduce GHG emissions. Additional direction in AB 197 that is intended to provide easier public access to air emissions data collected by CARB was posted in December 2016.

As identified above, the AB 32 Scoping Plan contains GHG reduction measures that work toward reducing GHG emissions, consistent with the targets set by AB 32 and EO B-30-15 and codified by SB 32 and AB 197. The measures applicable to the proposed project include energy efficiency measures, water conservation and efficiency measures, and transportation and motor vehicle measures, as discussed below.

Energy efficient measures are intended to maximize energy efficiency building and appliance standards, pursue additional efficiency efforts (including new technologies and new policy and implementation mechanisms), and pursue comparable investment in energy efficiency from all retail providers of electricity in California. In addition, these measures are designed to expand the use of green building practices to reduce the carbon footprint of California's new and existing inventory of buildings. There is electrical power available at the BCG; however, electricity use is expected to be minimal. Therefore, the proposed project would not conflict with any of the energy efficient measures.

Water conservation and efficiency measures are intended to continue efficiency programs and use cleaner energy sources to move and treat water. Increasing the efficiency of water transport and reducing water use would reduce GHG emissions. It is anticipated that the CASP composting operations would require approximately 84,600 to 116,730 gallons of water per day for operation as compared to the current open windrow operation that is estimated to use up to 262,476 gallons per day. Phases 1, 2, and 1C are sequential, with Phase 1C occurring after Phases 1 and 2. Therefore the anticipated water usage is not cumulative, and the total facility water usage for Phase 1C would be 84,600 to 116,730 GPD, resulting in an overall decrease in daily water use for the operation as compared to open windrow. Therefore, the proposed project result in lower water usage and would not conflict with any of the water conservation and efficiency measures.

The goal of transportation and motor vehicle measures is to develop regional GHG emission reduction targets for passenger vehicles. Specific regional emission targets for transportation emissions would not directly apply to the proposed project. The second phase of Pavley standards will reduce GHG emissions from new cars by 34 percent from 2016 levels by 2025, resulting in a 3 percent decrease in average vehicle emissions for all vehicles by 2020. Vehicles traveling to the project site would comply with the Pavley II (LEV III) Advanced Clean Cars Program. Therefore, the proposed project would not conflict with the identified transportation and motor vehicle measures.

Accordingly, as demonstrated above, the proposed project would comply with existing State regulations adopted to achieve the overall GHG emission reduction goals identified in AB 32, the AB 32 Scoping Plan, EO B-30-15, SB 32, and AB 197.

SCAG's Regional Transportation Plan/Sustainable Communities Strategy. SCAG's 2020–2045 RTP/SCS was adopted on September 3, 2020. SCAG's RTP/SCS indicates that land use strategies that focus on new housing and job growth in areas served by high-quality transit and other opportunity areas would be consistent with a land use development pattern that supports and complements the proposed transportation network. The core vision in the 2020–2045 RTP/SCS is to better manage the existing transportation system through design management strategies, integrate land use decisions and technological advancements, create complete streets that are safe to all roadway users, preserve the transportation system, and expand transit and foster development in transit-oriented communities. The 2020–2045 RTP/SCS contains transportation projects to help more efficiently distribute population, housing, and employment growth, as well as a forecasted development pattern that is generally consistent with regional-level General Plan data. The forecasted development pattern, when integrated with the financially constrained transportation investments identified in the 2020–2045 RTP/SCS, would reach the regional target of reducing GHG emissions from autos and light-duty trucks by 8 percent per capita by 2020 and 19 percent by 2035 (compared to 2005 levels). The 2020–2045 RTP/SCS does not require that local General Plans, Specific Plans, or zoning be consistent with the 2020–2045 RTP/SCS but provides incentives for consistency for governments and developers.

Implementing SCAG's RTP/SCS will greatly reduce the regional GHG emissions from transportation, helping to achieve statewide emission reduction targets. The proposed project would not conflict with the stated goals of the RTP/SCS; therefore, the proposed project would not interfere with SCAG's ability to achieve the region's GHG reduction targets at 8 percent below 2005 per capita emissions levels by 2020 and 19 percent below 2005 per capita emissions levels by 2035, and it can be assumed that regional mobile emissions will decrease in line with the goals of the RTP/SCS. Furthermore, the proposed project is not regionally significant per *State CEQA Guidelines* Section 15206, and, as such, it would not conflict with the SCAG RTP/SCS targets, since those targets were established and are applicable on a regional level.

The proposed project would increase the green waste composting operation at the FRB Landfill consistent with State standards for solid waste diversion. Based on the nature of the proposed project, it is anticipated that implementation of the proposed project would not interfere with SCAG's ability to implement the regional strategies outlined in the RTP/SCS. Therefore, the proposed project would not conflict with an adopted plan, policy, or regulation pertaining to GHG emissions.

CONCLUSION

Based on the analysis presented above, construction and operation of the proposed project would not result in the generation of criteria air pollutants that would exceed SCAQMD thresholds of significance. Compliance with SCAQMD Rule 403, Fugitive Dust, would further reduce construction dust impacts. The proposed project is not expected to produce significant emissions that would affect nearby sensitive receptors. In addition, the proposed project would not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation and would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency. GHG emissions released during construction and operation of the project are estimated to be lower than significance thresholds and would not be cumulatively considerable. The project would also be consistent with the 2016 AQMP. The proposed project would generally be consistent with both the CARB Scoping Plan and the SCAG's RTP/SCS.

Attachment: CalEEMod Output Sheets

Bee Canyon Greenery Phase 1C - Orange County, Annual

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

Bee Canyon Greenery Phase 1C

Orange County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	7.30	Acre	7.30	317,988.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Based on information provided by OCWR, project construction would occur for 3 to 5 months with one week of paving.

Trips and VMT - Assuming default worker trips plus assuming 4 vendor trips per day to account for the 4 daily pick up trucks.

Grading -

Vehicle Trips - The proposed project would generate 102 average daily trips (10 worker trips, 4 waste trucks, and 88 large trucks).

Operational Off-Road Equipment - Heavy equipment would include a chipper/grinder (950 HP), conveyor (62 HP) , and cover turner (76 HP).

