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# MEMORANDUM

**DATE:** June 23, 2023

**TO:** Aimee Halligan, CEQA & Habitat Program Manager
Orange County Waste & Recycling

**FROM:** Cara Cunningham, Associate

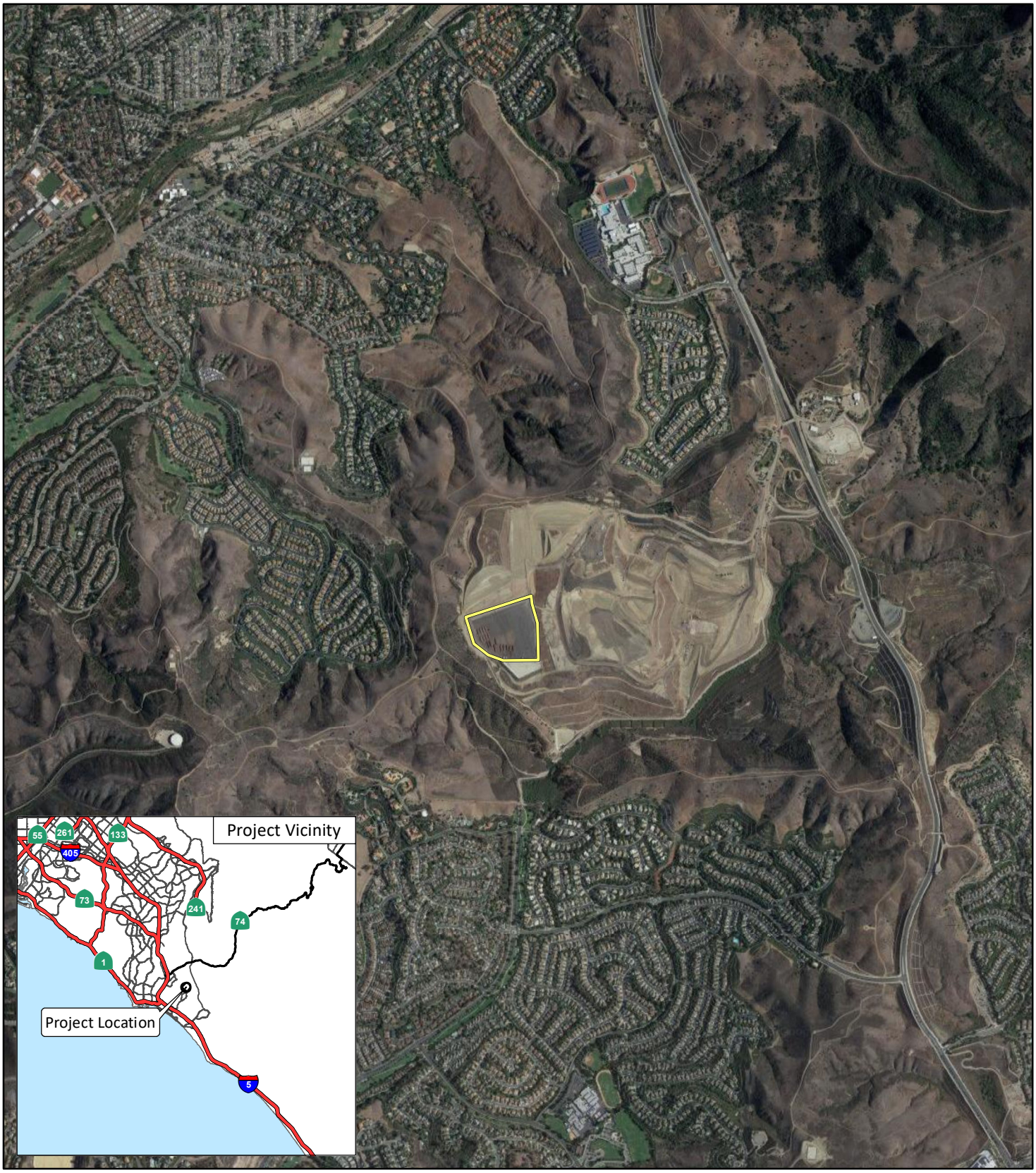
**SUBJECT:** Air Quality, Energy, and Greenhouse Gas Emissions Analysis for the Capistrano Greenery at Prima Deshecha Landfill Project

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 Capistrano Greenery Project Update (project) at the Prima Deshecha Landfill in the City of San Juan Capistrano (City), 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

OC Waste & Recycling (OCWR) proposes to implement a green waste composting operation at the 1,530-acre Prima Deshecha Landfill (landfill) property (Figure 1 shows the project location). OCWR is proposing various operational modifications to the existing facility, including the following key components: 1) acceptance of new types of feedstock, including food waste; 2) increase in the amount of tonnage received on a daily basis from 204 tons per day (tpd) to 536 tpd; 3) use of Covered Aerated Static Pile (CASP) technology which would increase the volume of compost the facility can process, reduce water use, and increase environmental controls for the process; 4) addition of solar panels to power the blowers for the CASP system; 5) chipping and grinding activities; 6) community compost give-away events anticipated at a maximum monthly cadence; and 7) modifications to surface grading to improve stormwater management. Figure 2 shows the site plan.

The Capistrano Greenery Composting Operation was permitted in 2020 to receive a maximum of 204 tpd of processed green material (PGM), processed agricultural material and manure. The Greenery is critical in meeting State mandates for the recycling of organic material. As a newly operating facility, the Greenery has not yet reached its maximum intake capacity, receiving approximately 170 tons per week of PGM as well as 150 tons of manure once per week and 10 tons of manure twice per week.

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LEGEND

Project Location

FIGURE 1

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SOURCE: Bing Maps (2021)

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*Capistrano Greenery at Prima Deshecha Landfill Project*

Regional Project Location

Although the Greenery is not processing waste at the permitted maximum, there is a need to continue meeting the State's recycling mandates. Per Assembly Bill (AB) 1594, as of January 1, 2020, PGM is no longer considered as an exempt waste, but rather it will be counted as disposal and will become part of the landfill's daily disposal tonnage. As part of the proposed project, OCWR is proposing to use improved CASP technology for composting that allows for greater throughput of material and improved environmental controls. This in turn allows the facility to accept more incoming organic materials for processing, thereby better assisting local municipalities by offering an expanded option for meeting state organic waste recycling mandates. Facility acreage may increase by up to 5 acres. The proposed project would have the same hours of operation and would involve an increase in permitted daily tonnage intake to a maximum of 536 tpd of compostable organic waste materials. After the composting process is complete, the 536 tpd of compost would be delivered to markets inside and outside Orange County. The designated route to/from the Prima Deshecha Landfill and regional locations is Interstate 5 (I-5), Ortega Highway (State Route 74 [SR-74]), and Avenida La Pata.

The existing compost operation includes the use of the following equipment: one windrow turner, two front end loaders, one mobile screen, one water truck, and one dump truck. The proposed project would require the addition of new equipment including the use of one 68 horsepower (HP) mechanical cover winder, one 950 HP chipper/grinder, and two 62 HP conveyors for the CASP operation. The proposed project would also include solar panels to power the blowers for the CASP system. In addition, the proposed project would include a 200 to 400 amp diesel emergency backup generator.

The intake of 536 tpd of compostable organic waste materials would require up to 25 trucks (with a 22-ton capacity), generating 50 daily trips. The 536 tpd of compost delivery would also require up to 25 trucks (with a 22-ton capacity), generating 50 daily trips. The project would require 50 total trucks, generating 100 daily trips. Based on the current hours of operation (10 hours between 7:00 a.m. and 5:00 p.m.), this would equate to approximately 10 truck trips per hour.[1]

Construction of the proposed project is tentatively expected to begin in summer 2025 and occur for approximately 8 months. It is assumed that construction of the proposed project would require the use of one excavator, one front-end loader, one dump truck, one backhoe, and one D5 bulldozer with two concrete trucks delivering concrete and minor asphalt delivery. At the height of construction, the project would likely require 20 construction workers with an average 6 to 8 construction workers for the majority of the construction duration. The project site would be balanced, with no cut and fill.

## Existing Sensitive Land Uses in the Project Area

Sensitive receptors include residences, schools, hospitals, and similar uses sensitive to air quality. The project site is surrounded by open space and residential development. The project site is surrounded by open space to the west and existing portions of the landfill to the north, east, and south. The closest residences are located approximately 1,200 feet from the boundary of the proposed composting expansion area.

[1] LSA, 2023. *Traffic Impact Analysis*. June.