Off-road Equipment - It is assumed that construction of the proposed project would require the use of one backhoe, four light duty pickup trucks, and one forklift.

Off-road Equipment - Assuming default paving equipment.

Fleet Mix - Revised fleet mix based on trip generation (10 worker trips, 4 waste trucks, and 88 delivery trucks).

Water And Wastewater - It is anticipated CASP composting operations would require approxiamtely 84,600 to 116,730 gallons of water per day for operation.

Bee Canyon Greenery Phase 1C - Orange County, Annual

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

Construction Off-road Equipment Mitigation - Assuming compliance with SCAQMD Rule 403 measures and use of Tier 2 construction equipment.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	20.00	5.00
tblConstructionPhase	NumDays	10.00	65.00
tblConstructionPhase	PhaseEndDate	8/16/2024	10/11/2024
tblConstructionPhase	PhaseEndDate	7/19/2024	10/4/2024
tblConstructionPhase	PhaseStartDate	7/20/2024	10/7/2024
tblFleetMix	HHD	4.9060e-003	0.90
tblFleetMix	LDA	0.55	0.05
tblFleetMix	LDT1	0.06	0.02
tblFleetMix	LDT2	0.19	0.02
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD2	6.6050e-003	0.00
tblFleetMix	MCY	0.02	0.00
tblFleetMix	MDV	0.13	0.00
tblFleetMix	MH	3.8690e-003	0.00

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

tblFleetMix	MHD	0.01	0.00
tblFleetMix	OBUS	6.5700e-004	0.00
tblFleetMix	SBUS	7.1300e-004	0.00
tblFleetMix	UBUS	3.8100e-004	0.00
tblGrading	AcresOfGrading	0.00	97.50
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	313.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	313.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	313.00
tblOperationalOffRoadEquipment	OperHorsePower	88.00	950.00
tblOperationalOffRoadEquipment	OperHorsePower	88.00	62.00
tblOperationalOffRoadEquipment	OperHorsePower	88.00	76.00
tblOperationalOffRoadEquipment	OperLoadFactor	0.34	0.34
tblOperationalOffRoadEquipment	OperLoadFactor	0.34	0.34
tblOperationalOffRoadEquipment	OperLoadFactor	0.34	0.34
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblVehicleTrips	CC_TTP	0.00	28.00
tblVehicleTrips	CNW_TTP	0.00	13.00
tblVehicleTrips	CW_TTP	0.00	59.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	ST_TR	0.00	13.97
tblVehicleTrips	SU_TR	0.00	13.97

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

tblVehicleTrips	WD_TR	0.00	13.97
tblWater	OutdoorWaterUseRate	0.00	42,606,450.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	0.0862	0.5387	0.5892	2.0200e-003	0.0604	0.0206	0.0810	7.9100e-003	0.0190	0.0269	0.0000	177.6690	177.6690	0.0550	5.0000e-004	179.1929
Maximum	**0.0862**	**0.5387**	**0.5892**	**2.0200e-003**	**0.0604**	**0.0206**	**0.0810**	**7.9100e-003**	**0.0190**	**0.0269**	**0.0000**	**177.6690**	**177.6690**	**0.0550**	**5.0000e-004**	**179.1929**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	0.0628	1.5304	1.0882	2.0200e-003	0.0320	0.0385	0.0704	4.8400e-003	0.0385	0.0433	0.0000	177.6688	177.6688	0.0550	5.0000e-004	179.1926
Maximum	**0.0628**	**1.5304**	**1.0882**	**2.0200e-003**	**0.0320**	**0.0385**	**0.0704**	**4.8400e-003**	**0.0385**	**0.0433**	**0.0000**	**177.6688**	**177.6688**	**0.0550**	**5.0000e-004**	**179.1926**

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**27.13**	**-184.11**	**-84.69**	**0.00**	**47.09**	**-86.43**	**13.08**	**38.81**	**-102.63**	**-60.97**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**7-8-2024**	**9-30-2024**	0.5497	1.4295
		Highest	0.5497	1.4295

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	0.0250	0.0000	9.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.8000e-004	1.8000e-004	0.0000	0.0000	1.9000e-004
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	0.0312	1.6084	0.6240	7.0400e-003	0.2320	9.9700e-003	0.2420	0.0635	9.5400e-003	0.0730	0.0000	727.3244	727.3244	0.0734	0.1147	763.3322
Offroad	0.2146	3.9104	1.4215	5.0000e-003		0.0908	0.0908		0.0836	0.0836	0.0000	439.1977	439.1977	0.1421	0.0000	442.7488
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	83.9479	83.9479	7.0900e-003	8.6000e-004	84.3809
Total	**0.2708**	**5.5189**	**2.0456**	**0.0120**	**0.2320**	**0.1008**	**0.3329**	**0.0635**	**0.0931**	**0.1566**	**0.0000**	**1,250.4701**	**1,250.4701**	**0.2225**	**0.1155**	**1,290.4622**

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

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0250	0.0000	9.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.8000e-004	1.8000e-004	0.0000	0.0000	1.9000e-004
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	0.0312	1.6084	0.6240	7.0400e-003	0.2320	9.9700e-003	0.2420	0.0635	9.5400e-003	0.0730	0.0000	727.3244	727.3244	0.0734	0.1147	763.3322
Offroad	0.2146	3.9104	1.4215	5.0000e-003		0.0908	0.0908		0.0836	0.0836	0.0000	439.1977	439.1977	0.1421	0.0000	442.7488
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	83.9479	83.9479	7.0900e-003	8.6000e-004	84.3809
Total	**0.2708**	**5.5189**	**2.0456**	**0.0120**	**0.2320**	**0.1008**	**0.3329**	**0.0635**	**0.0931**	**0.1566**	**0.0000**	**1,250.4701**	**1,250.4701**	**0.2225**	**0.1155**	**1,290.4622**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Construction of CASP Phase Modifications	Site Preparation	7/8/2024	10/4/2024	5	65	

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

2	Paving	Paving	10/7/2024	10/11/2024	5	5	

Acres of Grading (Site Preparation Phase): 97.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 7.3