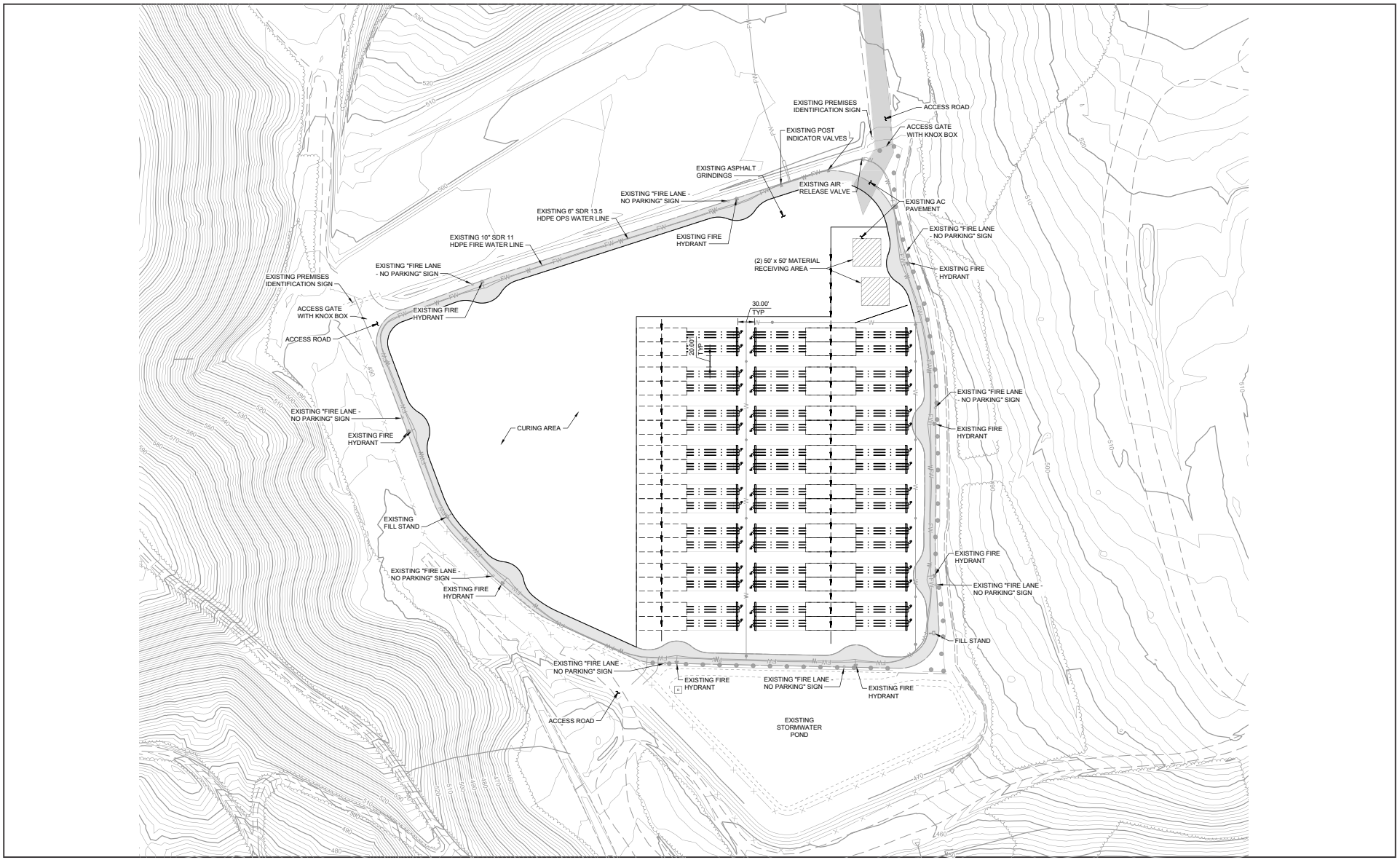


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FIGURE 2

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SOURCE: Tetra Tech

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*Capistrano Greenery at Prima Deshecha Landfill Project*

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)<br>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 January 2023). Nonattainment Areas for Criteria Pollutants (Green Book) (EPA 2019). Website: www.epa.gov/green-book (accessed January 2023).

[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 site is the Mission Viejo Station, which monitors CO, $O_3$, $PM_{10}$, and $PM_{2.5}$. The closest station monitoring $NO_2$ is the Anaheim Station. $SO_2$ is no longer monitored in the area. Ambient air quality in the project area from 2020 to 2022 is shown in Table B.

## Table B: Ambient Air Quality at Nearby Monitoring Stations

| Pollutant | Standard | 2020 | 2021 | 2022 |
|---|---|---|---|---|
| **Carbon Monoxide (CO) – Mission Viejo Monitoring Station** | | | | |
| Maximum 1-hour concentration (ppm) | | 1.7 | 2.2 | 1.2 |
| 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 | 1.0 |
| 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) | | 0.171 | 0.105 | 0.110 |
| Number of days exceeded: | State: >0.09 ppm | 20 | ND | ND |
| Maximum 8-hour concentration (ppm) | | 0.123 | 0.081 | 0.088 |
| Number of days exceeded: | State: >0.07 ppm | 34 | 8 | ND |
| | Federal: >0.08 ppm | 34 | 8 | 5 |
| **Coarse Particulates ($PM_{10}$) – Mission Viejo Monitoring Station** | | | | |
| Maximum 24-hour concentration (µg/m$^3$) | | 56.2 | 35.0 | 31.0 |
| Number of days exceeded: | State: >50 µg/m$^3$ | 2 | 0 | 0 |
| | Federal: >150 µg/m$^3$ | 0 | 0 | 0 |
| Annual arithmetic average concentration (µg/m$^3$) | | 18.3 | ND | ND |
| Exceeded for the year: | State: >20 µg/m$^3$ | No | ND | ND |
| | Federal: >50 µg/m$^3$ | No | ND | ND |
| **Fine Particulates ($PM_{2.5}$) – Mission Viejo Monitoring Station** | | | | |
| Maximum 24-hour concentration (µg/m$^3$) | | 44.8 | 28.7 | 22.6 |
| Number of days exceeded: | Federal: >35 µg/m$^3$ | 2 | 0 | 0 |
| Annual arithmetic average concentration (µg/m$^3$) | | 9.3 | 8.3 | 9.0 |
| 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) | | 0.070 | 0.072 | 0.062 |
| 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 June 2023), and EPA, Outdoor Air Quality Data: Monitor Values Report (Website: https://www.epa.gov/outdoor-air-quality-data/monitor-values-report; accessed June 2023).
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 2020 to 2022 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 2021 or 2022. Similarly, the federal $PM_{2.5}$ standard was exceeded twice in 2020 but was not exceeded in 2021 or 2022. The State 1-hour $O_3$ standard was exceeded 20 times in 2020 and an unknown number of times in 2021 and 2022. In addition, the State 8-hour $O_3$ standard was exceeded 34 times in 2020, eight times in 2021, and five times in 2022 and the federal 8-hour $O_3$ standard was exceeded 32 times in 2020, eight times in 2021, and an unknown number of times in 2022. 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 Laguna Beach station.[1] The monthly average maximum temperature recorded at this station ranges from 65.1°F in January to 78.1°F in August, with an annual average maximum of 71.2°F. The monthly average minimum temperature recorded at this station ranges from 43.0°F in January to 59.6°F in August, with an annual average minimum of 51.0°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 Laguna Beach station varies from 2.77 inches in February to 0.03 inch in July, with an annual total of 12.52 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.

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

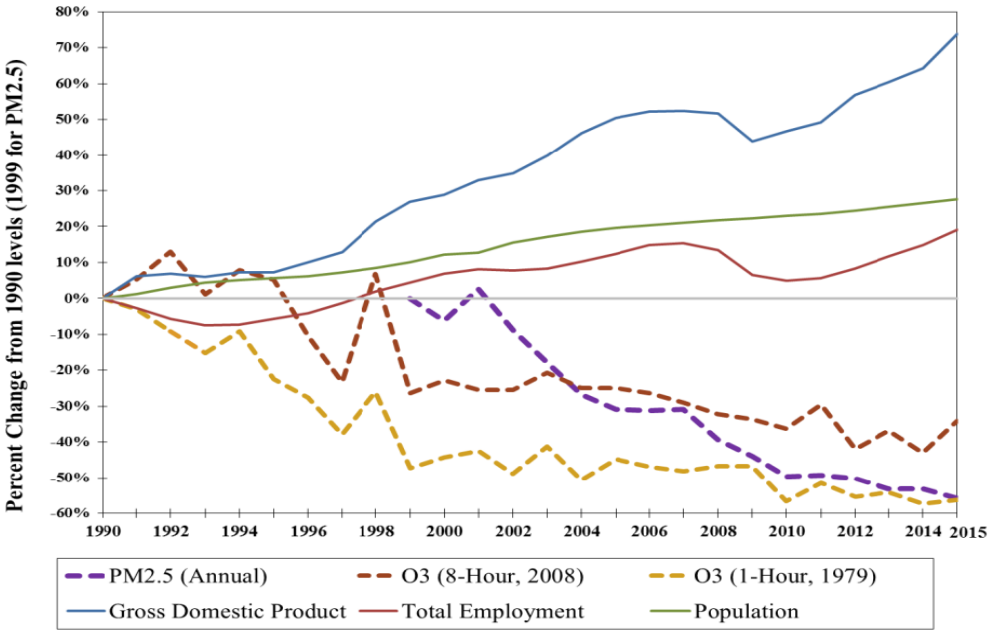
[1] Western Regional Climate Center (WRCC). Recent Climate in the West. Website: http://www.wrcc.dri.edu, (accessed January 2023).

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 AQMP for the Basin, the overall population of the region is expected to continue to increase. 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.

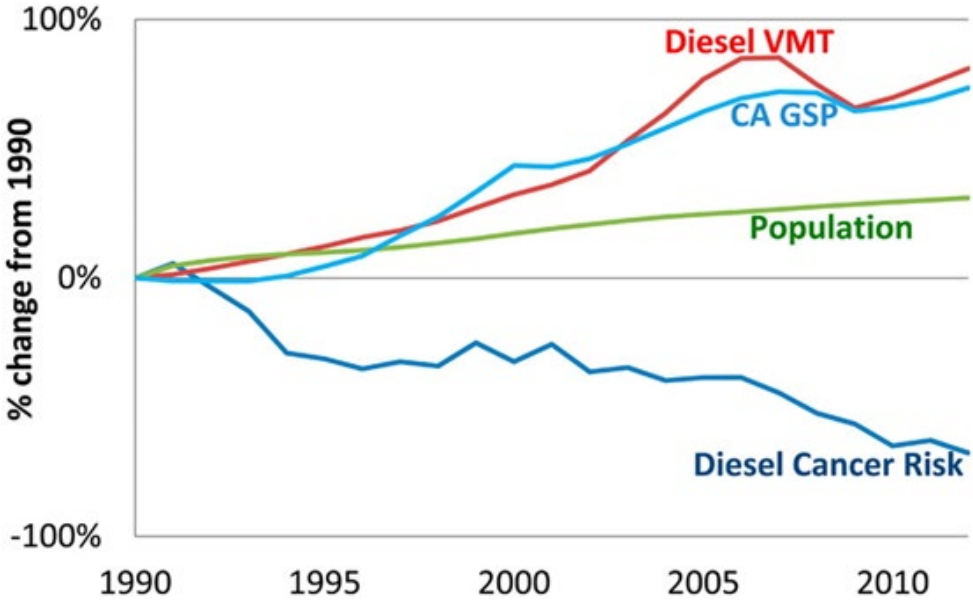



Source: Final Report: Multiple Air Toxics Exposure Study in the South Coast Air Basin (SCAQMD 2015).

**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.




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).

[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 January 2023).

## 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 2021, California's electricity was generated primarily by natural gas (37.9 percent), renewable sources (33.6 percent), nuclear (9.3 percent), large hydroelectric (9.2 percent), coal (3.0 percent), and other and unspecified sources. Total electric generation in California in 2021 was 277,764 gigawatt-hours (GWh), up 2 percent from the 2020 total generation of 272,576 GWh.[1]

The project site is within the service territory of Southern California Edison (SCE). SCE provides electricity to more than 15 million people in a 50,000-square-mile (sq mi) area of Central, Coastal, and Southern California.[2] According to the California Energy Commission (CEC), total electricity consumption in the SCE service area in 2021 was 103,045 GWh (36,375 GWh for the residential sector and 51,057 GWh for the non-residential sector). Total electricity consumption in Orange County in 2021 was 18,931.8 GWh (18,931,838,624 kilowatt-hours (kWh)].[3]

### *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.[4]

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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 January 2023).

2 Southern California Edison (SCE). 2020. About Us. Website: https://www.sce.com/about-us/who-we-are (accessed January 2023).

3 CEC. 2020b. Electricity Consumption by County and Entity. Website: http://www.ecdms.energy.ca.gov/elecbycounty.aspx and http://www.ecdms.energy.ca.gov/elecbyutil.aspx (accessed January 2023).

4 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 January 2023).

The Southern California Gas Company (SoCalGas) is the natural gas service provider for the project site. SoCalGas provides natural gas to approximately 21.8 million people in a 24,000 sq mi service area throughout Central and Southern California, from Visalia to the Mexican border.[1] According to the CEC, total natural gas consumption in the SoCalGas service area in 2021 was 6,755 million therms (2,308 million therms for the residential sector). Total natural gas consumption in Orange County in 2021 was 580.2 million therms (580,187,556 therms).[2]

### *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, pickups, vans, and SUVs) in the United States has steadily increased from about 14.9 miles per gallon (mpg) in 1980 to 22.9 mpg in 2020.[3] Federal fuel economy standards have changed substantially since the Energy Independence and Security Act was passed in 2007. The Act, which originally mandated a national fuel economy standard of 35 mpg by year 2020[4], applies to cars and light trucks of Model Years 2011 through 2020. In March 2020, the United States Environmental Protection Agency (USEPA) and National Highway Traffic Safety Administration (NHTSA) finalized the Corporate Average Fuel Economy (CAFE) standards for Model Years 2024–2026 Passenger Cars and Light Trucks.

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.[5] Of the total gasoline consumption, 273,289 thousand barrels or 1,380.7 trillion BTU were consumed for transportation.[6] Based on fuel consumption obtained from CARB's California Emissions Factor Model, Version 2021 (EMFAC2021), approximately 321.6 million gallons of diesel and approximately 1,230.0 million gallons of gasoline and approximately 155.9 million gallons of diesel will be consumed from vehicle trips in Orange County in 2023.

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1 Southern California Gas Company (SoCalGas). 2020. About SoCalGas. Website: https://www3.socalgas.com/about-us/company-profile (accessed January 2023).

2 CEC. 2020c. Gas Consumption by County and Entity. Website: http://www.ecdms.energy.ca.gov/gasbycounty.aspx and http://www.ecdms.energy.ca.gov/gasbyutil.aspx (accessed January 2023).

3 U.S. Department of Transportation (DOT). "Table 4-23: Average Fuel Efficiency of U.S. Light Duty Vehicles." Website: https://www.bts.dot.gov/bts/bts/content/average-fuel-efficiency-us-light-duty-vehicles (accessed January 2023).

4 U.S. Department of Energy. 2007. "Energy Independence & Security Act of 2007." Website: https://www.afdc.energy.gov/laws/eisa (accessed January 2023).

5 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.

6 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 January 2023).

## Greenhouse Gases

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:

- $CO_2$
- 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 23,900 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 | 310 |
| HFC-23 | 270 | 11,700 |
| HFC-134a | 14 | 140 |
| HFC-152a | 1.4 | 140 |
| PFC: Tetrafluoromethane ($CF_4$) | 50,000 | 6,500 |
| PFC: Hexafluoromethane ($C_2F_6$) | 10,000 | 9,200 |
| Sulfur Hexafluoride ($SF_6$) | 3,200 | 23,900 |

Source: *Second Update to the Climate Change Scoping Plan: Building on the Framework* (CARB 2017). Website: www.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan/2017-scoping-plan-documents (accessed January 2023).
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 SCAQMD is responsible for demonstrating regional compliance with ambient air quality standards but has limited indirect involvement in reducing emissions from fugitive, mobile, and natural sources. To that end, the SCAQMD works cooperatively with the CARB, the Southern California Association of Governments (SCAG), county transportation commissions, local governments, and other federal and State government agencies. It has responded to this requirement by preparing a series of Air Quality Management Plans (AQMPs) to meet CAAQS and NAAQS. SCAQMD and the SCAG are responsible for formulating and implementing the AQMP for the Basin. The main purpose of an AQMP is to bring the area into compliance with federal and State air quality standards. Every 3 years, SCAQMD prepares a new AQMP, updating the previous plan and 20-year horizon.[1]

The Final 2022 Air Quality Management Plan is the currently adopted AQMP. Key elements of the Final 2022 AQMP include the following:

- Calculating and taking credit for co-benefits from other planning efforts (e.g., climate, energy, and transportation)
- A strategy with fair-share emission reductions at the federal, State, and local levels
- Investment in strategies and technologies meeting multiple air quality objectives
- Seeking new partnerships and significant funding for incentives to accelerate deployment of zero-emission and near-zero emission technologies
- Enhanced socioeconomic assessment, including an expanded environmental justice analysis
- Attainment of the 24-hour $PM_{2.5}$ standard in 2019 with no additional measures
- Attainment of the annual $PM_{2.5}$ standard by 2025 with implementation of a portion of the $O_3$ strategy
- Attainment of the 1-hour $O_3$ standard by 2022 with no reliance on "black box" future technology (FCAA Section 182(e)(5) measures)

The 2022 AQMP builds upon measures already in place from previous AQMPs. It also includes a variety of additional strategies such as regulation, accelerated deployment of available cleaner technologies (e.g., zero emissions technologies, when cost-effective and feasible, and low $NO_x$ technologies in other applications), best management practices, co-benefits from existing programs (e.g., climate and energy efficiency), incentives, and other CAA measures to achieve the 2015 8-hour ozone standard.

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[1] South Coast Air Quality Management District (SCAQMD), 2022. *Final 2022 Air Quality Management Plan*. March.

The proposed project would be required to comply with SCAQMD rules, including Rule 403, Rule 1113, and Rule 1133, 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). In addition, SCAQMD Rule 1133 sets requirements for chipping and grinding activities and composting operations to create an emissions-related database on composting operations. Compliance with these rules would reduce impacts on nearby sensitive receptors. These rules are described further below:

- **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.
- **South Coast Air Quality Management District Rule 1133 Measures**: SCAQMD Rule 1133 sets forth administrative requirements for existing and new chipping and grinding activities and composting operations. The purpose of this rule is to create an emissions-related informational database on composting and related operations through a registration process. This rule applies to owners or operators of chipping and grinding activities and composting operations. The proposed project would be required to comply with SCAQMD Rule 1133.

## 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.

**Corporate Average Fuel Economy Vehicles Rule.** In October 2012, the USEPA and the NHTSA, on behalf of the U.S. Department of Transportation, issued final rules to further reduce GHG emissions and improve corporate average fuel economy (CAFE) standards for light-duty vehicles for model years 2017 and beyond (77 *Federal Register* 62624). The NHTSA's CAFE standards have been enacted under the Energy Policy and Conservation Act since 1978. This national program requires automobile manufacturers to build a single light-duty national fleet that meets all requirements under both federal programs and the standards of California and other states. This program would increase fuel economy to the equivalent of 54.5 miles per gallon, limiting vehicle emissions to 163 grams of $CO_2$ per mile for the fleet of cars and light-duty trucks by model year 2025 (77 *Federal Register* 62630).

On March 31, 2022, the National Highway Traffic Safety Administration (NHTSA) finalized the Corporate Average Fuel Economy (CAFE) standards for Model Years 2024–2026 Passenger Cars and Light Trucks. The amended CAFE standards would require an industry wide fleet average of approximately 49 mpg for passenger cars and light trucks in model year 2026, by increasing fuel efficiency by 8 percent annually for model years 2024–2025, and 10 percent annually for model year 2026. The final standards are estimated to save about 234 billion gallons of gas between model years 2030 to 2050.

### *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 *2023 Integrated Energy Policy Report.*[1] 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

[1] CEC. 2023. *2023 Integrated Energy Policy Report*. California Energy Commission. Docket Number: 23-IEPR-01.

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.[1]

### *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.

### *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

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

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.

The 2022 Scoping Plan[2] was approved in December 2022 and assesses progress towards achieving the SB 32 2030 target and lay out a path to achieve carbon neutrality no later than 2045. The 2022 Scoping Plan focuses on outcomes needed to achieve carbon neutrality by assessing paths for clean technology, energy deployment, natural and working lands, and others, and is designed to meet the State's long-term climate objectives and support a range of economic, environmental, energy security, environmental justice, and public health priorities.

**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

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

2 CARB. 2021. *2022 Scoping Plan Update*. May 10. Website: https://ww2.arb.ca.gov/sites/default/files/2022-12/2022-sp.pdf (accessed January 2023).

(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 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 2022.1 computer program was used to calculate emissions from on-site construction equipment and emissions from worker and vehicle trips to the site.

As discussed in the Project Description, construction of the proposed project is tentatively expected to begin in summer 2025 and occur for approximately 8 months. It is assumed that construction of the proposed project would require the use of one excavator, one front-end loader, one dump truck, one backhoe, and one D5 bulldozer with two concrete trucks delivering concrete and minor asphalt delivery. At the height of construction, the project would likely require 20 construction workers with an average 6 to 8 construction workers for the majority of the construction duration. To be conservative, this analysis assumes 20 construction workers throughout the construction duration. The project site would be balanced, with no cut and fill. 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. The proposed facility's acreage would be between 1.5 to 5 acres; therefore, to be conservative, this analysis assumes 5 acres. As discussed in the Project Description, once operational, the proposed project would require 50 total trucks, generating 100 daily trips. Operation of the proposed project would also require the use of one 68 HP mechanical cover winder, one 950 HP chipper/grinder, and two 62 HPs conveyor, which were included in CalEEMod. This analysis assumes that all equipment would be used 6 days per week and would be

used 10 hours per day. In addition, the proposed project would include a 200 to 400 amp diesel emergency backup generator, which was also included in CalEEMod. CalEEMod output sheets are provided as an attachment 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 Capistrano Valley area (SRA 21). 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 residential building is located approximately 1,200 ft from the edge of the composting facility. An LST analysis was completed to show the construction and operational impacts conservatively at a distance of 366 meters (1,200 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 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) | 193 | 5,669 | 92 | 48 |
| Operation (5-acre, 500-meter distance) | 253 | 7,773 | 28 | 16 |

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

## Greenhouse Gas Emissions

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:

[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 January 2023).

- **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.

For the purpose of this analysis, the proposed project will be compared to the screening-level Tier 3 Numerical Screening Threshold of 3,000 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 Capistrano Greenery. 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 2022 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 Capistrano Greenery 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*. In addition, the proposed project would not require a change to the General Plan land use designation or the current zoning.