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
Construction of CASP Phase Modifications	Off-Highway Trucks	4	8.00	402	0.38
Construction of CASP Phase Modifications	Forklifts	1	8.00	89	0.20
Construction of CASP Phase Modifications	Rubber Tired Dozers	0	8.00	247	0.40
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Construction of CASP Phase Modifications	Tractors/Loaders/Backhoes	1	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
Paving	6	15.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Construction of CASP Phase Modifications	6	15.00	4.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

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

3.2 Construction of CASP Phase Modifications - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0517	0.0000	0.0517	5.5800e-003	0.0000	5.5800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0724	0.5084	0.5322	1.8700e-003		0.0194	0.0194		0.0178	0.0178	0.0000	164.2585	164.2585	0.0531	0.0000	165.5866
Total	**0.0724**	**0.5084**	**0.5322**	**1.8700e-003**	**0.0517**	**0.0194**	**0.0711**	**5.5800e-003**	**0.0178**	**0.0234**	**0.0000**	**164.2585**	**164.2585**	**0.0531**	**0.0000**	**165.5866**

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	5.2400e-003	2.0200e-003	3.0000e-005	9.4000e-004	3.0000e-005	9.7000e-004	2.7000e-004	3.0000e-005	3.0000e-004	0.0000	2.6016	2.6016	1.6000e-004	3.7000e-004	2.7173
Worker	1.5800e-003	1.1200e-003	0.0171	6.0000e-005	7.2100e-003	3.0000e-005	7.2400e-003	1.9100e-003	3.0000e-005	1.9500e-003	0.0000	5.3878	5.3878	1.0000e-004	1.2000e-004	5.4246
Total	**1.7100e-003**	**6.3600e-003**	**0.0191**	**9.0000e-005**	**8.1500e-003**	**6.0000e-005**	**8.2100e-003**	**2.1800e-003**	**6.0000e-005**	**2.2500e-003**	**0.0000**	**7.9894**	**7.9894**	**2.6000e-004**	**4.9000e-004**	**8.1419**

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

3.2 Construction of CASP Phase Modifications - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0233	0.0000	0.0233	2.5100e-003	0.0000	2.5100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0491	1.4736	1.0245	1.8700e-003		0.0367	0.0367		0.0367	0.0367	0.0000	164.2583	164.2583	0.0531	0.0000	165.5864
Total	**0.0491**	**1.4736**	**1.0245**	**1.8700e-003**	**0.0233**	**0.0367**	**0.0600**	**2.5100e-003**	**0.0367**	**0.0392**	**0.0000**	**164.2583**	**164.2583**	**0.0531**	**0.0000**	**165.5864**

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	5.2400e-003	2.0200e-003	3.0000e-005	9.4000e-004	3.0000e-005	9.7000e-004	2.7000e-004	3.0000e-005	3.0000e-004	0.0000	2.6016	2.6016	1.6000e-004	3.7000e-004	2.7173
Worker	1.5800e-003	1.1200e-003	0.0171	6.0000e-005	7.2100e-003	3.0000e-005	7.2400e-003	1.9100e-003	3.0000e-005	1.9500e-003	0.0000	5.3878	5.3878	1.0000e-004	1.2000e-004	5.4246
Total	**1.7100e-003**	**6.3600e-003**	**0.0191**	**9.0000e-005**	**8.1500e-003**	**6.0000e-005**	**8.2100e-003**	**2.1800e-003**	**6.0000e-005**	**2.2500e-003**	**0.0000**	**7.9894**	**7.9894**	**2.6000e-004**	**4.9000e-004**	**8.1419**

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

3.3 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.4700e-003	0.0238	0.0366	6.0000e-005		1.1700e-003	1.1700e-003		1.0800e-003	1.0800e-003	0.0000	5.0066	5.0066	1.6200e-003	0.0000	5.0471
Paving	9.5600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0120**	**0.0238**	**0.0366**	**6.0000e-005**		**1.1700e-003**	**1.1700e-003**		**1.0800e-003**	**1.0800e-003**	**0.0000**	**5.0066**	**5.0066**	**1.6200e-003**	**0.0000**	**5.0471**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2000e-004	9.0000e-005	1.3100e-003	0.0000	5.5000e-004	0.0000	5.6000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4144	0.4144	1.0000e-005	1.0000e-005	0.4173
Total	**1.2000e-004**	**9.0000e-005**	**1.3100e-003**	**0.0000**	**5.5000e-004**	**0.0000**	**5.6000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4144**	**0.4144**	**1.0000e-005**	**1.0000e-005**	**0.4173**

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

3.3 Paving - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.3300e-003	0.0503	0.0432	6.0000e-005		1.6700e-003	1.6700e-003		1.6700e-003	1.6700e-003	0.0000	5.0066	5.0066	1.6200e-003	0.0000	5.0471
Paving	9.5600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0119**	**0.0503**	**0.0432**	**6.0000e-005**		**1.6700e-003**	**1.6700e-003**		**1.6700e-003**	**1.6700e-003**	**0.0000**	**5.0066**	**5.0066**	**1.6200e-003**	**0.0000**	**5.0471**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2000e-004	9.0000e-005	1.3100e-003	0.0000	5.5000e-004	0.0000	5.6000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4144	0.4144	1.0000e-005	1.0000e-005	0.4173
Total	**1.2000e-004**	**9.0000e-005**	**1.3100e-003**	**0.0000**	**5.5000e-004**	**0.0000**	**5.6000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4144**	**0.4144**	**1.0000e-005**	**1.0000e-005**	**0.4173**

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

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0312	1.6084	0.6240	7.0400e-003	0.2320	9.9700e-003	0.2420	0.0635	9.5400e-003	0.0730	0.0000	727.3244	727.3244	0.0734	0.1147	763.3322
Unmitigated	0.0312	1.6084	0.6240	7.0400e-003	0.2320	9.9700e-003	0.2420	0.0635	9.5400e-003	0.0730	0.0000	727.3244	727.3244	0.0734	0.1147	763.3322

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	101.98	101.98	101.98	548,278	548,278
Total	101.98	101.98	101.98	548,278	548,278

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 Asphalt Surfaces	18.50	10.10	7.90	59.00	28.00	13.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.049020	0.024510	0.024510	0.000000	0.000000	0.000000	0.000000	0.901961	0.000000	0.000000	0.000000	0.000000	0.000000

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

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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
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
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0250	0.0000	9.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.8000e-004	1.8000e-004	0.0000	0.0000	1.9000e-004
Unmitigated	0.0250	0.0000	9.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.8000e-004	1.8000e-004	0.0000	0.0000	1.9000e-004

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	4.4200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0206					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	9.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.8000e-004	1.8000e-004	0.0000	0.0000	1.9000e-004
Total	**0.0250**	**0.0000**	**9.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.8000e-004**	**1.8000e-004**	**0.0000**	**0.0000**	**1.9000e-004**

Bee Canyon Greenery Phase 1C - Orange County, Annual

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

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.4200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0206					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	9.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.8000e-004	1.8000e-004	0.0000	0.0000	1.9000e-004
Total	**0.0250**	**0.0000**	**9.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.8000e-004**	**1.8000e-004**	**0.0000**	**0.0000**	**1.9000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

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

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	83.9479	7.0900e-003	8.6000e-004	84.3809
Unmitigated	83.9479	7.0900e-003	8.6000e-004	84.3809

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 42.6065	83.9479	7.0900e-003	8.6000e-004	84.3809
Total		**83.9479**	**7.0900e-003**	**8.6000e-004**	**84.3809**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 42.6065	83.9479	7.0900e-003	8.6000e-004	84.3809
Total		**83.9479**	**7.0900e-003**	**8.6000e-004**	**84.3809**

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

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
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
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
Other General Industrial Equipment	1	8.00	313	950	0.34	Diesel

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

Other General Industrial Equipment	1	8.00	313	62	0.34	Diesel
Other General Industrial Equipment	1	8.00	313	76	0.34	Diesel

UnMitigated/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
Equipment Type	tons/yr										MT/yr					
Other General Industrial Equipment	0.2146	3.9104	1.4215	5.0000e-003		0.0908	0.0908		0.0836	0.0836	0.0000	439.1977	439.1977	0.1421	0.0000	442.7488
Total	**0.2146**	**3.9104**	**1.4215**	**5.0000e-003**		**0.0908**	**0.0908**		**0.0836**	**0.0836**	**0.0000**	**439.1977**	**439.1977**	**0.1421**	**0.0000**	**442.7488**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Bee Canyon Greenery Phase 1C - Orange County, Summer

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

Bee Canyon Greenery Phase 1C

Orange County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	7.30	Acre	7.30	317,988.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Based on information provided by OCWR, project construction would occur for 3 to 5 months with one week of paving.

Trips and VMT - Assuming default worker trips plus assuming 4 vendor trips per day to account for the 4 daily pick up trucks.

Grading -

Vehicle Trips - The proposed project would generate 102 average daily trips (10 worker trips, 4 waste trucks, and 88 large trucks).

Operational Off-Road Equipment - Heavy equipment would include a chipper/grinder (950 HP), conveyor (62 HP) , and cover turner (76 HP).

Off-road Equipment - It is assumed that construction of the proposed project would require the use of one backhoe, four light duty pickup trucks, and one forklift.

Off-road Equipment - Assuming default paving equipment.

Fleet Mix - Revised fleet mix based on trip generation (10 worker trips, 4 waste trucks, and 88 delivery trucks).

Water And Wastewater - It is anticipated CASP composting operations would require approxiamtely 84,600 to 116,730 gallons of water per day for operation.

Bee Canyon Greenery Phase 1C - Orange County, Summer

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

Construction Off-road Equipment Mitigation - Assuming compliance with SCAQMD Rule 403 measures and use of Tier 2 construction equipment.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	20.00	5.00
tblConstructionPhase	NumDays	10.00	65.00
tblConstructionPhase	PhaseEndDate	8/16/2024	10/11/2024
tblConstructionPhase	PhaseEndDate	7/19/2024	10/4/2024
tblConstructionPhase	PhaseStartDate	7/20/2024	10/7/2024
tblFleetMix	HHD	4.9060e-003	0.90
tblFleetMix	LDA	0.55	0.05
tblFleetMix	LDT1	0.06	0.02
tblFleetMix	LDT2	0.19	0.02
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD2	6.6050e-003	0.00
tblFleetMix	MCY	0.02	0.00
tblFleetMix	MDV	0.13	0.00
tblFleetMix	MH	3.8690e-003	0.00

Bee Canyon Greenery Phase 1C - Orange County, Summer

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

tblFleetMix	MHD	0.01	0.00
tblFleetMix	OBUS	6.5700e-004	0.00
tblFleetMix	SBUS	7.1300e-004	0.00
tblFleetMix	UBUS	3.8100e-004	0.00
tblGrading	AcresOfGrading	0.00	97.50
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	313.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	313.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	313.00
tblOperationalOffRoadEquipment	OperHorsePower	88.00	950.00
tblOperationalOffRoadEquipment	OperHorsePower	88.00	62.00
tblOperationalOffRoadEquipment	OperHorsePower	88.00	76.00
tblOperationalOffRoadEquipment	OperLoadFactor	0.34	0.34
tblOperationalOffRoadEquipment	OperLoadFactor	0.34	0.34
tblOperationalOffRoadEquipment	OperLoadFactor	0.34	0.34
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblVehicleTrips	CC_TTP	0.00	28.00
tblVehicleTrips	CNW_TTP	0.00	13.00
tblVehicleTrips	CW_TTP	0.00	59.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	ST_TR	0.00	13.97
tblVehicleTrips	SU_TR	0.00	13.97