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 site preparation, grading, 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. In addition, CalEEMod assumes 20 construction workers, one dump truck, and two concrete trucks daily. The CalEEMod output sheets are provided as an attachment to this memorandum.

### Table F: Illustrative Project Construction Schedule

| Phase Name | Number of Days/Week | Total Number of Days |
|---|---|---|
| Site Preparation | 5 | 60 |
| Grading | 5 | 60 |
| Paving | 5 | 60 |

Source: Compiled by LSA assuming construction would start in summer 2025 and occur for 8 months (June 2023).

### 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 |
|---|---|---|---|---|---|
| Site Preparation | Excavators | 1 | 8 | 367 | 0.4 |
| | Tractors/Loaders/Backhoes | 2 | 8 | 84 | 0.37 |
| | Rubber Tired Dozer | 1 | 8 | 367 | 0.37 |
| Grading | Excavators | 1 | 8 | 367 | 0.4 |
| | Tractors/Loaders/Backhoes | 2 | 8 | 84 | 0.37 |
| | Rubber Tired Dozer | 1 | 8 | 367 | 0.37 |
| Paving | Excavators | 1 | 8 | 367 | 0.4 |
| | Tractors/Loaders/Backhoes | 2 | 8 | 84 | 0.37 |
| | Rubber Tired Dozer | 1 | 8 | 367 | 0.37 |

Source: Compiled by LSA (June 2023) assuming the use of one excavator, one front-end loader, one dump truck, and one backhoe.

## 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 | 2.3 | 25.1 | 28.1 | 0.1 | 3.5 | 2.0 |
| SCAQMD Thresholds | 75.0 | 100.0 | 550.0 | 150 | 150.0 | 55.0 |
| **Exceeds?** | **No** | **No** | **No** | **No** | **No** | **No** |

Source: Compiled by LSA (June 2023).
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., truck trips), energy sources (e.g., electricity and natural gas), and area sources (e.g., architectural coatings and the use of landscape maintenance equipment), off-road sources (e.g., use of off-road equipment), and stationary sources (e.g., emergency backup generator).

$PM_{10}$ 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.

The proposed project would include solar to power the blowers for the CASP system; therefore, any electricity use is expected to be minimal. Typically, area source emissions 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.

The existing compost operation includes the use of the following equipment: one windrow turner, two front end loaders, one mobile screen, one water truck, and one dump truck. The proposed project would require the addition use of new off-road equipment, including one 68 HP mechanical cover winder, one 950 HP chipper/grinder, and two 62 HP conveyors. This equipment would use fossil-based fuels to operate, resulting in off-road source emissions. Only the additional equipment not currently in use for the existing composed operation was included in this analysis.

The proposed project would also include a 200 to 400 amp diesel emergency backup generator, which was included in CalEEMod as a stationary source of 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** | **$SO_X$** | **$PM_{10}$** | **$PM_{2.5}$** |
| Mobile Sources | <0.1 | 0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Area Sources | <0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Energy Sources | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Off-Road Sources | 3.1 | 41.3 | 17.2 | 0.1 | 1.7 | 1.6 |
| Stationary Sources | 0.1 | 0.3 | 0.4 | <0.1 | <0.1 | <0.1 |
| **Total Project Emissions** | **3.3** | **41.8** | **17.6** | **0.1** | **1.8** | **1.6** |
| 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 (June 2023).
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 residential building is located approximately 1,200 ft from the edge of the composting facility. An LST analysis was completed to show the construction and operational impacts conservatively at a distance of 366 meters (1,200 ft) to the nearest sensitive receptors to the project site in SRA 21, based on a 1.5-acre project size during construction and 5-acre project size during operation.

Table J indicates the on-site construction emissions would not exceed the LSTs for the nearest residences. Therefore, construction of the proposed project would not result in a locally significant air quality impact.

## Table J: Project Localized Construction Emissions

| Source (in lbs/day) | $NO_X$ | CO | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|
| On-Site Project Emissions | 24.8 | 27.1 | 3.3 | 1.9 |
| Localized Significance Threshold | 193 | 5,669 | 92 | 48 |
| **Exceeds?** | **No** | **No** | **No** | **No** |

Source: Compiled by LSA (June 2023).
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

By design, the localized impacts analysis only includes on-site sources; however, the CalEEMod outputs do not separate on-site and off-site emissions for mobile sources For a worst-case scenario assessment, the emissions detailed in Table K assume all area, energy, off-road, and stationary source emissions would occur on site and 5 percent of the project-related new mobile sources, which is an estimate of the amount of project-related on-site vehicle travel, would occur on site. Considering the total trip length included in CalEEMod, the 5 percent assumption is conservative.

## Table K: Project Localized Operational Emissions

| Source (in lbs/day) | $NO_X$ | CO | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|
| On-Site Project Emissions | 41.6 | 17.6 | 1.7 | 1.6 |
| Localized Significance Threshold | 253 | 7,773 | 28 | 16 |
| **Exceeds?** | **No** | **No** | **No** | **No** |

Source: Compiled by LSA (June 2023).
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

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.

**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 1.2 ppm (the State standard is 20 ppm) and a highest 8-hour concentration of 1.0 ppm (the State standard is 9 ppm) from 2020 to 2022. 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 require 50 total trucks, generating 100 daily trips. Based on the current hours of operation (10 hours between 7:00 a.m. and 5:00 p.m.), this would equate to approximately 10 trucks per 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 [µg/$m^3$] 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 µg/$m^3$ 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, and paving 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 truck 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.

As discussed in the Project Description, once operational, the proposed project would require 50 total trucks, generating 100 daily truck trips. Based on default trip lengths in CalEEMod, the proposed project would result in 896,962 VMT per year. The average fuel economy for heavy-duty trucks in the United States has also steadily increased, from 5.7 mpg in 2013 to a projected 8.0 mpg in 2021[1]. Therefore, based on the default vehicle fleet mix assumed in CalEEMod and using the USEPA fuel economy estimates for 2021, the proposed project would result in the consumption of approximately 112,120 gallons of diesel fuel per year.

In addition, the proposed project would use off-road equipment and an emergency backup generator on site, which would consume diesel. The proposed project would require the use of the following off-road equipment: one 68 HP mechanical cover winder, one 950 HP chipper/grinder, and

[1] California Energy Commission (CEC). 2015. Medium and Heavy-Duty Truck Prices and Fuel Economy 2013–2026. Website: efiling.energy.ca.gov/getdocument.aspx?tn=206180 (accessed January 2023)

two 62 HP conveyors. This analysis assumes that all equipment would be used 6 days per week and would be used for up to 10 hours per day. The proposed project would also include a 200 to 400 amp diesel emergency backup generator. 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 emergency backup generator and the total annual fuel consumption.

**Table L: Diesel Fuel Consumption**

| Equipment | Quantity | Horsepower | Load Factor | Fuel Consumption (gallons/year) |
|---|---|---|---|---|
| Cover Winder | 1 | 68 | 0.42 | 4,856 |
| Chipper/Grinder | 1 | 950 | 0.42 | 67,840 |
| Conveyer | 2 | 62 | 0.42 | 8,855 |
| Generator | 1 | 65 | 0.73 | 8,068 |
| **Total Equipment** | | | | **89,618** |
| **Truck Trips** | | | | **112,120** |
| **Total Diesel Fuel** | | | | **201,738** |

Sources: Compiled by LSA (June 2023); *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 truck trips, off-road equipment, and emergency backup generator would consume approximately 201,738 gallons of diesel per year. As discussed above, based on fuel consumption obtained from EMFAC2021, approximately 155.9 million gallons of diesel will be consumed from vehicle trips in Orange County in 2023. Therefore, diesel demand generated by truck trips, off-road equipment, and the emergency backup generator 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 *2023 Integrated Energy Policy Report* provides 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 because the project's total impact on regional energy supplies

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

would be minor, the proposed project would not conflict with or obstruct California's energy conservation plans as described in the CEC's *2023 Integrated Energy Policy Report*.

## 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. As such, construction-related GHG emissions are identified in Table M below and the amortized construction emissions are added to the operational GHG emissions in Table N below.

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) | | | |
|---|---|---|---|---|
| | $CO_2$ | $CH_4$ | $N_2O$ | $CO_2e$ |
| Site Preparation | 102.6 | <0.1 | <0.1 | 103.2 |
| Grading | 68.6 | <0.1 | <0.1 | 69.1 |
| Paving | 67.1 | <0.1 | <0.1 | 67.6 |
| **Total Construction Emissions** | **238.3** | **<0.1** | **<0.1** | **239.9** |
| **Amortized over 30 years** | | | | **8.0** |

Source: Compiled by LSA (June 2023).
$CH_4$ = 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 are generated by water supply and conveyance, water treatment, water distribution, and wastewater treatment; however, the use of the CASP technology would reduce water use. The proposed project would also generate off-road source emissions associated with the use of off-road equipment and stationary source emissions associated with the emergency backup generator.

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 3,000 MT $CO_2e$ per year. Based on the analysis results, the proposed project would result in 816.8 $CO_2e$ per year, which would be below the numeric threshold of 3,000 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 $CO_2$** | **$CH_4$** | **$N_2O$** | **$CO_2e$** |
| Mobile Sources | 13.9 | <0.1 | <0.1 | 14.6 |
| Area Sources | 0.0 | 0.0 | 0.0 | 0.0 |
| Energy Sources | 0.0 | 0.0 | 0.0 | 0.0 |
| Water Sources | 0.0 | 0.0 | 0.0 | 0.0 |
| Waste Sources | 0.0 | 0.0 | 0.0 | 0.0 |
| Off-Road Sources | 791.0 | <0.1 | <0.1 | 793.0 |
| Stationary Sources | 1.2 | <0.1 | <0.1 | 1.2 |
| **Operational Emissions** | | | | **808.8** |
| Amortized Construction Emissions | | | | 8.0 |
| **Total Emissions** | | | | **816.8** |
| **SCAQMD Tier 3 GHG Numerical Screening Threshold** | | | | **3,000** |
| **Exceedance?** | | | | **No** |

Source: Compiled by LSA (June 2023).
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.** The proposed project was analyzed for consistency with the goals of the Scoping Plan, Executive Order B-30-15, SB 32, and AB 197.

Executive Order B-30-15 added the immediate target of reducing GHG emissions to 40 percent below 1990 levels by 2030. SB 32 affirms 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 Executive Order B-30-15. CARB released the 2017 Scoping Plan,[1] to reflect the 2030 target set by Executive Order B-30-15 and codified by SB 32. 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, AB 197, provides additional direction to the CARB related to the adoption of strategies to reduce GHG emissions. Additional direction in AB 197 intended to provide easier public access to air emissions data that are collected by CARB was posted in December 2016.