Bee Canyon Greenery Phase 1C - Orange County, Summer

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

tblVehicleTrips	WD_TR	0.00	13.97
tblWater	OutdoorWaterUseRate	0.00	42,606,450.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	4.8614	15.8278	16.9921	0.0602	1.8458	0.5987	2.4445	0.2401	0.5508	0.7909	0.0000	5,848.7577	5,848.7577	1.8106	0.0163	5,898.8820
Maximum	**4.8614**	**15.8278**	**16.9921**	**0.0602**	**1.8458**	**0.5987**	**2.4445**	**0.2401**	**0.5508**	**0.7909**	**0.0000**	**5,848.7577**	**5,848.7577**	**1.8106**	**0.0163**	**5,898.8820**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	4.8043	45.5270	32.1399	0.0602	0.9709	1.1321	2.1030	0.1456	1.1320	1.2776	0.0000	5,848.7577	5,848.7577	1.8106	0.0163	5,898.8820
Maximum	**4.8043**	**45.5270**	**32.1399**	**0.0602**	**0.9709**	**1.1321**	**2.1030**	**0.1456**	**1.1320**	**1.2776**	**0.0000**	**5,848.7577**	**5,848.7577**	**1.8106**	**0.0163**	**5,898.8820**

Bee Canyon Greenery Phase 1C - Orange County, Summer

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.17**	**-187.64**	**-89.15**	**0.00**	**47.40**	**-89.09**	**13.97**	**39.35**	**-105.50**	**-61.54**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1369	1.0000e-005	7.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.6000e-003	1.6000e-003	0.0000		1.7000e-003
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
Mobile	0.1768	8.4170	3.4293	0.0387	1.2954	0.0548	1.3502	0.3536	0.0524	0.4060		4,411.4340	4,411.4340	0.4453	0.6948	4,629.6271
Offroad	1.3714	24.9867	9.0828	0.0320		0.5805	0.5805		0.5340	0.5340	0.0000	3,093.5024	3,093.5024	1.0005		3,118.5149
Total	**1.6852**	**33.4038**	**12.5128**	**0.0707**	**1.2954**	**0.6352**	**1.9306**	**0.3536**	**0.5864**	**0.9400**	**0.0000**	**7,504.9380**	**7,504.9380**	**1.4458**	**0.6948**	**7,748.1438**

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

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1369	1.0000e-005	7.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.6000e-003	1.6000e-003	0.0000		1.7000e-003
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
Mobile	0.1768	8.4170	3.4293	0.0387	1.2954	0.0548	1.3502	0.3536	0.0524	0.4060		4,411.4340	4,411.4340	0.4453	0.6948	4,629.6271
Offroad	1.3714	24.9867	9.0828	0.0320		0.5805	0.5805		0.5340	0.5340	0.0000	3,093.5024	3,093.5024	1.0005		3,118.5149
Total	**1.6852**	**33.4038**	**12.5128**	**0.0707**	**1.2954**	**0.6352**	**1.9306**	**0.3536**	**0.5864**	**0.9400**	**0.0000**	**7,504.9380**	**7,504.9380**	**1.4458**	**0.6948**	**7,748.1438**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Construction of CASP Phase Modifications	Site Preparation	7/8/2024	10/4/2024	5	65	
2	Paving	Paving	10/7/2024	10/11/2024	5	5	

Acres of Grading (Site Preparation Phase): 97.5

Bee Canyon Greenery Phase 1C - Orange County, Summer

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

Acres of Grading (Grading Phase): 0

Acres of Paving: 7.3

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
Construction of CASP Phase Modifications	Off-Highway Trucks	4	8.00	402	0.38
Construction of CASP Phase Modifications	Forklifts	1	8.00	89	0.20
Construction of CASP Phase Modifications	Rubber Tired Dozers	0	8.00	247	0.40
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Construction of CASP Phase Modifications	Tractors/Loaders/Backhoes	1	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
Paving	6	15.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Construction of CASP Phase Modifications	6	15.00	4.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Bee Canyon Greenery Phase 1C - Orange County, Summer

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

3.2 Construction of CASP Phase Modifications - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	2.2262	15.6432	16.3758	0.0576		0.5968	0.5968		0.5490	0.5490		5,571.1993	5,571.1993	1.8018		5,616.2453
Total	**2.2262**	**15.6432**	**16.3758**	**0.0576**	**1.5908**	**0.5968**	**2.1875**	**0.1718**	**0.5490**	**0.7208**		**5,571.1993**	**5,571.1993**	**1.8018**		**5,616.2453**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.2200e-003	0.1539	0.0613	8.0000e-004	0.0293	8.6000e-004	0.0301	8.4200e-003	8.2000e-004	9.2400e-003		88.1909	88.1909	5.3900e-003	0.0127	92.1087
Worker	0.0480	0.0307	0.5550	1.8400e-003	0.2258	1.0800e-003	0.2269	0.0599	9.9000e-004	0.0609		189.3675	189.3675	3.3300e-003	3.6200e-003	190.5281
Total	**0.0523**	**0.1846**	**0.6163**	**2.6400e-003**	**0.2551**	**1.9400e-003**	**0.2570**	**0.0683**	**1.8100e-003**	**0.0701**		**277.5584**	**277.5584**	**8.7200e-003**	**0.0163**	**282.6367**

Bee Canyon Greenery Phase 1C - Orange County, Summer

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

3.2 Construction of CASP Phase Modifications - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7158	0.0000	0.7158	0.0773	0.0000	0.0773			0.0000			0.0000
Off-Road	1.5110	45.3424	31.5236	0.0576		1.1302	1.1302		1.1302	1.1302	0.0000	5,571.1993	5,571.1993	1.8018		5,616.2453
Total	**1.5110**	**45.3424**	**31.5236**	**0.0576**	**0.7158**	**1.1302**	**1.8460**	**0.0773**	**1.1302**	**1.2075**	**0.0000**	**5,571.1993**	**5,571.1993**	**1.8018**		**5,616.2453**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.2200e-003	0.1539	0.0613	8.0000e-004	0.0293	8.6000e-004	0.0301	8.4200e-003	8.2000e-004	9.2400e-003		88.1909	88.1909	5.3900e-003	0.0127	92.1087
Worker	0.0480	0.0307	0.5550	1.8400e-003	0.2258	1.0800e-003	0.2269	0.0599	9.9000e-004	0.0609		189.3675	189.3675	3.3300e-003	3.6200e-003	190.5281
Total	**0.0523**	**0.1846**	**0.6163**	**2.6400e-003**	**0.2551**	**1.9400e-003**	**0.2570**	**0.0683**	**1.8100e-003**	**0.0701**		**277.5584**	**277.5584**	**8.7200e-003**	**0.0163**	**282.6367**