The 2022 Scoping Plan[2] assesses progress toward the statutory 2030 target, while laying out a path to achieving carbon neutrality no later than 2045. The 2022 Scoping Plan focuses on outcomes needed to achieve carbon neutrality by assessing paths for clean technology, energy deployment, natural and working lands, and others, and is designed to meet the State's long-term climate objectives and support a range of economic, environmental, energy security, environmental justice, and public health priorities.

The 2022 Scoping Plan focuses on building clean energy production and distribution infrastructure for a carbon-neutral future, including transitioning existing energy production and transmission infrastructure to produce zero-carbon electricity and hydrogen, and utilizing biogas resulting from wildfire management or landfill and dairy operations, among other substitutes. The 2022 Scoping Plan states that in almost all sectors, electrification will play an important role. The 2022 Scoping Plan evaluates clean energy and technology options and the transition away from fossil fuels, including adding four times the solar and wind capacity by 2045 and about 1,700 times the amount of current hydrogen supply. As discussed in the 2022 Scoping Plan, EO N-79-20 requires all new passenger vehicles sold in California will be zero-emission by 2035, and all other fleets will have transitioned to zero-emission as fully possible by 2045, which will reduce the percentage of fossil fuel combustion vehicles. The 2022 Scoping Plan also focuses on achieving the 75 percent organic waste disposal reduction target of SB 1383, and states that maintaining that level of disposal in subsequent years, would bring annual landfill emissions in 2030 to just below the 2013 baseline.

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. The proposed project would include solar to power the blowers for the CASP system; therefore, any 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

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

2 CARB. 2022. op. cit.

reducing water use would reduce GHG emissions. The use of the CASP technology would reduce water use; therefore, the proposed project would not conflict with any of the water conservation and efficiency measures.

Landfill methane measures are intended to maximize existing infrastructure and expand it to reduce landfill disposal, with strategies including composting, anaerobic digestion, co-digestion at wastewater treatment plants, and other non-combustion conversion technologies, implement improved technologies and best management practices at composting and digestion operations, and reduce emissions from landfills through improvements in operational practices, lower permeability covers, advanced collection systems, and technologies to utilize landfill gas. The proposed project would increase operations to compost up to 536 tpd of green waste, manure, and food waste on site. The proposed project would use CASP technology, which would increase the volume of compost the facility can process, reduce water use, and increase environmental controls for the process. As such, the proposed project would not conflict with landfill methane 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 the 2022 Scoping Plan, Executive Order 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 Prima Deshecha 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 2022 AQMP. The proposed project would generally be consistent with both the 2022 Scoping Plan and the SCAG's RTP/SCS.

Attachment: CalEEMod Output Sheets

# Capistrano Greenery Project Update (project) at the Prima Deshecha Landfill Custom Report

## Table of Contents

# 1. Basic Project Information

## 1.1. Basic Project Information

| Data Field | Value |
|---|---|
| Project Name | Capistrano Greenery Project Update (project) at the Prima Deshecha Landfill |
| Construction Start Date | 7/7/2025 |
| Operational Year | 2026 |
| Lead Agency | — |
| Land Use Scale | Project/site |
| Analysis Level for Defaults | County |
| Windspeed (m/s) | 2.50 |
| Precipitation (days) | 0.20 |
| Location | 33.486571771343705, -117.62447360100047 |
| County | Orange |
| City | San Juan Capistrano |
| Air District | South Coast AQMD |
| Air Basin | South Coast |
| TAZ | 6004 |
| EDFZ | 12 |
| Electric Utility | San Diego Gas & Electric |
| Gas Utility | Southern California Gas |
| App Version | 2022.1.1.14 |

## 1.2. Land Use Types

| Land Use Subtype | Size | Unit | Lot Acreage | Building Area (sq ft) | Landscape Area (sq ft) | Special Landscape Area (sq ft) | Population | Description |
|---|---|---|---|---|---|---|---|---|

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Other Asphalt Surfaces | 5.00 | Acre | 5.00 | 0.00 | 0.00 | — | — | — |

### 1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

# 2. Emissions Summary

### 2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

| Un/Mit. | ROG | NOx | CO | SO2 | PM10E | PM10D | PM10T | PM2.5E | PM2.5D | PM2.5T | BCO2 | NBCO2 | CO2T | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Unmit. | 0.73 | 25.1 | 18.7 | 0.03 | 0.68 | 2.86 | 3.54 | 0.61 | 1.39 | 2.00 | — | 3,778 | 3,778 | 0.15 | 0.07 | 3,803 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Unmit. | 2.29 | 22.0 | 28.1 | 0.02 | 0.59 | 2.85 | 3.36 | 0.55 | 1.38 | 1.85 | — | 2,529 | 2,529 | 0.10 | 0.05 | 2,548 |
| Average Daily (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Unmit. | 0.32 | 7.27 | 5.72 | 0.01 | 0.21 | 0.94 | 1.15 | 0.19 | 0.46 | 0.65 | — | 1,083 | 1,083 | 0.04 | 0.02 | 1,091 |
| Annual (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Unmit. | 0.06 | 1.33 | 1.04 | < 0.005 | 0.04 | 0.17 | 0.21 | 0.03 | 0.08 | 0.12 | — | 179 | 179 | 0.01 | < 0.005 | 181 |

### 2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

| Year | ROG | NOx | CO | SO2 | PM10E | PM10D | PM10T | PM2.5E | PM2.5D | PM2.5T | BCO2 | NBCO2 | CO2T | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Daily - Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 2025 | 0.73 | 25.1 | 18.7 | 0.03 | 0.68 | 2.86 | 3.54 | 0.61 | 1.39 | 2.00 | — | 3,778 | 3,778 | 0.15 | 0.07 | 3,803 |
| Daily - Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 2025 | 2.29 | 22.0 | 28.1 | 0.02 | 0.59 | 2.85 | 3.36 | 0.55 | 1.38 | 1.85 | — | 2,529 | 2,529 | 0.10 | 0.05 | 2,548 |
| 2026 | 2.29 | 22.0 | 28.1 | 0.02 | 0.59 | 0.31 | 0.90 | 0.55 | 0.07 | 0.62 | — | 2,522 | 2,522 | 0.10 | 0.05 | 2,541 |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 2025 | 0.25 | 7.27 | 5.72 | 0.01 | 0.21 | 0.94 | 1.15 | 0.19 | 0.46 | 0.65 | — | 1,083 | 1,083 | 0.04 | 0.02 | 1,091 |
| 2026 | 0.32 | 3.10 | 3.96 | < 0.005 | 0.08 | 0.04 | 0.13 | 0.08 | 0.01 | 0.09 | — | 356 | 356 | 0.01 | 0.01 | 359 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 2025 | 0.05 | 1.33 | 1.04 | < 0.005 | 0.04 | 0.17 | 0.21 | 0.03 | 0.08 | 0.12 | — | 179 | 179 | 0.01 | < 0.005 | 181 |
| 2026 | 0.06 | 0.56 | 0.72 | < 0.005 | 0.02 | 0.01 | 0.02 | 0.01 | < 0.005 | 0.02 | — | 58.9 | 58.9 | < 0.005 | < 0.005 | 59.4 |

## 2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

| Un/Mit. | ROG | NOx | CO | SO2 | PM10E | PM10D | PM10T | PM2.5E | PM2.5D | PM2.5T | BCO2 | NBCO2 | CO2T | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Unmit. | 3.27 | 41.8 | 17.6 | 0.05 | 1.74 | 0.02 | 1.77 | 1.60 | 0.01 | 1.61 | 0.00 | 5,707 | 5,707 | 0.23 | 0.06 | 5,731 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Unmit. | 3.27 | 41.8 | 17.6 | 0.05 | 1.74 | 0.02 | 1.77 | 1.60 | 0.01 | 1.61 | 0.00 | 5,707 | 5,707 | 0.23 | 0.06 | 5,731 |
| Average Daily (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unmit. | 2.73 | 35.6 | 14.9 | 0.04 | 1.48 | 0.02 | 1.51 | 1.37 | 0.01 | 1.37 | 0.00 | 4,867 | 4,867 | 0.20 | 0.05 | 4,888 |
| Annual (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Unmit. | 0.50 | 6.50 | 2.71 | 0.01 | 0.27 | < 0.005 | 0.27 | 0.25 | < 0.005 | 0.25 | 0.00 | 806 | 806 | 0.03 | 0.01 | 809 |

## 2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

| Sector | ROG | NOx | CO | SO2 | PM10E | PM10D | PM10T | PM2.5E | PM2.5D | PM2.5T | BCO2 | NBCO2 | CO2T | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Mobile | < 0.005 | 0.10 | 0.04 | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | 0.01 | 0.01 | — | 83.8 | 83.8 | 0.01 | 0.01 | 88.2 |
| Area | 0.03 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Energy | 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 |
| Water | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Waste | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Off-Road | 3.13 | 41.3 | 17.2 | 0.05 | 1.73 | — | 1.73 | 1.59 | — | 1.59 | — | 5,570 | 5,570 | 0.23 | 0.05 | 5,589 |
| Stationary | 0.11 | 0.34 | 0.38 | < 0.005 | 0.02 | — | 0.02 | 0.02 | — | 0.02 | — | 53.7 | 53.7 | < 0.005 | < 0.005 | 53.9 |
| Total | 3.27 | 41.8 | 17.6 | 0.05 | 1.74 | 0.02 | 1.77 | 1.60 | 0.01 | 1.61 | 0.00 | 5,707 | 5,707 | 0.23 | 0.06 | 5,731 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Mobile | < 0.005 | 0.10 | 0.04 | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | 0.01 | 0.01 | — | 83.9 | 83.9 | 0.01 | 0.01 | 88.0 |
| Area | 0.03 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Energy | 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 |
| Water | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Waste | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Off-Road | 3.13 | 41.3 | 17.2 | 0.05 | 1.73 | — | 1.73 | 1.59 | — | 1.59 | — | 5,570 | 5,570 | 0.23 | 0.05 | 5,589 |
| Stationary | 0.11 | 0.34 | 0.38 | < 0.005 | 0.02 | — | 0.02 | 0.02 | — | 0.02 | — | 53.7 | 53.7 | < 0.005 | < 0.005 | 53.9 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total | 3.27 | 41.8 | 17.6 | 0.05 | 1.74 | 0.02 | 1.77 | 1.60 | 0.01 | 1.61 | 0.00 | 5,707 | 5,707 | 0.23 | 0.06 | 5,731 |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Mobile | < 0.005 | 0.10 | 0.04 | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | 0.01 | 0.01 | — | 83.8 | 83.8 | 0.01 | 0.01 | 88.1 |
| Area | 0.03 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Energy | 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 |
| Water | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Waste | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Off-Road | 2.68 | 35.4 | 14.8 | 0.04 | 1.48 | — | 1.48 | 1.36 | — | 1.36 | — | 4,776 | 4,776 | 0.19 | 0.04 | 4,792 |
| Stationary | 0.01 | 0.05 | 0.05 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 7.36 | 7.36 | < 0.005 | < 0.005 | 7.38 |
| Total | 2.73 | 35.6 | 14.9 | 0.04 | 1.48 | 0.02 | 1.51 | 1.37 | 0.01 | 1.37 | 0.00 | 4,867 | 4,867 | 0.20 | 0.05 | 4,888 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Mobile | < 0.005 | 0.02 | 0.01 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 13.9 | 13.9 | < 0.005 | < 0.005 | 14.6 |
| Area | 0.01 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Energy | 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 |
| Water | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Waste | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Off-Road | 0.49 | 6.47 | 2.70 | 0.01 | 0.27 | — | 0.27 | 0.25 | — | 0.25 | — | 791 | 791 | 0.03 | 0.01 | 793 |
| Stationary | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 1.22 | 1.22 | < 0.005 | < 0.005 | 1.22 |
| Total | 0.50 | 6.50 | 2.71 | 0.01 | 0.27 | < 0.005 | 0.27 | 0.25 | < 0.005 | 0.25 | 0.00 | 806 | 806 | 0.03 | 0.01 | 809 |

# 3. Construction Emissions Details

## 3.1. Site Preparation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

| Location | ROG | NOx | CO | SO2 | PM10E | PM10D | PM10T | PM2.5E | PM2.5D | PM2.5T | BCO2 | NBCO2 | CO2T | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Onsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.65 | 24.8 | 17.5 | 0.03 | 0.67 | — | 0.67 | 0.61 | — | 0.61 | — | 3,337 | 3,337 | 0.14 | 0.03 | 3,348 |
| Dust From Material Movement | — | — | — | — | — | 2.56 | 2.56 | — | 1.31 | 1.31 | — | — | — | — | — | — |
| Onsite truck | 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 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.11 | 4.08 | 2.88 | 0.01 | 0.11 | — | 0.11 | 0.10 | — | 0.10 | — | 548 | 548 | 0.02 | < 0.005 | 550 |
| Dust From Material Movement | — | — | — | — | — | 0.42 | 0.42 | — | 0.22 | 0.22 | — | — | — | — | — | — |
| Onsite truck | 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 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.02 | 0.74 | 0.53 | < 0.005 | 0.02 | — | 0.02 | 0.02 | — | 0.02 | — | 90.8 | 90.8 | < 0.005 | < 0.005 | 91.1 |
| Dust From Material Movement | — | — | — | — | — | 0.08 | 0.08 | — | 0.04 | 0.04 | — | — | — | — | — | — |
| Onsite truck | 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 |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.07 | 0.07 | 1.12 | 0.00 | 0.00 | 0.26 | 0.26 | 0.00 | 0.06 | 0.06 | — | 265 | 265 | < 0.005 | 0.01 | 269 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vendor | < 0.005 | 0.05 | 0.02 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 36.4 | 36.4 | < 0.005 | 0.01 | 38.3 |
| Hauling | < 0.005 | 0.17 | 0.08 | < 0.005 | < 0.005 | 0.04 | 0.04 | < 0.005 | 0.01 | 0.01 | — | 139 | 139 | 0.01 | 0.02 | 147 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.01 | 0.01 | 0.17 | 0.00 | 0.00 | 0.04 | 0.04 | 0.00 | 0.01 | 0.01 | — | 42.1 | 42.1 | < 0.005 | < 0.005 | 42.7 |
| Vendor | < 0.005 | 0.01 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 5.98 | 5.98 | < 0.005 | < 0.005 | 6.29 |
| Hauling | < 0.005 | 0.03 | 0.01 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 22.9 | 22.9 | < 0.005 | < 0.005 | 24.1 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | < 0.005 | < 0.005 | 0.03 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | < 0.005 | < 0.005 | — | 6.97 | 6.97 | < 0.005 | < 0.005 | 7.06 |
| Vendor | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.99 | 0.99 | < 0.005 | < 0.005 | 1.04 |
| Hauling | < 0.005 | 0.01 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 3.80 | 3.80 | < 0.005 | < 0.005 | 3.99 |

## 3.3. Grading (2025) - Unmitigated

### Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

| Location | ROG | NOx | CO | SO2 | PM10E | PM10D | PM10T | PM2.5E | PM2.5D | PM2.5T | BCO2 | NBCO2 | CO2T | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Onsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.47 | 16.1 | 11.8 | 0.02 | 0.51 | — | 0.51 | 0.47 | — | 0.47 | — | 2,100 | 2,100 | 0.09 | 0.02 | 2,108 |
| Dust From Material Movement | — | — | — | — | — | 2.56 | 2.56 | — | 1.31 | 1.31 | — | — | — | — | — | — |
| Onsite truck | 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 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.47 | 16.1 | 11.8 | 0.02 | 0.51 | — | 0.51 | 0.47 | — | 0.47 | — | 2,100 | 2,100 | 0.09 | 0.02 | 2,108 |
| Dust From Material Movement | — | — | — | — | — | 2.56 | 2.56 | — | 1.31 | 1.31 | — | — | — | — | — | — |
| Onsite truck | 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 |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.08 | 2.65 | 1.94 | < 0.005 | 0.08 | — | 0.08 | 0.08 | — | 0.08 | — | 345 | 345 | 0.01 | < 0.005 | 346 |
| Dust From Material Movement | — | — | — | — | — | 0.42 | 0.42 | — | 0.22 | 0.22 | — | — | — | — | — | — |
| Onsite truck | 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 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.01 | 0.48 | 0.35 | < 0.005 | 0.02 | — | 0.02 | 0.01 | — | 0.01 | — | 57.2 | 57.2 | < 0.005 | < 0.005 | 57.4 |
| Dust From Material Movement | — | — | — | — | — | 0.08 | 0.08 | — | 0.04 | 0.04 | — | — | — | — | — | — |
| Onsite truck | 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 |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.07 | 0.07 | 1.06 | 0.00 | 0.00 | 0.25 | 0.25 | 0.00 | 0.06 | 0.06 | — | 252 | 252 | < 0.005 | 0.01 | 256 |
| Vendor | < 0.005 | 0.05 | 0.02 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 36.4 | 36.4 | < 0.005 | 0.01 | 38.3 |
| Hauling | < 0.005 | 0.17 | 0.08 | < 0.005 | < 0.005 | 0.04 | 0.04 | < 0.005 | 0.01 | 0.01 | — | 139 | 139 | 0.01 | 0.02 | 147 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.07 | 0.07 | 0.92 | 0.00 | 0.00 | 0.25 | 0.25 | 0.00 | 0.06 | 0.06 | — | 240 | 240 | < 0.005 | 0.01 | 243 |
| Vendor | < 0.005 | 0.05 | 0.02 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 36.4 | 36.4 | < 0.005 | 0.01 | 38.2 |
| Hauling | < 0.005 | 0.18 | 0.08 | < 0.005 | < 0.005 | 0.04 | 0.04 | < 0.005 | 0.01 | 0.01 | — | 140 | 140 | 0.01 | 0.02 | 147 |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.01 | 0.01 | 0.16 | 0.00 | 0.00 | 0.04 | 0.04 | 0.00 | 0.01 | 0.01 | — | 40.0 | 40.0 | < 0.005 | < 0.005 | 40.5 |
| Vendor | < 0.005 | 0.01 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 5.98 | 5.98 | < 0.005 | < 0.005 | 6.29 |
| Hauling | < 0.005 | 0.03 | 0.01 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 22.9 | 22.9 | < 0.005 | < 0.005 | 24.1 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | < 0.005 | < 0.005 | 0.03 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | < 0.005 | < 0.005 | — | 6.62 | 6.62 | < 0.005 | < 0.005 | 6.71 |
| Vendor | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.99 | 0.99 | < 0.005 | < 0.005 | 1.04 |
| Hauling | < 0.005 | 0.01 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 3.80 | 3.80 | < 0.005 | < 0.005 | 3.99 |

## 3.5. Paving (2025) - Unmitigated

### Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

| Location | ROG | NOx | CO | SO2 | PM10E | PM10D | PM10T | PM2.5E | PM2.5D | PM2.5T | BCO2 | NBCO2 | CO2T | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Onsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.99 | 21.7 | 27.1 | 0.02 | 0.59 | — | 0.59 | 0.54 | — | 0.54 | — | 2,100 | 2,100 | 0.09 | 0.02 | 2,108 |
| Architectural Coatings | 1.01 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Paving | 0.22 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Onsite truck | 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 |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.02 | 0.42 | 0.53 | < 0.005 | 0.01 | — | 0.01 | 0.01 | — | 0.01 | — | 41.1 | 41.1 | < 0.005 | < 0.005 | 41.2 |
| Architectural Coatings | 0.02 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Paving | < 0.005 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Onsite truck | 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 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | < 0.005 | 0.08 | 0.10 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 6.81 | 6.81 | < 0.005 | < 0.005 | 6.83 |
| Architectural Coatings | < 0.005 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Paving | < 0.005 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Onsite truck | 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 |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.07 | 0.08 | 0.97 | 0.00 | 0.00 | 0.26 | 0.26 | 0.00 | 0.06 | 0.06 | — | 253 | 253 | < 0.005 | 0.01 | 256 |
| Vendor | < 0.005 | 0.05 | 0.02 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 36.4 | 36.4 | < 0.005 | 0.01 | 38.2 |
| Hauling | < 0.005 | 0.18 | 0.08 | < 0.005 | < 0.005 | 0.04 | 0.04 | < 0.005 | 0.01 | 0.01 | — | 140 | 140 | 0.01 | 0.02 | 147 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | < 0.005 | < 0.005 | 0.02 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | < 0.005 | < 0.005 | — | 5.01 | 5.01 | < 0.005 | < 0.005 | 5.08 |
| Vendor | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.71 | 0.71 | < 0.005 | < 0.005 | 0.75 |
| Hauling | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 2.73 | 2.73 | < 0.005 | < 0.005 | 2.87 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | < 0.005 | < 0.005 | < 0.005 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 0.83 | 0.83 | < 0.005 | < 0.005 | 0.84 |
| Vendor | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.12 | 0.12 | < 0.005 | < 0.005 | 0.12 |
| Hauling | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.45 | 0.45 | < 0.005 | < 0.005 | 0.48 |