Bee Canyon Greenery Phase 1C - Orange County, Summer

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

3.3 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	3.8252					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**4.8134**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**		**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0480	0.0307	0.5550	1.8400e-003	0.2258	1.0800e-003	0.2269	0.0599	9.9000e-004	0.0609		189.3675	189.3675	3.3300e-003	3.6200e-003	190.5281
Total	**0.0480**	**0.0307**	**0.5550**	**1.8400e-003**	**0.2258**	**1.0800e-003**	**0.2269**	**0.0599**	**9.9000e-004**	**0.0609**		**189.3675**	**189.3675**	**3.3300e-003**	**3.6200e-003**	**190.5281**

Bee Canyon Greenery Phase 1C - Orange County, Summer

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

3.3 Paving - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9311	20.1146	17.2957	0.0228		0.6670	0.6670		0.6670	0.6670	0.0000	2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	3.8252					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**4.7563**	**20.1146**	**17.2957**	**0.0228**		**0.6670**	**0.6670**		**0.6670**	**0.6670**	**0.0000**	**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0480	0.0307	0.5550	1.8400e-003	0.2258	1.0800e-003	0.2269	0.0599	9.9000e-004	0.0609		189.3675	189.3675	3.3300e-003	3.6200e-003	190.5281
Total	**0.0480**	**0.0307**	**0.5550**	**1.8400e-003**	**0.2258**	**1.0800e-003**	**0.2269**	**0.0599**	**9.9000e-004**	**0.0609**		**189.3675**	**189.3675**	**3.3300e-003**	**3.6200e-003**	**190.5281**

Bee Canyon Greenery Phase 1C - Orange County, Summer

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

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1768	8.4170	3.4293	0.0387	1.2954	0.0548	1.3502	0.3536	0.0524	0.4060		4,411.4340	4,411.4340	0.4453	0.6948	4,629.6271
Unmitigated	0.1768	8.4170	3.4293	0.0387	1.2954	0.0548	1.3502	0.3536	0.0524	0.4060		4,411.4340	4,411.4340	0.4453	0.6948	4,629.6271

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	101.98	101.98	101.98	548,278	548,278
Total	101.98	101.98	101.98	548,278	548,278

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 Asphalt Surfaces	18.50	10.10	7.90	59.00	28.00	13.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.049020	0.024510	0.024510	0.000000	0.000000	0.000000	0.000000	0.901961	0.000000	0.000000	0.000000	0.000000	0.000000

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

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas 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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1369	1.0000e-005	7.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.6000e-003	1.6000e-003	0.0000		1.7000e-003
Unmitigated	0.1369	1.0000e-005	7.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.6000e-003	1.6000e-003	0.0000		1.7000e-003

Bee Canyon Greenery Phase 1C - Orange County, Summer

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

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0242					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1126					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.0000e-005	1.0000e-005	7.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.6000e-003	1.6000e-003	0.0000		1.7000e-003
Total	**0.1369**	**1.0000e-005**	**7.4000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.6000e-003**	**1.6000e-003**	**0.0000**		**1.7000e-003**

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

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0242					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1126					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.0000e-005	1.0000e-005	7.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.6000e-003	1.6000e-003	0.0000		1.7000e-003
Total	**0.1369**	**1.0000e-005**	**7.4000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.6000e-003**	**1.6000e-003**	**0.0000**		**1.7000e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Other General Industrial Equipment	1	8.00	313	950	0.34	Diesel
Other General Industrial Equipment	1	8.00	313	62	0.34	Diesel
Other General Industrial Equipment	1	8.00	313	76	0.34	Diesel

Bee Canyon Greenery Phase 1C - Orange County, Summer

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

UnMitigated/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
Equipment Type	lb/day										lb/day					
Other General Industrial Equipment	1.3714	24.9867	9.0828	0.0320		0.5805	0.5805		0.5340	0.5340	0.0000	3,093.5024	3,093.5024	1.0005		3,118.5149
Total	**1.3714**	**24.9867**	**9.0828**	**0.0320**		**0.5805**	**0.5805**		**0.5340**	**0.5340**	**0.0000**	**3,093.5024**	**3,093.5024**	**1.0005**		**3,118.5149**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Bee Canyon Greenery Phase 1C - Orange County, Winter

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

Bee Canyon Greenery Phase 1C

Orange County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	7.30	Acre	7.30	317,988.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Based on information provided by OCWR, project construction would occur for 3 to 5 months with one week of paving.

Trips and VMT - Assuming default worker trips plus assuming 4 vendor trips per day to account for the 4 daily pick up trucks.

Grading -

Vehicle Trips - The proposed project would generate 102 average daily trips (10 worker trips, 4 waste trucks, and 88 large trucks).

Operational Off-Road Equipment - Heavy equipment would include a chipper/grinder (950 HP), conveyor (62 HP) , and cover turner (76 HP).

Off-road Equipment - It is assumed that construction of the proposed project would require the use of one backhoe, four light duty pickup trucks, and one forklift.

Off-road Equipment - Assuming default paving equipment.

Fleet Mix - Revised fleet mix based on trip generation (10 worker trips, 4 waste trucks, and 88 delivery trucks).

Water And Wastewater - It is anticipated CASP composting operations would require approxiamtely 84,600 to 116,730 gallons of water per day for operation.

Bee Canyon Greenery Phase 1C - Orange County, Winter

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

Construction Off-road Equipment Mitigation - Assuming compliance with SCAQMD Rule 403 measures and use of Tier 2 construction equipment.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	20.00	5.00
tblConstructionPhase	NumDays	10.00	65.00
tblConstructionPhase	PhaseEndDate	8/16/2024	10/11/2024
tblConstructionPhase	PhaseEndDate	7/19/2024	10/4/2024
tblConstructionPhase	PhaseStartDate	7/20/2024	10/7/2024
tblFleetMix	HHD	4.9060e-003	0.90
tblFleetMix	LDA	0.55	0.05
tblFleetMix	LDT1	0.06	0.02
tblFleetMix	LDT2	0.19	0.02
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD2	6.6050e-003	0.00
tblFleetMix	MCY	0.02	0.00
tblFleetMix	MDV	0.13	0.00
tblFleetMix	MH	3.8690e-003	0.00

Bee Canyon Greenery Phase 1C - Orange County, Winter

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

tblFleetMix	MHD	0.01	0.00
tblFleetMix	OBUS	6.5700e-004	0.00
tblFleetMix	SBUS	7.1300e-004	0.00
tblFleetMix	UBUS	3.8100e-004	0.00
tblGrading	AcresOfGrading	0.00	97.50
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	313.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	313.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	313.00
tblOperationalOffRoadEquipment	OperHorsePower	88.00	950.00
tblOperationalOffRoadEquipment	OperHorsePower	88.00	62.00
tblOperationalOffRoadEquipment	OperHorsePower	88.00	76.00
tblOperationalOffRoadEquipment	OperLoadFactor	0.34	0.34
tblOperationalOffRoadEquipment	OperLoadFactor	0.34	0.34
tblOperationalOffRoadEquipment	OperLoadFactor	0.34	0.34
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblVehicleTrips	CC_TTP	0.00	28.00
tblVehicleTrips	CNW_TTP	0.00	13.00
tblVehicleTrips	CW_TTP	0.00	59.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	ST_TR	0.00	13.97
tblVehicleTrips	SU_TR	0.00	13.97

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

tblVehicleTrips	WD_TR	0.00	13.97
tblWater	OutdoorWaterUseRate	0.00	42,606,450.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	4.8668	15.8376	16.9511	0.0601	1.8458	0.5987	2.4445	0.2401	0.5508	0.7909	0.0000	5,839.7968	5,839.7968	1.8106	0.0166	5,889.9981
Maximum	**4.8668**	**15.8376**	**16.9511**	**0.0601**	**1.8458**	**0.5987**	**2.4445**	**0.2401**	**0.5508**	**0.7909**	**0.0000**	**5,839.7968**	**5,839.7968**	**1.8106**	**0.0166**	**5,889.9981**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	4.8096	45.5368	32.0989	0.0601	0.9709	1.1321	2.1030	0.1456	1.1320	1.2776	0.0000	5,839.7968	5,839.7968	1.8106	0.0166	5,889.9981
Maximum	**4.8096**	**45.5368**	**32.0989**	**0.0601**	**0.9709**	**1.1321**	**2.1030**	**0.1456**	**1.1320**	**1.2776**	**0.0000**	**5,839.7968**	**5,839.7968**	**1.8106**	**0.0166**	**5,889.9981**

Bee Canyon Greenery Phase 1C - Orange County, Winter

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.17**	**-187.52**	**-89.36**	**0.00**	**47.40**	**-89.10**	**13.97**	**39.35**	**-105.50**	**-61.54**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1369	1.0000e-005	7.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.6000e-003	1.6000e-003	0.0000		1.7000e-003
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
Mobile	0.1652	8.7884	3.4513	0.0387	1.2954	0.0550	1.3504	0.3536	0.0526	0.4062		4,412.2891	4,412.2891	0.4446	0.6958	4,630.7606
Offroad	1.3714	24.9867	9.0828	0.0320		0.5805	0.5805		0.5340	0.5340	0.0000	3,093.5024	3,093.5024	1.0005		3,118.5149
Total	**1.6735**	**33.7751**	**12.5348**	**0.0707**	**1.2954**	**0.6354**	**1.9308**	**0.3536**	**0.5866**	**0.9402**	**0.0000**	**7,505.7930**	**7,505.7930**	**1.4451**	**0.6958**	**7,749.2772**

Bee Canyon Greenery Phase 1C - Orange County, Winter

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

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1369	1.0000e-005	7.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.6000e-003	1.6000e-003	0.0000		1.7000e-003
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
Mobile	0.1652	8.7884	3.4513	0.0387	1.2954	0.0550	1.3504	0.3536	0.0526	0.4062		4,412.2891	4,412.2891	0.4446	0.6958	4,630.7606
Offroad	1.3714	24.9867	9.0828	0.0320		0.5805	0.5805		0.5340	0.5340	0.0000	3,093.5024	3,093.5024	1.0005		3,118.5149
Total	**1.6735**	**33.7751**	**12.5348**	**0.0707**	**1.2954**	**0.6354**	**1.9308**	**0.3536**	**0.5866**	**0.9402**	**0.0000**	**7,505.7930**	**7,505.7930**	**1.4451**	**0.6958**	**7,749.2772**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Construction of CASP Phase Modifications	Site Preparation	7/8/2024	10/4/2024	5	65	
2	Paving	Paving	10/7/2024	10/11/2024	5	5	

Acres of Grading (Site Preparation Phase): 97.5

Bee Canyon Greenery Phase 1C - Orange County, Winter

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

Acres of Grading (Grading Phase): 0

Acres of Paving: 7.3

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
Construction of CASP Phase Modifications	Off-Highway Trucks	4	8.00	402	0.38
Construction of CASP Phase Modifications	Forklifts	1	8.00	89	0.20
Construction of CASP Phase Modifications	Rubber Tired Dozers	0	8.00	247	0.40
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Construction of CASP Phase Modifications	Tractors/Loaders/Backhoes	1	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
Paving	6	15.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Construction of CASP Phase Modifications	6	15.00	4.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Bee Canyon Greenery Phase 1C - Orange County, Winter

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

3.2 Construction of CASP Phase Modifications - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	2.2262	15.6432	16.3758	0.0576		0.5968	0.5968		0.5490	0.5490		5,571.1993	5,571.1993	1.8018		5,616.2453
Total	**2.2262**	**15.6432**	**16.3758**	**0.0576**	**1.5908**	**0.5968**	**2.1875**	**0.1718**	**0.5490**	**0.7208**		**5,571.1993**	**5,571.1993**	**1.8018**		**5,616.2453**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.0900e-003	0.1607	0.0631	8.0000e-004	0.0293	8.6000e-004	0.0301	8.4200e-003	8.3000e-004	9.2500e-003		88.3081	88.3081	5.3800e-003	0.0127	92.2332
Worker	0.0534	0.0337	0.5122	1.7500e-003	0.2258	1.0800e-003	0.2269	0.0599	9.9000e-004	0.0609		180.2895	180.2895	3.3700e-003	3.8500e-003	181.5196
Total	**0.0575**	**0.1944**	**0.5753**	**2.5500e-003**	**0.2551**	**1.9400e-003**	**0.2570**	**0.0683**	**1.8200e-003**	**0.0701**		**268.5976**	**268.5976**	**8.7500e-003**	**0.0166**	**273.7528**