## 3.7. Paving (2026) - Unmitigated

### Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

| Location | ROG | NOx | CO | SO2 | PM10E | PM10D | PM10T | PM2.5E | PM2.5D | PM2.5T | BCO2 | NBCO2 | CO2T | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Onsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.99 | 21.7 | 27.1 | 0.02 | 0.59 | — | 0.59 | 0.54 | — | 0.54 | — | 2,101 | 2,101 | 0.09 | 0.02 | 2,108 |
| Architectural Coatings | 1.01 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Paving | 0.22 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Onsite truck | 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 |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Off-Road Equipment | 0.14 | 3.05 | 3.81 | < 0.005 | 0.08 | — | 0.08 | 0.08 | — | 0.08 | — | 296 | 296 | 0.01 | < 0.005 | 297 |
| Architectural Coatings | 0.14 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Paving | 0.03 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Onsite truck | 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 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.03 | 0.56 | 0.70 | < 0.005 | 0.02 | — | 0.02 | 0.01 | — | 0.01 | — | 49.0 | 49.0 | < 0.005 | < 0.005 | 49.2 |
| Architectural Coatings | 0.03 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Paving | 0.01 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Onsite truck | 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 |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.07 | 0.07 | 0.91 | 0.00 | 0.00 | 0.26 | 0.26 | 0.00 | 0.06 | 0.06 | — | 248 | 248 | < 0.005 | 0.01 | 251 |
| Vendor | < 0.005 | 0.05 | 0.02 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 35.8 | 35.8 | < 0.005 | 0.01 | 37.5 |
| Hauling | < 0.005 | 0.17 | 0.07 | < 0.005 | < 0.005 | 0.04 | 0.04 | < 0.005 | 0.01 | 0.01 | — | 137 | 137 | 0.01 | 0.02 | 144 |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.01 | 0.01 | 0.13 | 0.00 | 0.00 | 0.04 | 0.04 | 0.00 | 0.01 | 0.01 | — | 35.4 | 35.4 | < 0.005 | < 0.005 | 35.9 |
| Vendor | < 0.005 | 0.01 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 5.04 | 5.04 | < 0.005 | < 0.005 | 5.29 |
| Hauling | < 0.005 | 0.02 | 0.01 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 19.3 | 19.3 | < 0.005 | < 0.005 | 20.3 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | < 0.005 | < 0.005 | 0.02 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | < 0.005 | < 0.005 | — | 5.86 | 5.86 | < 0.005 | < 0.005 | 5.94 |
| Vendor | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.83 | 0.83 | < 0.005 | < 0.005 | 0.88 |
| Hauling | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 3.20 | 3.20 | < 0.005 | < 0.005 | 3.36 |

# 4. Operations Emissions Details

## 4.1. Mobile Emissions by Land Use

### 4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

| Land Use | ROG | NOx | CO | SO2 | PM10E | PM10D | PM10T | PM2.5E | PM2.5D | PM2.5T | BCO2 | NBCO2 | CO2T | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Other Asphalt Surfaces | < 0.005 | 0.10 | 0.04 | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | 0.01 | 0.01 | — | 83.8 | 83.8 | 0.01 | 0.01 | 88.2 |
| Total | < 0.005 | 0.10 | 0.04 | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | 0.01 | 0.01 | — | 83.8 | 83.8 | 0.01 | 0.01 | 88.2 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Other Asphalt Surfaces | < 0.005 | 0.10 | 0.04 | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | 0.01 | 0.01 | — | 83.9 | 83.9 | 0.01 | 0.01 | 88.0 |
| Total | < 0.005 | 0.10 | 0.04 | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | 0.01 | 0.01 | — | 83.9 | 83.9 | 0.01 | 0.01 | 88.0 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Other Asphalt Surfaces | < 0.005 | 0.02 | 0.01 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 13.9 | 13.9 | < 0.005 | < 0.005 | 14.6 |
| Total | < 0.005 | 0.02 | 0.01 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 13.9 | 13.9 | < 0.005 | < 0.005 | 14.6 |

## 4.2. Energy

### 4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

| Land Use | ROG | NOx | CO | SO2 | PM10E | PM10D | PM10T | PM2.5E | PM2.5D | PM2.5T | BCO2 | NBCO2 | CO2T | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Other Asphalt Surfaces | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Other Asphalt Surfaces | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Other Asphalt Surfaces | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

### 4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

| Land Use | ROG | NOx | CO | SO2 | PM10E | PM10D | PM10T | PM2.5E | PM2.5D | PM2.5T | BCO2 | NBCO2 | CO2T | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Other Asphalt Surfaces | 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 |
| Total | 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 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Other Asphalt Surfaces | 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 |
| Total | 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 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Other Asphalt Surfaces | 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 |
| Total | 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 |

## 4.3. Area Emissions by Source

### 4.3.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

| Source | ROG | NOx | CO | SO2 | PM10E | PM10D | PM10T | PM2.5E | PM2.5D | PM2.5T | BCO2 | NBCO2 | CO2T | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Consumer Products | 0.02 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Architectural Coatings | 0.02 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Total | 0.03 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Consumer Products | 0.02 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Architectural Coatings | 0.02 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Total | 0.03 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Consumer Products | < 0.005 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Architectural Coatings | < 0.005 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Total | 0.01 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

## 4.4. Water Emissions by Land Use

### 4.4.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

| Land Use | ROG | NOx | CO | SO2 | PM10E | PM10D | PM10T | PM2.5E | PM2.5D | PM2.5T | BCO2 | NBCO2 | CO2T | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Other Asphalt Surfaces | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Other Asphalt Surfaces | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Other Asphalt Surfaces | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

## 4.5. Waste Emissions by Land Use

### 4.5.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

| Land Use | ROG | NOx | CO | SO2 | PM10E | PM10D | PM10T | PM2.5E | PM2.5D | PM2.5T | BCO2 | NBCO2 | CO2T | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Other Asphalt Surfaces | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Other Asphalt Surfaces | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Other Asphalt Surfaces | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

## 4.6. Refrigerant Emissions by Land Use

### 4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

| Land Use | ROG | NOx | CO | SO2 | PM10E | PM10D | PM10T | PM2.5E | PM2.5D | PM2.5T | BCO2 | NBCO2 | CO2T | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Total | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Total | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Total | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

## 4.7. Offroad Emissions By Equipment Type

### 4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

| Equipment Type | ROG | NOx | CO | SO2 | PM10E | PM10D | PM10T | PM2.5E | PM2.5D | PM2.5T | BCO2 | NBCO2 | CO2T | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Other Construction Equipment | 3.13 | 41.3 | 17.2 | 0.05 | 1.73 | — | 1.73 | 1.59 | — | 1.59 | — | 5,570 | 5,570 | 0.23 | 0.05 | 5,589 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total | 3.13 | 41.3 | 17.2 | 0.05 | 1.73 | — | 1.73 | 1.59 | — | 1.59 | — | 5,570 | 5,570 | 0.23 | 0.05 | 5,589 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Other Construction Equipment | 3.13 | 41.3 | 17.2 | 0.05 | 1.73 | — | 1.73 | 1.59 | — | 1.59 | — | 5,570 | 5,570 | 0.23 | 0.05 | 5,589 |
| Total | 3.13 | 41.3 | 17.2 | 0.05 | 1.73 | — | 1.73 | 1.59 | — | 1.59 | — | 5,570 | 5,570 | 0.23 | 0.05 | 5,589 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Other Construction Equipment | 0.49 | 6.47 | 2.70 | 0.01 | 0.27 | — | 0.27 | 0.25 | — | 0.25 | — | 791 | 791 | 0.03 | 0.01 | 793 |
| Total | 0.49 | 6.47 | 2.70 | 0.01 | 0.27 | — | 0.27 | 0.25 | — | 0.25 | — | 791 | 791 | 0.03 | 0.01 | 793 |

## 4.8. Stationary Emissions By Equipment Type

### 4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

| Equipment Type | ROG | NOx | CO | SO2 | PM10E | PM10D | PM10T | PM2.5E | PM2.5D | PM2.5T | BCO2 | NBCO2 | CO2T | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Emergency Generator | 0.11 | 0.34 | 0.38 | < 0.005 | 0.02 | — | 0.02 | 0.02 | — | 0.02 | — | 53.7 | 53.7 | < 0.005 | < 0.005 | 53.9 |
| Total | 0.11 | 0.34 | 0.38 | < 0.005 | 0.02 | — | 0.02 | 0.02 | — | 0.02 | — | 53.7 | 53.7 | < 0.005 | < 0.005 | 53.9 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Emergency Generator | 0.11 | 0.34 | 0.38 | < 0.005 | 0.02 | — | 0.02 | 0.02 | — | 0.02 | — | 53.7 | 53.7 | < 0.005 | < 0.005 | 53.9 |
| Total | 0.11 | 0.34 | 0.38 | < 0.005 | 0.02 | — | 0.02 | 0.02 | — | 0.02 | — | 53.7 | 53.7 | < 0.005 | < 0.005 | 53.9 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Emergency Generator | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 1.22 | 1.22 | < 0.005 | < 0.005 | 1.22 |
| Total | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 1.22 | 1.22 | < 0.005 | < 0.005 | 1.22 |

## 4.9. User Defined Emissions By Equipment Type

### 4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

| Equipment Type | ROG | NOx | CO | SO2 | PM10E | PM10D | PM10T | PM2.5E | PM2.5D | PM2.5T | BCO2 | NBCO2 | CO2T | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Total | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Total | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Total | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

## 4.10. Soil Carbon Accumulation By Vegetation Type

### 4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

| Vegetation | ROG | NOx | CO | SO2 | PM10E | PM10D | PM10T | PM2.5E | PM2.5D | PM2.5T | BCO2 | NBCO2 | CO2T | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Total | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Total | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Total | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

### 4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

| Land Use | ROG | NOx | CO | SO2 | PM10E | PM10D | PM10T | PM2.5E | PM2.5D | PM2.5T | BCO2 | NBCO2 | CO2T | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Total | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Total | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Total | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

### 4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

| Species | ROG | NOx | CO | SO2 | PM10E | PM10D | PM10T | PM2.5E | PM2.5D | PM2.5T | BCO2 | NBCO2 | CO2T | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Avoided | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Subtotal | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Sequestered | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Subtotal | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Removed | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Subtotal | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Avoided | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Subtotal | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Sequestered | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Subtotal | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Removed | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Subtotal | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Avoided | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Subtotal | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Sequestered | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Subtotal | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Removed | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Subtotal | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

# 5. Activity Data

## 5.1. Construction Schedule

| Phase Name | Phase Type | Start Date | End Date | Days Per Week | Work Days per Phase | Phase Description |
|---|---|---|---|---|---|---|
| Site Preparation | Site Preparation | 7/7/2025 | 9/26/2025 | 5.00 | 60.0 | — |
| Grading | Grading | 9/29/2025 | 12/19/2025 | 5.00 | 60.0 | — |
| Paving | Paving | 12/22/2025 | 3/13/2026 | 5.00 | 60.0 | — |

## 5.2. Off-Road Equipment

### 5.2.1. Unmitigated

| Phase Name | Equipment Type | Fuel Type | Engine Tier | Number per Day | Hours Per Day | Horsepower | Load Factor |
|---|---|---|---|---|---|---|---|
| Site Preparation | Excavators | Diesel | Tier 2 | 1.00 | 8.00 | 367 | 0.40 |
| Site Preparation | Tractors/Loaders/Backhoes | Diesel | Tier 2 | 2.00 | 8.00 | 84.0 | 0.37 |
| Site Preparation | Rubber Tired Dozers | Diesel | Tier 2 | 1.00 | 8.00 | 367 | 0.40 |
| Grading | Excavators | Diesel | Tier 2 | 1.00 | 8.00 | 36.0 | 0.38 |
| Grading | Tractors/Loaders/Backhoes | Diesel | Tier 2 | 2.00 | 8.00 | 84.0 | 0.37 |
| Grading | Rubber Tired Dozers | Diesel | Tier 2 | 1.00 | 8.00 | 367 | 0.40 |
| Paving | Excavators | Diesel | Tier 2 | 1.00 | 8.00 | 36.0 | 0.38 |
| Paving | Tractors/Loaders/Backhoes | Diesel | Tier 2 | 2.00 | 8.00 | 84.0 | 0.37 |
| Paving | Rubber Tired Dozers | Diesel | Tier 1 | 1.00 | 8.00 | 367 | 0.40 |

## 5.3. Construction Vehicles

### 5.3.1. Unmitigated

| Phase Name | Trip Type | One-Way Trips per Day | Miles per Trip | Vehicle Mix |
|---|---|---|---|---|
| Site Preparation | — | — | — | — |
| Site Preparation | Worker | 20.0 | 18.5 | LDA,LDT1,LDT2 |
| Site Preparation | Vendor | 1.00 | 10.2 | HHDT |
| Site Preparation | Hauling | 2.00 | 20.0 | HHDT |
| Site Preparation | Onsite truck | — | — | HHDT |
| Grading | — | — | — | — |
| Grading | Worker | 19.0 | 18.5 | LDA,LDT1,LDT2 |
| Grading | Vendor | 1.00 | 10.2 | HHDT |
| Grading | Hauling | 2.00 | 20.0 | HHDT |
| Grading | Onsite truck | — | — | HHDT |
| Paving | — | — | — | — |
| Paving | Worker | 20.0 | 18.5 | LDA,LDT1,LDT2 |
| Paving | Vendor | 1.00 | 10.2 | HHDT |
| Paving | Hauling | 2.00 | 20.0 | HHDT |
| Paving | Onsite truck | — | — | HHDT |

## 5.4. Vehicles

### 5.4.1. Construction Vehicle Control Strategies

| Control Strategies Applied | PM10 Reduction | PM2.5 Reduction |
|---|---|---|
| Water unpaved roads twice daily | 55% | 55% |
| Limit vehicle speeds on unpaved roads to 25 mph | 44% | 44% |
| Sweep paved roads once per month | 9% | 9% |

## 5.5. Architectural Coatings

| Phase Name | Residential Interior Area Coated (sq ft) | Residential Exterior Area Coated (sq ft) | Non-Residential Interior Area Coated (sq ft) | Non-Residential Exterior Area Coated (sq ft) | Parking Area Coated (sq ft) |
|---|---|---|---|---|---|
| Paving | 0.00 | 0.00 | 0.00 | 0.00 | 13,068 |

## 5.6. Dust Mitigation

### 5.6.1. Construction Earthmoving Activities

| Phase Name | Material Imported (cy) | Material Exported (cy) | Acres Graded (acres) | Material Demolished (sq. ft.) | Acres Paved (acres) |
|---|---|---|---|---|---|
| Site Preparation | — | — | 30.0 | 0.00 | — |
| Grading | — | — | 30.0 | 0.00 | — |
| Paving | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 |

### 5.6.2. Construction Earthmoving Control Strategies

| Control Strategies Applied | Frequency (per day) | PM10 Reduction | PM2.5 Reduction |
|---|---|---|---|
| Water Exposed Area | 2 | 61% | 61% |

## 5.7. Construction Paving

| Land Use | Area Paved (acres) | % Asphalt |
|---|---|---|
| Other Asphalt Surfaces | 5.00 | 100% |

## 5.8. Construction Electricity Consumption and Emissions Factors

### kWh per Year and Emission Factor (lb/MWh)

| Year | kWh per Year | CO2 | CH4 | N2O |
|---|---|---|---|---|
| 2025 | 0.00 | 589 | 0.03 | < 0.005 |
| 2026 | 0.00 | 589 | 0.03 | < 0.005 |

## 5.9. Operational Mobile Sources

### 5.9.1. Unmitigated

| Land Use Type | Trips/Weekday | Trips/Saturday | Trips/Sunday | Trips/Year | VMT/Weekday | VMT/Saturday | VMT/Sunday | VMT/Year |
|---|---|---|---|---|---|---|---|---|
| Other Asphalt Surfaces | 100 | 100 | 100 | 36,500 | 2,457 | 2,457 | 2,457 | 896,962 |

## 5.10. Operational Area Sources

### 5.10.1. Hearths

#### 5.10.1.1. Unmitigated

### 5.10.2. Architectural Coatings

| Residential Interior Area Coated (sq ft) | Residential Exterior Area Coated (sq ft) | Non-Residential Interior Area Coated (sq ft) | Non-Residential Exterior Area Coated (sq ft) | Parking Area Coated (sq ft) |
|---|---|---|---|---|
| 0 | 0.00 | 0.00 | 0.00 | 13,068 |

### 5.10.3. Landscape Equipment

| Season | Unit | Value |
|---|---|---|
| Snow Days | day/yr | 0.00 |
| Summer Days | day/yr | 250 |

## 5.11. Operational Energy Consumption

### 5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

| Land Use | Electricity (kWh/yr) | CO2 | CH4 | N2O | Natural Gas (kBTU/yr) |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Other Asphalt Surfaces | 0.00 | 589 | 0.0330 | 0.0040 | 0.00 |

## 5.12. Operational Water and Wastewater Consumption

### 5.12.1. Unmitigated

| Land Use | Indoor Water (gal/year) | Outdoor Water (gal/year) |
|---|---|---|
| Other Asphalt Surfaces | 0.00 | 0.00 |

## 5.13. Operational Waste Generation

### 5.13.1. Unmitigated

| Land Use | Waste (ton/year) | Cogeneration (kWh/year) |
|---|---|---|
| Other Asphalt Surfaces | 0.00 | — |

## 5.14. Operational Refrigeration and Air Conditioning Equipment

### 5.14.1. Unmitigated

| Land Use Type | Equipment Type | Refrigerant | GWP | Quantity (kg) | Operations Leak Rate | Service Leak Rate | Times Serviced |
|---|---|---|---|---|---|---|---|

## 5.15. Operational Off-Road Equipment

### 5.15.1. Unmitigated

| Equipment Type | Fuel Type | Engine Tier | Number per Day | Hours Per Day | Horsepower | Load Factor |
|---|---|---|---|---|---|---|
| Other Construction Equipment | Diesel | Average | 1.00 | 10.0 | 68.0 | 0.42 |
| Other Construction Equipment | Diesel | Average | 1.00 | 10.0 | 950 | 0.42 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Other Construction Equipment | Diesel | Average | 2.00 | 10.0 | 62.0 | 0.42 |

## 5.16. Stationary Sources

### 5.16.1. Emergency Generators and Fire Pumps

| Equipment Type | Fuel Type | Number per Day | Hours per Day | Hours per Year | Horsepower | Load Factor |
|---|---|---|---|---|---|---|
| Emergency Generator | Diesel | 1.00 | 1.00 | 50.0 | 64.0 | 0.73 |

### 5.16.2. Process Boilers

| Equipment Type | Fuel Type | Number | Boiler Rating (MMBtu/hr) | Daily Heat Input (MMBtu/day) | Annual Heat Input (MMBtu/yr) |
|---|---|---|---|---|---|

## 5.17. User Defined

| Equipment Type | Fuel Type |
|---|---|
| — | — |

## 5.18. Vegetation

### 5.18.1. Land Use Change

#### 5.18.1.1. Unmitigated

| Vegetation Land Use Type | Vegetation Soil Type | Initial Acres | Final Acres |
|---|---|---|---|

### 5.18.1. Biomass Cover Type

#### 5.18.1.1. Unmitigated

| Biomass Cover Type | Initial Acres | Final Acres |
|---|---|---|

### 5.18.2. Sequestration

#### 5.18.2.1. Unmitigated

| Tree Type | Number | Electricity Saved (kWh/year) | Natural Gas Saved (btu/year) |
|---|---|---|---|

# 8. User Changes to Default Data

| Screen | Justification |
|---|---|
| Construction: Construction Phases | Construction of the proposed project is expected to begin in summer 2025 and occur for approximately 8 months. |
| Construction: Off-Road Equipment | It is assumed that construction of the proposed project would require the use of 1 excavator, 1 loader, 1 backhoe, 1 dump truck, 2 concrete trucks, and 1 D5 dozer. |
| Construction: Trips and VMT | Assuming 20 construction workers throughout the construction duration and one dump truck (assumed as a vendor truck) and two daily concrete trucks delivering concrete (assumed as hauling trucks). |
| Operations: Vehicle Data | Once operational, the proposed project would require 50 total trucks, generating 100 daily trips. |
| Operations: Fleet Mix | Assuming all HHDT. |
| Operations: Off-Road Equipment | Operation of the proposed project would also require the use of one 68 horsepower (HP) mechanical cover winder, one 950 HP chipper/grinder, and two 62 HP conveyors. |
| Operations: Emergency Generators and Fire Pumps | The proposed project would include a 200 to 400 amp diesel emergency backup generator. |