Bee Canyon Greenery Phase 1C - Orange County, Winter

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

3.2 Construction of CASP Phase Modifications - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7158	0.0000	0.7158	0.0773	0.0000	0.0773			0.0000			0.0000
Off-Road	1.5110	45.3424	31.5236	0.0576		1.1302	1.1302		1.1302	1.1302	0.0000	5,571.1993	5,571.1993	1.8018		5,616.2453
Total	**1.5110**	**45.3424**	**31.5236**	**0.0576**	**0.7158**	**1.1302**	**1.8460**	**0.0773**	**1.1302**	**1.2075**	**0.0000**	**5,571.1993**	**5,571.1993**	**1.8018**		**5,616.2453**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.0900e-003	0.1607	0.0631	8.0000e-004	0.0293	8.6000e-004	0.0301	8.4200e-003	8.3000e-004	9.2500e-003		88.3081	88.3081	5.3800e-003	0.0127	92.2332
Worker	0.0534	0.0337	0.5122	1.7500e-003	0.2258	1.0800e-003	0.2269	0.0599	9.9000e-004	0.0609		180.2895	180.2895	3.3700e-003	3.8500e-003	181.5196
Total	**0.0575**	**0.1944**	**0.5753**	**2.5500e-003**	**0.2551**	**1.9400e-003**	**0.2570**	**0.0683**	**1.8200e-003**	**0.0701**		**268.5976**	**268.5976**	**8.7500e-003**	**0.0166**	**273.7528**

Bee Canyon Greenery Phase 1C - Orange County, Winter

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

3.3 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	3.8252					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**4.8134**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**		**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0534	0.0337	0.5122	1.7500e-003	0.2258	1.0800e-003	0.2269	0.0599	9.9000e-004	0.0609		180.2895	180.2895	3.3700e-003	3.8500e-003	181.5196
Total	**0.0534**	**0.0337**	**0.5122**	**1.7500e-003**	**0.2258**	**1.0800e-003**	**0.2269**	**0.0599**	**9.9000e-004**	**0.0609**		**180.2895**	**180.2895**	**3.3700e-003**	**3.8500e-003**	**181.5196**

Bee Canyon Greenery Phase 1C - Orange County, Winter

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

3.3 Paving - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9311	20.1146	17.2957	0.0228		0.6670	0.6670		0.6670	0.6670	0.0000	2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	3.8252					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**4.7563**	**20.1146**	**17.2957**	**0.0228**		**0.6670**	**0.6670**		**0.6670**	**0.6670**	**0.0000**	**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0534	0.0337	0.5122	1.7500e-003	0.2258	1.0800e-003	0.2269	0.0599	9.9000e-004	0.0609		180.2895	180.2895	3.3700e-003	3.8500e-003	181.5196
Total	**0.0534**	**0.0337**	**0.5122**	**1.7500e-003**	**0.2258**	**1.0800e-003**	**0.2269**	**0.0599**	**9.9000e-004**	**0.0609**		**180.2895**	**180.2895**	**3.3700e-003**	**3.8500e-003**	**181.5196**

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

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1652	8.7884	3.4513	0.0387	1.2954	0.0550	1.3504	0.3536	0.0526	0.4062		4,412.2891	4,412.2891	0.4446	0.6958	4,630.7606
Unmitigated	0.1652	8.7884	3.4513	0.0387	1.2954	0.0550	1.3504	0.3536	0.0526	0.4062		4,412.2891	4,412.2891	0.4446	0.6958	4,630.7606

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	101.98	101.98	101.98	548,278	548,278
Total	101.98	101.98	101.98	548,278	548,278

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 Asphalt Surfaces	18.50	10.10	7.90	59.00	28.00	13.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.049020	0.024510	0.024510	0.000000	0.000000	0.000000	0.000000	0.901961	0.000000	0.000000	0.000000	0.000000	0.000000

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

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas 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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1369	1.0000e-005	7.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.6000e-003	1.6000e-003	0.0000		1.7000e-003
Unmitigated	0.1369	1.0000e-005	7.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.6000e-003	1.6000e-003	0.0000		1.7000e-003

Bee Canyon Greenery Phase 1C - Orange County, Winter

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

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0242					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1126					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.0000e-005	1.0000e-005	7.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.6000e-003	1.6000e-003	0.0000		1.7000e-003
Total	**0.1369**	**1.0000e-005**	**7.4000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.6000e-003**	**1.6000e-003**	**0.0000**		**1.7000e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0242					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1126					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.0000e-005	1.0000e-005	7.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.6000e-003	1.6000e-003	0.0000		1.7000e-003
Total	**0.1369**	**1.0000e-005**	**7.4000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.6000e-003**	**1.6000e-003**	**0.0000**		**1.7000e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Other General Industrial Equipment	1	8.00	313	950	0.34	Diesel
Other General Industrial Equipment	1	8.00	313	62	0.34	Diesel
Other General Industrial Equipment	1	8.00	313	76	0.34	Diesel

Bee Canyon Greenery Phase 1C - Orange County, Winter

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

UnMitigated/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
Equipment Type	lb/day										lb/day					
Other General Industrial Equipment	1.3714	24.9867	9.0828	0.0320		0.5805	0.5805		0.5340	0.5340	0.0000	3,093.5024	3,093.5024	1.0005		3,118.5149
Total	**1.3714**	**24.9867**	**9.0828**	**0.0320**		**0.5805**	**0.5805**		**0.5340**	**0.5340**	**0.0000**	**3,093.5024**	**3,093.5024**	**1.0005**		**3,118.5149**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation