

MEMORANDUM

To: Bob Stark, Michael Baker International
From: Tina Yuan, Michael Baker International
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Date: February 28, 2025
Subject: East Valley Parkway and Midway Drive Drainage Improvement Project, Escondido, California – Air Quality, Greenhouse Gas Emissions, and Energy Consumption Technical Memorandum

PURPOSE

The purpose of this technical memorandum is to evaluate potential short- and long-term air quality, greenhouse gas emissions, and energy consumption impacts that would result from the construction and operation of the proposed East Valley Parkway and Midway Drive Drainage Improvement Project (project), located within the City of Escondido (City), California.

PROJECT LOCATION

The project site is an approximately five-mile-long corridor within public rights-of-way along existing roadways and Escondido Creek in the central portion of the City of Escondido, within San Diego County (County), California; refer to [Figure 1, *Regional Vicinity*](#), and [Figure 2, *Project Site and Vicinity*](#).

EXISTING SITE CONDITIONS

The existing storm drainage systems in the project area are undersized and unable to collect and convey anticipated flow rates, resulting in more than 1,600 properties being completely or partially within a Federal Emergency Management Agency 100-year floodplain. Localized flooding occurs within the project area and has triggered deployment of sandbags and road closures an average of five times per year since 2019.

PROJECT DESCRIPTION

The proposed project would involve increasing the capacity of the storm drain systems in the central portion of the City to collect and convey flows up to a 100-year frequency storm event downstream to Escondido Creek. Escondido Creek is a concrete-lined channel in the vicinity of the project site that has been improved to convey runoff from a 100-year storm. The proposed project would involve the construction of approximately 16,850 linear feet of reinforced concrete box culverts and approximately 4,450 linear feet of reinforced concrete pipelines beneath existing roadways and adjacent public rights-of-way (e.g., sidewalks) and four new stormwater inlets into Escondido Creek. The culverts would range in size from a single 6-foot by 4-foot culvert (24



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Legend

- Proposed Storm Water Drainage Culvert/Pipeline Location
- Project Site

EAST VALLEY PARKWAY & MIDWAY DRIVE DRAINAGE IMPROVEMENTS
CITY OF ESCONDIDO



Source: Esri, San Diego County, City of Escondido, 2025 Nearmap Imagery

Project Site and Vicinity

Figure 2

square feet in area) to a dual 12-foot by 10-foot culvert (240 square feet in area). The pipelines would be 36 inches in diameter (approximately 7 square feet in area) and 54 inches in diameter (approximately 16 square feet in area). The project would require relocation of some of the existing underground utility lines to accommodate the proposed storm drain culverts. After relocation of existing utilities and installation of the proposed storm drain culverts and pipes, the affected roadways/sidewalks would be resurfaced. Road resurfacing would include the provision of storm drain inlets along both sides of the roads to collect runoff. The project would also include bioretention areas to provide filtration and treatment of runoff before discharging into Escondido Creek. Construction of the proposed project is anticipated to take approximately 24 months to complete, commencing in February 2026 and concluding in February 2028. Given the linear nature of the project, the active construction area would continuously move along the project site at a rate of approximately 50 to 80 linear feet per day. Pipe installation would be completed in trenches. After the pipe installation, the trenches would be backfilled and the road would be repaved. The proposed project would require 90,000 cubic yards of soil export and 31,000 cubic yards of soil import.

ENVIRONMENTAL SETTING

Regional Topography

The California Air Resources Board (CARB) divides the State of California into 15 air basins that share similar meteorological and topographical features. The San Diego Air Basin (SDAB) covers a roughly 4,200-square-mile area and is bounded by the Pacific Ocean to the west and high mountain ranges to the east. The SDAB includes all of San Diego County with population and emissions concentrated mainly in the western portion of the county. The topography of the SDAB is highly varied, and the SDAB is comprised of coastal plains and lagoons, flatlands and mesas, broad valleys, canyons, foothills, mountains, and deserts.

The City is located in northern San Diego County, approximately 30 miles north of downtown San Diego and 90 miles south of downtown Los Angeles. The City is bordered by the unincorporated communities of Valley Center and Hidden Meadows to the north, the City of San Marcos to the west, Lake Hodges and the City of San Diego to the south, and by unincorporated County to the east. Major roadways traversing the City include Interstate 15 and State Route 78.

Climate

The climate of the SDAB is classified as Mediterranean, with warm, dry summers and mild winters. The area experiences an average of 201 days above 70 degrees Fahrenheit and 9 to 13 inches of rainfall annually (SDAPCD 2018). During fall, the region often experiences dry, warm easterly winds, locally referred to as Santa Ana winds, which raise temperatures and lower humidity.

A common atmospheric condition known as a temperature inversion affects air quality in the SDAB. During an inversion, air temperatures get warmer rather than cooler with increasing height. Inversion layers are important for local air quality because they inhibit the dispersion of pollutants and result in a temporary degradation of air quality. The pollution potential of an area is largely dependent on a combination of winds, atmospheric stability, solar radiation, and terrain. The combination of low wind speeds and low-level inversions produces the greatest concentration of air pollutants. On days without inversions, or on days with wind speeds averaging over 15 miles per hour, the atmospheric pollution potential is greatly reduced.

Criteria Air Pollutants

Carbon Monoxide (CO). CO is an odorless, colorless toxic gas that is emitted by mobile and stationary sources as a result of incomplete combustion of hydrocarbons or other carbon-based fuels. In cities, automobile exhaust can cause as much as 95 percent of all CO emissions. CO replaces oxygen in the body's red blood cells. Individuals with a deficient blood supply to the heart, patients with diseases involving heart and blood vessels, fetuses (unborn babies), and patients with chronic hypoxemia (oxygen deficiency) as seen in high altitudes are most susceptible to the adverse effects of CO exposure. People with heart disease are also more susceptible to developing chest pains when exposed to low levels of CO.

Ozone (O₃). O₃ occurs in two layers of the atmosphere. The layer surrounding the earth's surface is the troposphere. The troposphere extends approximately 10 miles above ground level, where it meets the second layer, the stratosphere. The stratosphere (the "good" O₃ layer) extends upward from the troposphere approximately 10 to 30 miles and protects life on earth from the sun's harmful ultraviolet rays. "Bad" O₃ can occur in the troposphere as a photochemical pollutant, and it needs volatile organic compounds (VOCs), nitrogen oxides (NO_x), and sunlight to form; therefore, VOCs and NO_x are O₃ precursors. To reduce O₃ concentrations, it is necessary to control the emissions of these O₃ precursors. Significant O₃ formation generally requires an adequate amount of precursors in the atmosphere and a period of several hours in a stable atmosphere with strong sunlight. High O₃ concentrations can form over large regions when emissions from motor vehicles and stationary sources are carried hundreds of miles from their origins.

While O₃ in the upper atmosphere (stratosphere) protects the earth from harmful ultraviolet radiation, high concentrations of ground-level O₃ (in the troposphere) can adversely affect the human respiratory system and other tissues. O₃ is a strong irritant that can constrict the airways, forcing the respiratory system to work harder to deliver oxygen. Individuals exercising outdoors, children, and people with pre-existing lung disease such as asthma and chronic pulmonary lung disease are considered to be the most susceptible to the health effects of O₃. Short-term exposure (lasting for a few hours) to O₃ at elevated levels can result in aggravated respiratory diseases such as emphysema, bronchitis, and asthma. Short-term exposure can also cause shortness of breath, increased susceptibility to infections, inflammation of the lung tissue, increased fatigue, chest pain, dry throat, headaches, and nausea.

Nitrogen Dioxide (NO₂). NO_x are a family of highly reactive gases that are a primary precursor to the formation of ground-level O₃ and react in the atmosphere to form acid rain. NO₂ (often used interchangeably with NO_x) is a reddish-brown gas that can cause breathing difficulties at elevated levels. Peak readings of NO₂ occur in areas that have a high concentration of combustion sources (e.g., motor vehicle engines, power plants, refineries, and other industrial operations). NO₂ can irritate and damage the lungs and lower resistance to respiratory infections such as influenza. The health effects of short-term exposure are still unclear. However, continued or frequent exposure to NO₂ concentrations that are typically much higher than those normally found in the ambient air may increase acute respiratory illnesses in children and increase the incidence of chronic bronchitis and lung irritation. Chronic exposure to NO₂ may aggravate eyes and mucus membranes and cause pulmonary dysfunction.

Coarse Particulate Matter (PM₁₀). PM₁₀ refers to suspended particulate matter, which is smaller than 10 microns or 10 one-millionths of a meter. PM₁₀ arises from sources such as road dust,

diesel soot, combustion products, construction operations, and dust storms. PM₁₀ scatters light and significantly reduces visibility. In addition, these particulates penetrate into the lungs and can potentially damage the respiratory tract. On June 19, 2003, CARB adopted amendments to the statewide 24-hour particulate matter standards based upon requirements set forth in the Children's Environmental Health Protection Act (Senate Bill [SB] 25).

Fine Particulate Matter (PM_{2.5}). Due to recent increased concerns over health impacts related to fine particulate matter (particulate matter 2.5 microns in diameter or less), both state and federal PM_{2.5} standards have been created. Particulate matter primarily impacts infants, children, the elderly, and those with pre-existing cardiopulmonary disease. In February 2024, the United States (US) Environmental Protection Agency (EPA) lowered the federal primary PM_{2.5} annual standard to 9.0 microgram per cubic meter (µg/m³) from the 12.0 µg/m³ standard set in 2012. The secondary annual standard remains at 15.0 µg/m³. States and tribal authorities will submit initial recommendations of areas that do not attain this standard (i.e., nonattainment areas) to the EPA by February 2025, and the EPA will finalize area designations by February 2026.

On June 20, 2002, CARB adopted amendments for statewide annual ambient particulate matter air quality standards. CARB revised these standards due to increasing concerns that previous standards were inadequate, as nearly all Californians are exposed to levels at or above the current state standards throughout the year. Ultimately, the potential for significant health impacts associated with statewide particulate matter exposure was determined to be large and wide-ranging.

Sulfur Dioxide (SO₂). SO₂ is a colorless, irritating gas with a rotten egg smell; it is formed primarily by the combustion of sulfur-containing fossil fuels. SO₂ is often used interchangeably with sulfur oxide (SO_x). Exposure of a few minutes to low levels of SO₂ can result in airway constriction in some asthmatics.

Volatile Organic Compounds (VOC). VOCs are hydrocarbon compounds (any compound containing various combinations of hydrogen and carbon atoms) that exist in the ambient air. VOCs contribute to the formation of smog through atmospheric photochemical reactions and may be toxic. Compounds of carbon (also known as organic compounds) have different levels of reactivity; that is, they do not react at the same speed or do not form O₃ to the same extent when exposed to photochemical processes. VOCs often have an odor, and examples include gasoline, alcohol, and the solvents used in paints. Exceptions to the VOC designation include carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate. VOCs are not considered criteria pollutants; however, they are a precursor to O₃, which is a criteria pollutant. Due to the role VOCs play in O₃ formation, they are classified as a precursor pollutant and only a regional emissions threshold has been established. The terms VOCs and ROG (see below) are often used interchangeably.

Reactive Organic Gases (ROG). Similar to VOCs, ROG are also precursors in forming O₃ and consist of compounds containing methane, ethane, propane, butane, and longer chain hydrocarbons, which are typically the result of some type of combustion/decomposition process. Smog is formed when ROG and nitrogen oxides react in the presence of sunlight. ROG are a criteria pollutant since they are a precursor to O₃, which is a criteria pollutant. The terms ROG and VOCs (see above) are often used interchangeably.

Local Ambient Air Quality

CARB monitors ambient air quality at approximately 250 air monitoring stations across the state. Air quality monitoring stations usually measure pollutant concentrations ten feet above ground level; therefore, air quality is often referred to in terms of ground-level concentrations. The closest air monitoring station to the project site that monitors CO, NO₂, and PM_{2.5} is the Rancho Carmel Drive Monitoring Site located at 11403 Rancho Carmel Drive, San Diego, CA 92128. The closest air monitoring station to the project site that monitors O₃ is the Camp Pendleton Monitoring Station located at 21441 West B Street, Camp Pendleton, CA 92019. Table 1, Summary of Air Quality Data, lists the monitored maximum concentrations and number of exceedances of federal/state air quality standards for each year. The most recent available local air quality data (2021 to 2023) is provided.

Table 1
Summary of Air Quality Data

Pollutant	California Primary Standard	Federal Primary Standard	Year	Maximum Concentration ¹	Number of Days State/Federal Std. Exceeded
Ozone (O ₃) (1-hour) ³	0.09 ppm for 1 hour	NA ⁶	2021	0.074 ppm	0/0
			2022	0.076 ppm	0/0
			2023	0.090 ppm	0/0
Ozone (O ₃) (8-hour) ³	0.070 ppm for 8 hours	0.070 ppm for 8 hours	2021	0.059 ppm	0/0
			2022	0.067 ppm	0/0
			2023	0.077 ppm	1/1
Carbon Monoxide (CO) (1-hour) ²	20 ppm for 1 hour	35 ppm for 1 hour	2021	1.800 ppm	0/0
			2022	2.200 ppm	0/0
			2023	1.600 ppm	0/0
Nitrogen Dioxide (NO ₂) ²	0.18 ppm for 1 hour	0.100 ppm for 1 hour	2021	0.054 ppm	0/0
			2022	0.056 ppm	0/0
			2023	0.053 ppm	0/0
Fine Particulate Matter (PM _{2.5}) ^{2, 5}	No Separate Standard	35 µg/m ³ for 24 hours	2021	23.5 µg/m ³	0/0
			2022	14.9 µg/m ³	0/0
			2023	23.2 µg/m ³	0/0
Coarse Particulate Matter (PM ₁₀) ⁴	50 µg/m ³ for 24 hours	150 µg/m ³ for 24 hours ⁷	2021	*	*/*
			2022	*	*/*
			2023	*	*/*

Notes: ppm = parts per million; PM₁₀ = particulate matter 10 microns in diameter or less; µg/m³ = micrograms per cubic meter; PM_{2.5} = particulate matter 2.5 microns in diameter or less; N/A = Not Applicable; * = Insufficient Data

- Maximum concentration is measured over the same period as the California Standards.
- Data collected from the Rancho Carmel Drive Monitoring Station located at 11403 Rancho Carmel Drive, San Diego, CA 92128.
- Data collected from the Camp Pendleton Monitoring Station located at 21441 West B Street, Camp Pendleton, CA 92019.
- No information is available for this pollutant and year range within San Diego County.
- PM₁₀ and PM_{2.5} exceedances are derived from the number of samples exceeded, not days.
- The federal standard for 1-hour ozone was revoked in June 2005.
- The federal standard for average PM₁₀ was revoked in December 2006.

Sources:

California Air Resources Board, *ADAM Air Quality Data Statistics*, <http://www.arb.ca.gov/adam/>, accessed February 4, 2025.
California Air Resources Board, *AQMIS2: Air Quality Data*, <https://www.arb.ca.gov/aqmis2/aqdsselect.php>, accessed February 4, 2025.

Sensitive Receptors

Sensitive receptors are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis.

As a storm water drainage improvement project, construction activities would move along the project limits. The nearest sensitive receptors are residential uses (multi-family residences and single-family residences), institutional uses (New Hope Community Church), and schools (Orange Glen High School, Oak Hill Elementary School, Learning Jungle Escondido East, etc.) located along the proposed project limits.

Global Climate Change

The natural process through which heat is retained in the troposphere is called the “greenhouse effect.”¹ The greenhouse effect traps heat in the troposphere through a threefold process as follows: short wave radiation emitted by the sun is absorbed by the Earth; the Earth emits a portion of this energy in the form of long wave radiation; and greenhouse gases (GHGs) in the upper atmosphere absorb this long wave radiation and emit this long wave radiation into space and toward the Earth. This “trapping” of the long wave (thermal) radiation emitted back toward the Earth is the underlying process of the greenhouse effect.

California is a substantial contributor of global GHGs, emitting approximately 371.1 million metric tons of carbon dioxide equivalents (MMT CO_2e) in 2022, which is 9.3 MMT CO_2e lower than 2021 levels (CARB 2024b). A carbon dioxide equivalent (CO_2e)² is defined as the number of metric tons of carbon dioxide (CO_2) emissions with the same global warming potential as one metric ton of another GHG. Methane (CH_4) is also an important GHG that potentially contributes to global climate change. GHGs are global in their effect, which is to increase the earth’s ability to absorb heat in the atmosphere. As primary GHGs have a long lifetime in the atmosphere, accumulate over time, and are generally well-mixed, their impact on the atmosphere is mostly independent of the point of emission. Every nation emits GHGs and as a result makes an incremental cumulative contribution to global climate change; therefore, global cooperation will be required to reduce the rate of GHG emissions enough to slow or stop the human-caused increase in average global temperatures and associated changes in climatic conditions.

The impact of human activities on global climate change is apparent in the observational record. Air trapped by ice has been extracted from core samples taken from polar ice sheets to determine the global atmospheric variation of CO_2 , CH_4 , and nitrous oxide (N_2O) from before the start of industrialization (approximately 1750), to over 650,000 years ago. For that period, it was found that CO_2 concentrations ranged from 180 to 300 parts per million (ppm). For the period from approximately 1750 to the present, global CO_2 concentrations increased from a pre-industrialization period concentration of 280 to 379 ppm in 2005, with the 2005 value far exceeding the upper end of the pre-industrial period range. As of February 2025, the highest monthly average concentration of CO_2 in the atmosphere was recorded at 427 ppm (Scripps Institution of Oceanography 2025).

The Intergovernmental Panel on Climate Change constructed several emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts. It concluded that a stabilization of GHGs at 400 to 450 ppm CO_2e concentration is required to keep global mean warming below 2 degrees Celsius (3.8 degrees Fahrenheit), which in turn is assumed to be necessary to avoid dangerous climate change.

¹ The troposphere is the bottom layer of the atmosphere, which varies in height from the Earth’s surface to 10 to 12 kilometers.

² Carbon Dioxide Equivalent (CO_2e) – A metric measure used to compare the emissions from various greenhouse gases based upon their global warming potential.

Electricity and Natural Gas

San Diego Gas & Electric distributes energy services through electric meters and natural gas meters in San Diego County and southern Orange County. Over the past 15 years, California's electricity generation has transitioned. Historically, California has relied heavily on oil- and gas-fired plants to generate electricity. Spurred by regulatory measures and tax incentives, California's electrical system has become more reliant on renewable energy sources, including cogeneration, wind energy, solar energy, geothermal energy, biomass conversion, transformation plants, and small hydroelectric plants. Unlike petroleum production, electricity generation is usually not tied to the location of the fuel source and can be delivered great distances via the electrical grid. The generating capacity of a unit of electricity is expressed in megawatts (MW). Net generation refers to the gross amount of energy produced by a unit, minus the amount of energy the unit consumes. Generation is typically measured in kilowatt-hours (kWh), megawatt-hours (MWh), or gigawatt-hours (GWh). Natural gas generation is expressed in therms, where one therm is equivalent to 100,000 British Thermal Units (BTUs).

Automotive Fuel

In California, gasoline consumed primarily by light-duty cars, pickup trucks, and sport utility vehicles is the most-used transportation fuel. Diesel, the second most-used transportation fuel, is primarily consumed by heavy-duty trucks, delivery vehicles, buses, trains, ships, boats and barges, farm equipment, and heavy-duty construction and military vehicles. Both gasoline and diesel are primarily petroleum-based, and their consumption releases GHG emissions. The transportation sector is the single largest source of GHG emissions in California and accounts for the largest share of California's energy consumption. Direct emissions from vehicle tailpipes, intrastate aviation, and other transportation sources account for 37.7 percent of statewide emissions in 2022 (CARB 2024b). California's transportation sector accounts for 43 percent of California's total energy consumption in 2022 (EIA 2024). To reduce statewide vehicle emissions, California requires that all motorists use California Reformulated Gasoline, which is sourced almost exclusively from California refineries.

Energy Usage

Total energy usage in California was 6,882 trillion BTU in 2022, which equates to an average of 176 million BTU per capita (EIA 2024). Of California's total energy usage, the breakdown by sector is approximately 43 percent transportation, 22 percent industrial, 17 percent commercial, and 18 percent residential (EIA 2024). Electricity in California is generally consumed by stationary users such as residences and commercial and industrial facilities, whereas petroleum consumption is generally accounted for by transportation-related energy use. In 2024, taxable gasoline sales (including aviation gasoline) in California accounted for 13,474,197,524 gallons of gasoline (CDTFA 2024).

The electricity and natural gas consumption attributable to San Diego County from 2012 to 2022 is shown in [Table 2, *Electricity and Natural Gas Consumption in San Diego County \(2012-2022\)*](#). The year 2022 is the most recent year for which data is available.

Table 2
Electricity and Natural Gas Consumption in San Diego County (2012-2022)

Year	Electricity Consumption (in millions of kilowatt hours)	Natural Gas Consumption (in millions of therms)
2012	19,370.26	514.70
2013	19,423.25	527.64
2014	19,736.18	451.02
2015	19,718.48	452.76
2016	19,496.81	472.79
2017	19,360.61	479.84
2018	19,513.50	482.52
2019	19,040.88	533.91
2020	19,121.40	505.22
2021	19,485.54	523.52
2022	20,242.90	522.31

Source:
California Energy Commission, *Electricity Consumption by County*, <http://www.ecdms.energy.ca.gov/>, accessed February 4, 2025.
California Energy Commission, *Gas Consumption by County*, <http://www.ecdms.energy.ca.gov/>, accessed February 4, 2025.

Automotive and construction off-road equipment fuel consumption in San Diego County from 2012 to 2024 is shown in Table 3, *Automotive and Construction Off-Road Equipment Fuel Consumption in San Diego County (2012-2024)*.

Table 3
**Automotive and Construction Off-Road Equipment Fuel Consumption
in San Diego County (2012-2024)**

Year	On-Road Automotive Fuel Consumption (gallons)	Construction Off-Road Equipment Diesel Fuel Consumption (gallons)
2012	1,604,750,566	17,436,930
2013	1,620,681,001	17,581,105
2014	1,635,658,399	17,651,900
2015	1,679,417,021	17,669,041
2016	1,728,691,883	17,619,444
2017	1,742,436,811	17,513,767
2018	1,731,779,380	17,343,893
2019	1,699,773,785	17,117,131
2020	1,494,505,625	13,966,650
2021	1,675,403,567	13,959,893
2022	1,669,163,851	13,957,081
2023	1,654,103,702	13,956,817
2024	1,629,463,663	14,870,678

Source:
California Air Resources Board, *EMFAC2021*, <https://arb.ca.gov/emfac/emissions-inventory/>, accessed February 5, 2025.
California Air Resources Board, *EMFAC2021 Off-Road Web Platform*, <https://arb.ca.gov/emfac/offroad/emissions-inventory/>, accessed February 5, 2025.

REGULATORY SETTING

Federal

Federal Clean Air Act

The Federal Clean Air Act (FCAA) of 1970 and the FCAA Amendments of 1971 required the EPA to establish National Ambient Air Quality Standards (NAAQS), which required the EPA to adopt more stringent air quality standards or to include standards for other specific pollutants. The FCAA was amended in 1990 to address many air pollutants that are known to cause or may reasonably be anticipated to cause adverse effects to human health or adverse environmental effects. A total of 188 specific pollutants and chemical groups were initially identified as hazardous air pollutants, and the list has been modified over time. The FCAA Amendments included new regulatory

programs to control acid deposition and regulate the issuance of stationary source operating permits. These standards identify levels of air quality for “criteria” pollutants that are considered the maximum levels of ambient (background) air pollutants considered safe, with an adequate margin of safety, to protect the public health and welfare; refer to [Table 4, *National and California Ambient Air Quality Standards*](#).

GHG Endangerment Ruling

The US Supreme Court in *Massachusetts et al. v. Environmental Protection Agency et al.* (549 U.S. 05-1120 [2007]) held that the EPA has the authority to regulate motor vehicle GHG emissions under the FCAA and make a determination whether or not GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably endanger public health or welfare. In December 2009, the EPA issued an endangerment finding for GHG emissions under the FCAA, which set the stage for future regulations as the finding did not impose any emission reduction requirements. Accordingly, in response to the endangerment finding, the EPA issued a Final Rule for mandatory reporting of GHG emissions in October 2009. The Final Rule applies to fossil fuel suppliers, industrial gas suppliers, direct GHG emitters, and manufacturers of heavy-duty and off-road vehicles and vehicle engines and requires facilities that emit 25,000 metric tons of CO₂e or more per year to submit an annual report.

Corporate Average Fuel Economy (CAFE) Standards

Established by the US Congress in 1975, the Corporate Average Fuel Economy (CAFE) Standards (49 Code of Federal Regulations Parts 531 and 533) set fuel economy standards for all new passenger cars and light trucks sold in the United States. The National Highway Traffic Safety Administration (NHTSA) and the EPA jointly administer the CAFE standards, which become more stringent each year.

In August 2016, the EPA and NHTSA announced the adoption of Phase Two programs related to the fuel economy and GHG emissions standards for medium- and heavy-duty trucks. The Phase Two program applied to vehicles with model year 2018 through 2027 for certain trailers and model years 2021 through 2027 for semi-trucks, large pickup trucks, vans, and all types and sizes of buses and work trucks. The final standards were expected to lower CO₂ emissions by approximately 1.1 billion metric tons of CO₂ and reduce oil consumption by up to two billion barrels over the lifetime of the vehicles sold under the program. The NHTSA and the EPA jointly published the “Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program” (SAFE I Rule) in September 2019 and issued the Final SAFE Rule (i.e., SAFE Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks) in April 2020. The SAFE I Rule relaxed federal CAFE vehicle standards and revoked California’s authority to set its own vehicle standards. On December 29, 2021, the NHTSA issued the Final Rule to repeal the SAFE I Rule, effective January 28, 2022, which removes the improper restrictions placed on states and local governments from developing innovative policies to address their specific environmental and public health challenges (EPA 2021). The EPA also issued a decision on March 14, 2022, that rescinded its 2019 withdrawal of California’s authority to set its own vehicle standards.

State

California Clean Air Act

Clean Air Act permitting in California is the shared responsibility of CARB, its 35 air pollution control agencies (districts), and EPA Region 9. Generally, CARB plays an oversight role for permitting and does not issue any pre-construction or operating permits. However, the state agency provides significant support to agencies that need permitting assistance.

California Air Resources Board

The CARB administers the air quality policy in California. The California Ambient Air Quality Standards (CAAQS) were established in 1969 pursuant to the Mulford-Carrell Act. These standards, shown with the NAAQS in [Table 4](#), are generally more stringent and apply to more pollutants than the NAAQS. In addition to the criteria pollutants, CAAQS have been established for visibility reducing particulates, hydrogen sulfide, and sulfates. The California Clean Air Act (CCAA), which was approved in 1988, requires that each local air quality management district prepare and maintain an Air Quality Management Plan (AQMP) to achieve compliance with the CAAQS. These AQMPs also serve as the basis for the preparation of the State Implementation Plan (SIP) for the State of California.

Like the EPA, the CARB also designates areas within California as either attainment or non-attainment for each criteria pollutant based on whether the CAAQS have been achieved. Under the CCAA, areas are designated as non-attainment for a pollutant if air quality data show that a State standard for the pollutant was violated at least once during the previous three calendar years. Exceedances that are affected by highly irregular or infrequent events are not considered violations of a State standard and are not used as a basis for designating areas as non-attainment.

**Table 4
National and California Ambient Air Quality Standards**

Pollutant	Averaging Time	California ¹ Standard ³	California ¹ Attainment Status	Federal ² Standards ^{3,4}	Federal ² Attainment Status
Ozone	1 Hour	0.09 ppm (180 µg/m ³)	Nonattainment	N/A	N/A ⁵
Ozone	8 Hours	0.070 ppm (137 µg/m ³)	Nonattainment	0.070 ppm (137 µg/m ³)	Nonattainment
Particulate Matter	24 Hours	50 µg/m ³	Nonattainment	150 µg/m ³	Attainment/Maintenance
Particulate Matter	Annual Arithmetic Mean	20 µg/m ³	Nonattainment	N/A	N/A
Fine Particulate Matter	24 Hours	No Separate State Standard	No Separate State Standard	35 µg/m ³	Nonattainment
Fine Particulate Matter	Annual Arithmetic Mean	12 µg/m ³	Nonattainment	9.0 µg/m ³	Nonattainment
Carbon Monoxide	8 Hours	9.0 ppm (10 mg/m ³)	Attainment	9 ppm (10 mg/m ³)	Attainment/Maintenance
Carbon Monoxide	1 Hour	20 ppm (23 mg/m ³)	Attainment	35 ppm (40 mg/m ³)	Attainment/Maintenance
Nitrogen Dioxide ⁵	Annual Arithmetic Mean	0.030 ppm (57 µg/m ³)	N/A	53 ppb (100 µg/m ³)	Attainment/Maintenance
Nitrogen Dioxide ⁵	1 Hour	0.18 ppm (339 µg/m ³)	Attainment	100 ppb (188 µg/m ³)	Attainment/Maintenance
Lead ^{7,8}	30 days Average	1.5 µg/m ³	Attainment	N/A	N/A
Lead ^{7,8}	Calendar Quarter	N/A	N/A	1.5 µg/m ³	Nonattainment
Lead ^{7,8}	Rolling 3-Month Average	N/A	N/A	0.15 µg/m ³	Nonattainment
Sulfur Dioxide ⁶	24 Hours	0.04 ppm (105 µg/m ³)	Attainment	0.14 ppm (for certain areas)	Unclassified/Attainment
Sulfur Dioxide ⁶	3 Hours	N/A	N/A	N/A	N/A
Sulfur Dioxide ⁶	1 Hour	0.25 ppm (655 µg/m ³)	Attainment	75 ppb (196 µg/m ³)	N/A
Sulfur Dioxide ⁶	Annual Arithmetic Mean	N/A	N/A	0.030 ppm (for certain areas)	Unclassified/Attainment
Visibility-Reducing Particles ⁹	8 Hours (10 a.m. to 6 p.m., PST)	Extinction coefficient = 0.23 km@<70% RH	Unclassified	No Federal Standards	No Federal Standards
Sulfates	24 Hour	25 µg/m ³	Attainment	No Federal Standards	No Federal Standards
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m ³)	Unclassified	No Federal Standards	No Federal Standards
Vinyl Chloride ⁷	24 Hour	0.01 ppm (26 µg/m ³)	N/A	No Federal Standards	No Federal Standards

Notes: µg/m³ = micrograms per cubic meter; ppm = parts per million; ppb = parts per billion; km = kilometer(s); RH = relative humidity; PST = Pacific Standard Time; N/A = Not Applicable

- California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1- and 24-hour), nitrogen dioxide, and particulate matter (PM₁₀, PM_{2.5}, and visibility reducing particles) are values that are not to be exceeded. All others are not to be equaled or exceeded. California Ambient Air Quality Standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
- National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM₁₀, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than one. For PM_{2.5}, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.
- Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
- National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.
- To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 parts per billion (ppb). Note that the national 1-hour standard is in units of ppb. California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards, the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
- On June 2, 2010, a new 1-hour SO₂ standard was established, and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO₂ national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved. Note that the 1-hour national standard is in units of ppb. California standards are in units of ppm. To directly compare the 1-hour national standard to the California standard, the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
- The CARB has identified lead and vinyl chloride as "Toxic Air Contaminants" with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
- The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 µg/m³ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
- In 1989, the CARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Source: California Air Resources Board, *Ambient Air Quality Standards Chart*, https://ww2.arb.ca.gov/sites/default/files/2024-08/AAQS%20Table_ADA_FINAL_07222024.pdf, July 16, 2024.

Executive Order S-03-05

Executive Order S-03-05, signed by Governor Schwarzenegger in June 2005, sets the following GHG reduction targets for the State:

- 2000 levels by 2010
- 1990 levels by 2020
- 80 percent below 1990 levels by 2050

Assembly Bill 1493

Assembly Bill (AB) 1493, also known as the Pavley Bill, requires that the CARB develop and adopt regulations by January 1, 2005, that achieve “the maximum feasible and cost-effective reduction of GHG emissions from motor vehicles.” On June 30, 2009, the EPA granted the waiver of FCAA preemption to California for its GHG emissions standards for motor vehicles beginning with the 2009 model year. Pavley I regulates model years from 2009 to 2016, and Pavley II, which is now referred to as “LEV (Low Emission Vehicle) III GHG,” regulates model years from 2017 to 2025. The Advanced Clean Cars program coordinates the goals of the LEV, Zero Emissions Vehicles (ZEV), and Clean Fuels Outlet programs, which should provide major reductions in GHG emissions. By 2025, when the rules will be fully implemented, new automobiles will emit 34 percent fewer GHGs and 75 percent fewer smog-forming emissions from their model year 2016 levels.

Assembly Bill 32 - California Global Warming Solutions Act of 2006, Senate Bill 32 - California Global Warming Solutions Act of 2016, and Climate Change Scoping Plans

California’s major initiative for reducing GHG emissions is outlined in AB 32, the California Global Warming Solutions Act of 2006, which was signed into law in 2006. AB 32 codifies the statewide goal of reducing GHG emissions to 1990 levels by 2020 and required the CARB to prepare a Scoping Plan that outlines the main State strategies for reducing GHGs to meet the 2020 deadline. In addition, AB 32 required the CARB to adopt regulations to require reporting and verification of statewide GHG emissions. Based on this guidance, the CARB approved a 1990 statewide GHG level and 2020 limit of 427 MMTCO_{2e}. To implement AB 32, the first Climate Change Scoping Plan (2008 Scoping Plan) was approved by the CARB on December 11, 2008, and included measures to address GHG emissions reduction strategies related to energy efficiency, water use, and recycling and solid waste, among other measures. Many of the GHG emissions reduction measures included in the Scoping Plan (e.g., Low Carbon Fuel Standard [LCFS], Advanced Clean Car [ACC] standards, and Cap-and-Trade Program) have been adopted since approval of the Scoping Plan.

In May 2014, the CARB approved the first update to the 2008 Scoping Plan, the 2013 Scoping Plan, which defined the CARB’s climate change priorities for the next five years and set the groundwork to reach post-2020 statewide goals. The update highlighted California’s progress toward meeting the “near-term” 2020 GHG emission reduction goals defined in the original Scoping Plan and evaluated how to align the State’s longer-term GHG emissions reduction strategies with other State policy priorities, including those for water, waste, natural resources, clean energy, transportation, and land use.

SB 32, signed into law on September 8, 2016, extended AB 32 by requiring the State to further reduce GHGs to 40 percent below 1990 levels by 2030 (the other provisions of AB 32 remained

unchanged). In December 2017, the CARB adopted the 2017 Scoping Plan (an update to the 2013 Scoping Plan), which provided a framework for achieving the 2030 target. The 2017 Scoping Plan relied on the continuation and expansion of existing policies and regulations, such as the Cap-and-Trade Program, as well as implementation of then recently adopted policies, such as SB 350 and SB 1383. The 2017 Scoping Plan also put an increased emphasis on innovation, adoption of existing technology, and strategic investment to support its strategies. As with the 2013 Scoping Plan, the 2017 Scoping Plan did not provide project-level thresholds for land use development. Instead, the 2017 Scoping Plan recommended that local governments adopt policies and locally appropriate quantitative thresholds consistent with statewide per capita goals of no more than 6 MTCO_{2e} by 2030 and 2 MTCO_{2e} by 2050.

In response to the passage of AB 1279 and the identification of the 2045 GHG emissions reduction target, the CARB adopted the *2022 Scoping Plan for Achieving Carbon Neutrality* (2022 Scoping Plan) in December 2022. The 2022 Scoping Plan builds upon the framework established by the 2008 Climate Change Scoping Plan and previous updates while identifying a new, technologically feasible, cost-effective, and equity-focused path to achieve California's climate target. The 2022 Scoping Plan includes policies to achieve a significant reduction in fossil fuel combustion, further reductions in short-lived climate pollutants, support for sustainable development, increased action on natural and working lands to reduce emissions and sequester carbon, and the capture and storage of carbon.

The 2022 Scoping Plan assesses the progress California is making toward reducing its GHG emissions by at least 40 percent below 1990 levels by 2030, as called for in SB 32 and laid out in the 2017 Scoping Plan; addresses recent legislation and direction from Governor Newsom; extends and expands upon these earlier plans; and implements a target of reducing anthropogenic emissions to 85 percent below 1990 levels by 2045, as well as taking an additional step of adding carbon neutrality as a science-based guide for California's climate work. As stated in the 2022 Scoping Plan, "the plan outlines how carbon neutrality can be achieved by taking bold steps to reduce GHGs to meet the anthropogenic emissions target and by expanding actions to capture and store carbon through the State's natural and working lands and using a variety of mechanical approaches." Specifically, the 2022 Scoping Plan achieves the following:

- Identifies a path to keep California on track to meet its SB 32 GHG reduction target of at least 40 percent below 1990 emissions by 2030.
- Identifies a technologically feasible, cost-effective path to achieve carbon neutrality by 2045 and a reduction in anthropogenic emissions by 85 percent below 1990 levels.
- Focuses on strategies for reducing California's dependency on petroleum to provide consumers with clean energy options that address climate change, improve air quality, and support economic growth and clean sector jobs.
- Integrates equity and protecting California's most impacted communities as driving principles throughout the document.
- Incorporates the contribution of natural and working lands to the State's GHG emissions, as well as their role in achieving carbon neutrality.
- Relies on the most up-to-date science, including the need to deploy all viable tools to address the existential threat that climate change presents, including carbon capture and sequestration, as well as direct air capture.

- Evaluates the substantial health and economic benefits of taking action.
- Identifies key implementation actions to ensure success.

In addition to reducing emissions from transportation, energy, and industrial sectors, the 2022 Scoping Plan includes emissions and carbon sequestration in natural and working lands and explores how they contribute to long-term climate goals. Under the Scoping Plan Scenario, California's 2030 emissions are anticipated to be 48 percent below 1990 levels, representing an acceleration of the current SB 32 target. The Cap-and-Trade Program continues to play a large factor in the reduction of near-term emissions for meeting the accelerated 2030 reduction target. Every sector of the economy will need to begin to transition in this decade to meet these GHG emissions reduction goals and achieve carbon neutrality no later than 2045. The 2022 Scoping Plan approaches decarbonization from two perspectives, managing a phasedown of existing energy sources and technologies, as well as increasing, developing, and deploying alternative clean energy sources and technology.

Senate Bill 100 - California Renewables Portfolio Standard Program

Adopted on September 10, 2018, SB 100 supports the reduction of GHG emissions from the electricity sector by accelerating the State's Renewables Portfolio Standard (RPS) Program, which had been last updated by SB 350 in 2015. SB 100 requires electricity providers to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020, 60 percent by 2030, and 100 percent by 2045.

Senate Bill 375 - 2008 Sustainable Communities and Climate Protection Act

SB 375, signed in August 2008, enhances the State's ability to reach AB 32 goals by directing the CARB to develop regional GHG emission reduction targets to be achieved from passenger vehicles by 2020 and 2035. In addition, SB 375 directs each of the State's 18 major metropolitan planning organizations to prepare a "sustainable communities strategy" (SCS) that contains a growth strategy to meet these emission targets for inclusion in the Regional Transportation Plan. On March 22, 2018, CARB adopted updated regional targets for reducing GHG emissions from 2005 levels by 2020 and 2035. On December 10, 2021, the San Diego Association of Governments (SANDAG), which serves as the metropolitan planning organization for the San Diego region, adopted its 2021 Regional Transportation Plan/Sustainable Communities Strategy, also known as the *San Diego Forward: The Regional Plan (2021 Regional Plan)*. SANDAG provided the CARB with a complete submittal of the 2021 Regional Plan and all necessary supporting information on March 16, 2022. It was determined that the 2021 Regional Plan (i.e., the SCS) achieves the regional targets, as adopted by the CARB in 2018, to reduce GHG emissions from passenger vehicle use by 15 percent by 2020 and 19 percent by 2035, compared to 2005 levels (CARB 2022).

Executive Order B-55-18 to Achieve Carbon Neutrality

On September 10, 2018, Governor Brown issued Executive Order B-55-18, which established a new statewide goal of achieving carbon neutrality by 2045 and maintaining net negative emissions thereafter. This goal is in addition to the existing statewide GHG emissions reduction targets established by SB 375, SB 32, SB 1383, and SB 100.

California Building Standards Code

California Code of Regulations Title 24 is referred to as the California Building Standards Code. It consists of a compilation of several distinct standards and codes related to building construction, including plumbing, electrical, interior acoustics, energy efficiency, and accessibility for persons with physical and sensory disabilities. These standards are updated every three years. The most recent update, the 2022 California Building Standards, went into effect on January 1, 2023.

Building Energy Efficiency Standards/California Energy Code (Title 24, Part 6)

California Code of Regulations Title 24, Part 6, is the Building Energy Efficiency Standards, also referred to as the California Energy Code. This code, originally enacted in 1978, establishes energy-efficiency standards for residential and nonresidential buildings to reduce California's energy demand. New construction and major renovations must demonstrate their compliance with the current California Energy Code through submittal and approval of a Title 24 Compliance Report to the local building permit review authority and the California Energy Commission. The 2022 California Energy Code continues to improve upon the previous 2019 Title 24 standards for new construction of, and additions and alterations to, residential and nonresidential buildings. The 2022 California Energy Code is anticipated to reduce GHG emissions by 10 MMTCO₂e over the next 30 years and result in approximately \$1.5 billion in consumer savings. Compliance with Title 24 is enforced through the building permit process.

California Green Building Standards (Title 24, Part 11)

Title 24, Part 11, is referred to as the California Green Building Standards (CALGreen) Code and was developed to help the State achieve its GHG emissions reduction goals under AB 32 by codifying standards for reducing building-related energy, water, and resource demand, which in turn reduces GHG emissions from energy, water, and resource demand. The CALGreen Code establishes mandatory measures, which include energy efficiency, water conservation, material conservation, planning and design, and overall environmental quality, for new residential and nonresidential buildings.

California Public Utilities Commission Energy Efficiency Strategic Plan

The California Public Utilities Commission (CPUC) prepared an *Energy Efficiency Strategic Plan* (Strategic Plan) in September 2008 with the goal of promoting energy efficiency and GHG reductions. In January 2011, a lighting chapter was adopted and added to the Strategic Plan. The Strategic Plan is California's single roadmap to achieving maximum energy savings by the State from 2009 to 2020 and beyond. The Strategic Plan contains the practical strategies and actions to attain significant statewide energy savings, because of a year-long collaboration by energy experts, utilities, businesses, consumer groups, and governmental organizations in California, throughout the western U.S., nationally, and internationally. The plan includes the following four strategies:

1. All new residential construction in California will be zero net energy by 2020;
2. All new commercial construction in California will be zero net energy by 2030;
3. HVAC will be transformed to ensure that its energy performance is optimal for California's climate; and
4. All eligible low-income customers will be given the opportunity to participate in the low-income energy efficiency program by 2020.

California Public Utilities Commission Community Choice Aggregation

Community Choice Aggregation (CCA) was enacted by AB 117 in 2002. Under AB 117, “all electrical corporations must cooperate fully with community choice aggregators investigating, pursuing, or implementing community choice aggregator programs.”

The investor-owned utility (IOU) continues to provide transmission and distribution, metering, billing, collection, and customer service to retail customers participating in CCAs. AB 117 also provided guidance on how communities may create a CCA program. AB 117 requires that the city or county pass an ordinance to implement a CCA program within its jurisdiction. Two or more cities or counties may participate in a CCA program as a group through a Joint Powers Agency. Potential customers within a community's service area are automatically enrolled in a CCA program unless they opt out, if they are notified in writing of their right to opt out. If a customer opts out of CCA service, the IOU will continue to serve them as bundled customers.

CCAs are responsible for meeting regulatory compliance requirements established in Resource Adequacy (RA), Integrated Resource Planning, and RPS. CCAs are responsible for tracking and compliance with CPUC regulations.

California Energy Commission Integrated Energy Policy Report

In 2002, the California State legislature adopted SB 1389, which requires the CEC to develop an Integrated Energy Policy Report (IEPR) every two years. SB 1389 requires the CEC to conduct assessments and forecasts of all aspects of energy industry supply, production, transportation, delivery and distribution, demand, and prices, and use these assessments and forecasts to develop energy policies that conserve resources, protect the environment, ensure energy reliability, enhance the State's economy, and protect public health and safety.

The CEC adopted the *2023 Integrated Energy Policy Report (2023 IEPR)* on February 14, 2024. The 2023 IEPR provides the results of the CEC's assessments of a variety of energy issues facing California, many of which will require action if the State is to meet its climate, energy, air quality, and other environmental goals while maintaining reliability and controlling costs. The 2023 IEPR discusses speeding connection of clean resources to the electricity grid, the potential use of clean and renewable hydrogen, and the California Energy Demand Forecast to 2040.

Executive Order N-79-20

Executive Order N-79-20, issued September 23, 2020, directs the State to require all new cars and passenger trucks sold in the state to be zero-emission vehicles by 2035. Executive Order N-79-20 further states that all medium- and heavy-duty vehicles sold in the state will be zero-emission by 2045.

Regional

San Diego Air Pollution Control District

The San Diego Air Pollution Control District (SDAPCD) is one of 35 air quality management districts in California responsible for regional air quality planning, monitoring, and stationary source and facility permitting. Locally, the SDAPCD is entrusted with regulating stationary (fixed) sources of air pollution, including power plants, manufacturing and industrial facilities, stationary internal combustion engines, gas stations, landfills, and solvent cleaning and surface coating operations. However, approximately 67 percent of the air pollutants in the region are emitted by motor vehicles and other mobile sources (e.g., ships, trains, construction equipment, etc.).

Emission standards for mobile sources are established by the CARB and the EPA. SDAPCD rules and regulations applicable to the proposed project include the following:

- Rule 20.2: New Source Review Non-Major Stationary Sources

Rule 20.2 requires new or modified stationary source units (that are not major stationary sources) with the potential to emit 10 pounds per day or more of VOC, NO_x, SO_x, or PM₁₀ to be equipped with best available control technology. For those units with a potential to emit above Air Quality Impact Assessments Trigger Levels, the units must demonstrate that such emissions would not violate or interfere with the attainment of any national air quality standard.

The proposed project does not propose specific stationary sources. If stationary sources were to be included as part of the proposed project, or at a later date, those sources would be subject to Rule 20.2 and would require appropriate operating permits from the SDAPCD. Because the SDAPCD has not adopted specific criteria air pollutant thresholds for California Environmental Quality Act (CEQA) analyses, the thresholds identified in Rule 20.2 are utilized in this analysis as screening-level thresholds to evaluate project-level impacts.

- Rule 51: Nuisance

Rule 51 prohibits the discharge of air contaminants or other material from any sources that “cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health or safety of any such persons or the public or which cause or have a natural tendency to cause injury or damage to business or property.”

- Rule 55: Fugitive Dust Control

Rule 55 applies to any commercial construction or demolition activity capable of generating fugitive dust emissions, including active operations, open storage piles, and inactive disturbed areas. The following standards apply to the proposed project:

- (1) Airborne Dust beyond the Property Line: No person shall engage in construction or demolition activity subject to this rule in a manner that discharges visible dust emissions into the atmosphere beyond the property line for a period or periods aggregating more than 3 minutes in any 60-minute period.
- (2) Track-Out/Carry-Out: Visible roadway dust as a result of active operations, spillage from transport trucks, erosion, or track-out/carry-out shall:
 - (i) be minimized by the use of any of the following or equally effective track-out/carry-out and erosion control measures that apply to the project or operation: track-out grates or gravel beds at each egress point, wheel-washing at each egress during muddy conditions, soil binders, chemical soil stabilizers, geotextiles, mulching, or seeding; and for outbound transport trucks: using secured tarps or cargo covering, watering, or treating of transported material; and
 - (ii) be removed at the conclusion of each work day when active operations cease, or every 24 hours for continuous operations. If a street sweeper is

used to remove any track-out/carry-out, only PM₁₀-efficient street sweepers certified to meet the most current South Coast Air Quality Management District Rule 1186 requirements shall be used. The use of blowers for removal of track-out/carry-out is prohibited under any circumstances.

San Diego Regional Air Quality Strategy

In compliance with the CCAA, the SDAPCD prepared and submitted the *1991 Regional Air Quality Strategy* (RAQS) to address San Diego County's nonattainment status for O₃. The RAQS addresses State O₃ standards. It is periodically updated as new measures become technologically feasible, improve air quality, or protect public health. These measures reduce O₃-forming emissions from stationary sources, such as industrial operations and manufacturing facilities. The individual measures in the RAQS are then developed into proposed rules that are reviewed by the public and considered for adoption by the SDAPCD. Once adopted, the SDAPCD assists affected facilities to understand and comply with new requirements that may affect their operations. The two pollutants addressed in the RAQS are VOCs and NO_x, which are precursors to the formation of ground-level O₃.

The latest revision of the RAQS was published in 2022. The 2022 RAQS contains strategies to continue directly reducing emissions of ozone precursors in San Diego County and assist in reducing particulate matter (PM) and GHGs as a co-benefit. The primary requirement associated with the 2022 RAQS is to ensure that a revised emission control strategy contained in each RAQS be at least as effective in improving air quality as the control strategy being replaced. The proposed and scheduled measures included will provide additional direct emission reductions of ozone precursors (VOCs and NO_x), as well as indirect reductions of GHG and PM emissions. SDAPCD has adopted/amended seven existing measures, proposed and scheduled eight measures in the next three years, and proposed 14 additional measures for further study in the next three years. All proposed measures will further reduce air pollution beyond levels established in the previous (2016) RAQS. Together, the proposed control measures scheduled for consideration are estimated to reduce VOC emissions by approximately 0.04 tons per day and NO_x emissions by 0.59 tons per day. Consequently, the 2022 RAQS will provide additional emission reductions relative to the 2016 RAQS and, therefore, is more effective in improving air quality and meets all State requirements.

The SDAPCD has also developed the air basin's input to the SIP, which is required under the FCAA for nonattainment areas. The SIP includes the SDAPCD's plans and control measures for attaining the O₃ NAAQS. The latest revisions to the SIP were submitted by the CARB to the EPA in 2020. The SDAPCD has developed its *2020 Plan for Attaining the National Ambient Air Quality Standards for Ozone in San Diego County*, which provides plans for attaining and maintaining the 8-hour O₃ NAAQS. The 2020 SIP has been submitted to the EPA and is pending approval at this time.

San Diego Association of Governments (SANDAG)

On December 10, 2021, the SANDAG Board of Directors adopted the *San Diego Forward: The Regional Plan* (2021 Regional Plan). The 2021 Regional Plan combines the Regional Transportation Plan, Sustainable Communities Strategy, and Regional Comprehensive Plan, which complies with specific State and federal mandates that achieve GHG emission reduction targets set by the CARB; compliance with federal civil rights requirements (Title VI); and environmental justice considerations, air quality conformity, and a public participation process.

The regional transportation planning agency continues to implement regional transportation control measures to reduce motor vehicle use, thereby reducing emissions and improving air quality. The measures expand access to public transit, vanpools, and park-and-ride/bicycle facilities, as well as enhancements to the regional high-occupancy vehicle lane system.

Every four years, SANDAG researches and updates the Regional Plan of all future strategies that makes it easier for people and goods to move around within the region. SANDAG is in the process of developing more concrete details of the Draft 2025 Regional Plan. This comprehensive document will describe the transportation projects, programs, and policies while describing how SANDAG will pay for them, how the plan will cooperate with other local planning documents, a technical analysis of how the plan could impact the environment, and more.

Local

City of Escondido General Plan

Escondido is envisioned as the vibrant and dynamic cultural, economic, and recreational hub of inland northern San Diego County. The *City of Escondido General Plan* (General Plan) was adopted in May 2012. This update establishes goals, objectives, and policies to guide future development and comply with current State mandates.

The General Plan includes the following goals and policies that are applicable to the proposed project:

- **Goal 7: Improved air quality in the city and the region to maintain the community's health and reduce green-house gas emissions that contribute to climate change.**
- **Air Quality and Climate Protection Policy 7.1.** Participate in regional planning efforts and coordinate with the San Diego Air Pollution Control District and San Diego Association of Governments in their efforts to reduce air quality impacts and attain State and federal air quality standards.
- **Air Quality and Climate Protection Policy 7.3.** Require that new development projects incorporate feasible measures that reduce construction and operational emissions.

City of Escondido Climate Action Plan

The City of Escondido Climate Action Plan (CAP) was adopted in March 2021. The CAP provides a roadmap for reducing GHG emissions through the implementation of various strategies, goals, actions, and supporting measures. The City has also developed a Climate Action Plan Consistency Review Checklist (CAP Consistency Checklist) and Guidance for Demonstrating Consistency with the City of Escondido CAP to provide a streamlined review process for proposed new development projects that are subject to discretionary review and trigger environmental review pursuant to CEQA. The CAP Consistency Checklist summarizes the methodology and application of a GHG screening threshold of 500 MTCO₂e per year for new development projects in order to determine if a project would need to demonstrate consistency with the CAP through the CAP Consistency Checklist.

CALIFORNIA ENVIRONMENTAL QUALITY ACT THRESHOLDS

In accordance with the *CEQA Guidelines*, project impacts are evaluated to determine whether significant adverse environmental impacts would occur. This analysis focuses on the project's potential impacts and provides mitigation measures, if required, to reduce or avoid any potentially significant impacts that are identified.

Air Quality

According to Appendix G of the *CEQA Guidelines*, the proposed project would have a significant impact related to air quality if it would:

- Conflict with or obstruct implementation of the applicable air quality plan (refer to Impact Statement AQ-1);
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or State ambient air quality standard (refer to Impact Statement AQ-2);
- Expose sensitive receptors to substantial pollutant concentrations (refer to Impact Statement AQ-3); and/or
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people (refer to Impact Statement AQ-4).

To assist in answering the *CEQA Guidelines* Appendix G threshold questions, the City utilizes the thresholds of significance established by the SDAPCD.

Greenhouse Gas Emissions

According to Appendix G of the *CEQA Guidelines*, the proposed project would have a significant impact related to GHG emissions if it would:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment (refer to Impact Statement GHG-1); and/or
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases (refer to Impact Statement GHG-2).

The baseline against which to compare potential impacts of a project includes the natural and anthropogenic drivers of global climate change, including worldwide GHG emissions from increased fossil fuel consumption and industrial emissions. As a result, the study area for climate change and the analysis of GHG emissions is broad. However, the study area is also limited by *CEQA Guidelines* Section 15064.4(b), which directs lead agencies to consider an "indirect physical change" only if that change is a reasonably foreseeable impact, which may be caused by the project.

Energy Consumption

According to Appendix G of the *CEQA Guidelines*, a project would normally have a significant effect on the environment 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 (refer to Impact Statement of ENE-1); and/or

- Conflict with or obstruct a State or local plan for renewable energy or energy efficiency (refer to Impact Statement of ENE-2).

SIGNIFICANCE CRITERIA AND METHODOLOGY

Methodology

Project-related criteria pollutants, GHG emissions and energy consumption during construction were calculated using the California Emissions Estimator Model (CalEEMod) version 2022.1. Project construction would primarily generate temporary criteria pollutants from construction equipment operation on-site and construction worker and vendor vehicle trips to and from the project site, and from construction material deliveries to and from the project site. Construction input data for CalEEMod include, but are not limited to: (1) the anticipated start and finish dates of construction activity; (2) inventories of construction equipment to be used; (3) areas to be excavated and graded; and (4) soil import and export. The project would be constructed over approximately 24 months, beginning in February 2026. Earthwork would require soil export of approximately 45,000 cubic yards and soil import of approximately 30,000 cubic yards. Construction emissions were quantified by estimating the types and quantity of equipment that would be used on-site during construction, as provided by the project engineers. CalEEMod also estimates off-site emissions from workers trips, vendor trips, and hauling truck trips. The estimated construction fuel consumption is based on the project's construction equipment list, timing/phasing, and hours of duration for construction equipment, as well as vendor, hauling, and construction worker trips.

As a storm water drainage improvement project, the project would not generate criteria pollutants and GHG emissions during operation. Furthermore, there would be no operational electricity, natural gas, or fuel consumption.

Significance Thresholds

Air Quality

As stated in Appendix G of the *CEQA Guidelines*, the significance criteria established by the applicable air quality management board or air pollution control district may be relied on to make the impact determinations for specific program elements. The SDAPCD has adopted numerical thresholds to analyze the significance of a project's construction and operational emissions. These thresholds are designed such that a project consistent with the thresholds would not have an individually or cumulatively significant impact to air quality in the SDAB. These thresholds are also used by planning agencies and local jurisdictions for comparative purposes when evaluating projects under CEQA. Table 5, San Diego Air Pollution Control District Pollutant Thresholds, presents the significance thresholds for temporary construction and long-term operational emissions in the SDAB.

Table 5
San Diego Pollution Control District Emissions Thresholds

Phase	Pollutant: ROG ¹ (lbs/day)	Pollutant: NO _x (lbs/day)	Pollutant: CO (lbs/day)	Pollutant: SO _x (lbs/day)	Pollutant: PM ₁₀ (lbs/day)	Pollutant: PM _{2.5} ² (lbs/day)
Construction	75	250	550	250	100	55
Operation	55	250	550	250	100	55

Notes: ROG = reactive organic gases; NO_x = nitrogen oxides; CO = carbon monoxide; SO_x = sulfur oxides; PM₁₀ = particulate matter up to 10 microns; PM_{2.5} = particulate matter up to 2.5 microns; lbs = pounds

1. According to SDAPCD, threshold of significance for VOCs is from the South Coast Air Quality Management District (SCAQMD) for the Coachella Valley.

2. Based on EPA "Proposed Rule to Implement the Fine Particle National Ambient Air Quality Standards" published September 8, 2005. Also used by the SCAQMD.

Source: City of Escondido, Municipal Code, Chapter 33, Article 47, Environmental Quality, accessed February 4, 2025.

The thresholds listed in [Table 5](#) are used to evaluate whether project-related emissions could cause a significant impact on air quality. Emissions below the screening-level thresholds would not cause a significant impact. In the event that emissions exceed these thresholds, modeling would be required to demonstrate that the project's total air quality impacts result in ground-level concentrations below the CAAQS and NAAQS, including appropriate background levels. For nonattainment pollutants, if emissions exceed the thresholds shown in [Table 5](#), the project could have the potential to result in a cumulatively considerable net increase in these pollutants and thus could have a significant impact on the ambient air quality. If the emissions of the project are found to be below the screening-level thresholds, it can be concluded that the project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation.

Greenhouse Gas Emissions

The determination of the significance of GHG emissions calls for a careful judgment by the lead agency (*CEQA Guidelines* Section 15064.4[a]). A lead agency has the discretion to determine whether to quantify GHG emissions and/or rely on a qualitative analysis or performance-based standards (*CEQA Guidelines* Section 15064[a][1]-[2]). CEQA does not compel a numeric estimate of every project's GHG emissions (*Mission Bay Alliance v. Office of Community Investment and Infrastructure* [2016] 6 Cal.App.5th 160, 201). "Given the nature of greenhouse gas emissions—gases that trap heat in the atmosphere, contributing to global climate change but with little immediate perceptible effect on the locale from which they emanate—a project's compliance with an area-wide greenhouse gas reduction plan may be more useful in determining the significance of those emissions on a global scale than quantification of its incremental addition to greenhouse gas emissions" (Id. [internal citations omitted]).

As previously stated, the City's CAP is a qualified GHG emissions reduction plan in accordance with *CEQA Guidelines* Section 15183.5. Pursuant to *CEQA Guidelines* Sections 15064(h)(3), 15130(d), and 15183(b), a project's incremental contribution to a cumulative GHG emissions effect may be determined not to be cumulatively considerable if it complies with the requirements of a CAP. Projects that are consistent with the *General Plan* and implement applicable CAP GHG reduction measures may incorporate the CAP's cumulative GHG analysis by reference. Conversely, projects that are consistent with the *General Plan*, but do not implement CAP GHG reduction measures, as well as General Plan Amendments and Annexations that increase emissions beyond CAP projections, would require a project-level GHG analysis. The CAP establishes a GHG screening threshold of 500 MTCO_{2e} per year for new development projects to determine if a project would need to demonstrate consistency with the CAP through the CAP Consistency Checklist. Projects that exceed the established CAP threshold of 500 MTCO_{2e} per year would need to showcase consistency to CAP measures.

In addition to determining consistency with the City's CAP Consistency Checklist, the methodology for evaluating the project's impacts related to GHG emissions would also focus on its consistency with statewide, regional, and local plans adopted for the purpose of reducing and/or mitigating GHG emissions. This analysis would also quantify the project's potential GHG emissions.

Energy Consumption Criteria

CEQA Guidelines Appendix F is an advisory document that assists in determining whether a project would result in the inefficient, wasteful, and unnecessary consumption of energy. The analysis on Response 4.6(a) relies upon Appendix F of the *CEQA Guidelines*, which includes the following criteria to determine whether this threshold of significance is met:

- **Criterion 1:** The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project including construction, operation, maintenance and/or removal. If appropriate, the energy intensiveness of materials may be discussed.
- **Criterion 2:** The effects of the project on local and regional energy supplies and on requirements for additional capacity.
- **Criterion 3:** The effects of the project on peak and base period demands for electricity and other forms of energy.
- **Criterion 4:** The degree to which the project complies with existing energy standards.
- **Criterion 5:** The effects of the project on energy resources.
- **Criterion 6:** The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

Quantification of the project's energy usage is presented and addresses **Criterion 1**. The discussion on construction-related energy use focuses on **Criteria 2, 4, and 5**. The discussion on operational energy use is divided into transportation energy demand and building energy demand. The transportation energy demand analysis discusses **Criteria 2, 4, and 6**, and the building energy demand analysis discusses **Criteria 2, 3, 4, and 5**.

AIR QUALITY IMPACT ANALYSIS

AQ-1 Would the project conflict with or obstruct implementation of the applicable air quality plan?

Level of Significance: Less Than Significant Impact.

Air quality plans describe air pollution control strategies to be implemented by a city, county, or regional air district. The proposed project is located within the SDAB, which is governed by the SDAPCD. The SDAPCD and SANDAG are responsible for developing and implementing air quality plans for the SDAB, specifically the SIP and the San Diego County RAQS. The SIP and RAQS rely on information from CARB and SANDAG, including mobile, area source emissions, and projected growth (SDAPCD 2016, CARB 2018). As a storm water drainage improvement project, the project would be consistent with land use designation and zoning map, and would not directly or indirectly generate population or employment growth, or generate mobile source and area source emissions during operation. Furthermore, as analyzed in Impact Statement AQ-2, project-generated air quality emissions during construction would not exceed the SDAPCD's significance thresholds; refer to Table 6, *Short-term Construction Emissions*, below. Therefore, the project would not conflict or obstruct implementation of the RAQS or SIP and impacts would be less than significant.

Mitigation Measures: No mitigation measures are required.

AQ-2 Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

Level of Significance: Less Than Significant Impact.

Short-term Construction

The project would be constructed in one phase over a period of approximately 24 months, beginning in February 2026. Earthwork would require soil export of approximately 90,000 cubic yards and soil import of approximately 31,000 cubic yards. Exhaust emission factors for typical diesel-powered heavy equipment are based on CalEEMod program defaults. Variables factored into estimating the total construction emissions include the level of activity, length of construction period, number of pieces and types of equipment in use, site characteristics, weather conditions, number of construction personnel, and the amount of materials to be transported on- or off-site.

The analysis of daily construction emissions has been prepared using CalEEMod. Refer to Appendix A, Air Quality/Greenhouse Gas Emissions/Energy Data, for the CalEEMod outputs and results. Table 6, Short-term Construction Emissions, presents the anticipated daily short-term construction emissions.

**Table 6
Short-term Construction Emissions**

Emissions Source	Pollutant: ROG (lbs/day)	Pollutant: NO_x (lbs/day)	Pollutant: CO (lbs/day)	Pollutant: SO₂ (lbs/day)	Pollutant: PM₁₀ (lbs/day)	Pollutant: PM_{2.5} (lbs/day)
Year 1 (2026) Construction-Related Emissions ²	2.76	27.30	32.40	0.08	2.91	1.27
Year 2 (2027) Construction-Related Emissions ²	2.65	26.30	32.10	0.08	2.84	1.21
Year 3 (2028) Construction-Related Emissions ²	1.23	8.77	11.70	0.02	0.59	0.37
Maximum Daily Emissions	2.76	27.30	32.40	0.08	2.91	1.27
<i>SDAPCD Thresholds</i>	75	250	550	250	100	55
Is Threshold Exceeded?	No	No	No	No	No	No

Notes:

1. Emissions were calculated using CalEEMod, version 2022.1. Worst-case scenario between summer and winter conditions is presented as a conservative analysis.
2. Modeling assumptions include compliance with SDAPCD Rule 55, *Fugitive Dust Control*, which requires: properly maintained mobile and other construction equipment; street sweeping more than three times per day; maximum speed limit of 15 miles per hour on unpaved roads, etc., and is included in CalEEMod version 2022.1 as default data.

Source: Refer to Appendix A, Air Quality/Greenhouse Gas Emissions/Energy Data, for detailed model data.

Fugitive Dust Emissions

Construction activities are a source of fugitive dust emissions that may have a substantial, temporary impact on local air quality. In addition, fugitive dust may be a nuisance to those living and working in the project area. Fugitive dust emissions are associated with land clearing, ground excavation, cut-and-fill, and truck travel on unpaved roadways. Fugitive dust emissions vary substantially from day to day, depending on the level of activity, specific operations, and weather conditions. Fugitive dust from grading and construction is expected to be short-term and would cease upon project completion. It should be noted that most of this material is inert silicates, rather than the complex organic particulates released from combustion sources, which are more harmful to health.

Dust (larger than 10 microns) generated by such activities usually becomes more of a local nuisance than a serious health problem. Of particular health concern is the amount of PM₁₀ generated as a part of fugitive dust emissions. PM₁₀ poses a serious health hazard alone or in combination with other pollutants. PM_{2.5} is mostly produced by mechanical processes. These

include automobile tire wear, industrial processes such as cutting and grinding, and resuspension of particles from the ground or road surfaces by wind and human activities such as construction or agriculture. PM_{2.5} is mostly derived from combustion sources, such as automobiles, trucks, and other vehicle exhaust, as well as from stationary sources. These particles are either directly emitted or are formed in the atmosphere from the combustion of gases such as NO_x and SO_x combining with ammonia. PM_{2.5} components from material in the earth's crust, such as dust, are also present, with the amount varying in different locations.

Construction activities associated with the proposed project would be required to implement emissions control measures detailed in SDAPCD's Rule 55, *Fugitive Dust Control*, which restricts construction activities from creating visible dust emissions at the property line that lasts more than three minutes in any hour and requires the removal of all track-out from the nearby roadways. As depicted in [Table 6](#), total PM₁₀ and PM_{2.5} emissions would not exceed the SDAPCD thresholds during construction. Thus, construction-related air quality impacts would be less than significant.

Construction Equipment and Worker Vehicle Exhaust

Exhaust emissions (e.g., NO_x and CO) from construction activities include emissions associated with the transport of machinery and supplies to and from the project site, emissions produced on-site as the equipment is used, and emissions from trucks transporting materials to/from the site. As depicted in [Table 6](#), construction equipment and worker vehicle exhaust emissions would be below the established SDAPCD thresholds. Therefore, air quality impacts from construction equipment and worker vehicle exhaust emissions would be less than significant.

ROG Emissions

In addition to gaseous and particulate emissions, the application of asphalt creates ROG emissions, which are O₃ precursors. As a storm water drainage improvement project, the project does not propose any buildings and thus does not require architectural coating. Overall, ROG emissions associated with the proposed project would be less than significant; refer to [Table 6](#).

Total Daily Construction Emissions

In accordance with the SDAPCD Guidelines, CalEEMod was utilized to model construction emissions for ROG, NO_x, CO, SO_x, PM₁₀, and PM_{2.5}. As indicated in [Table 6](#), criteria pollutant emissions during construction of the proposed project would not exceed the SDAPCD significance thresholds. Thus, total construction-related air emissions would be less than significant.

Asbestos

Asbestos is a term used for several types of naturally occurring fibrous minerals that are a human health hazard when airborne. The most common type of asbestos is chrysotile, but other types such as tremolite and actinolite are also found in California. Asbestos is classified as a known human carcinogen by State, federal, and international agencies and was identified as a Toxic Air Contaminant by the CARB in 1986.

Asbestos can be released from serpentinite and ultramafic rocks when the rock is broken or crushed. At the point of release, the asbestos fibers may become airborne, causing air quality and human health hazards. These rocks have been commonly used for unpaved gravel roads, landscaping, fill projects, and other improvement projects in some localities. Asbestos may be released to the atmosphere due to vehicular traffic on unpaved roads, during grading for development projects, and at quarry operations. All these activities may have the effect of

releasing potentially harmful asbestos into the air. Natural weathering and erosion processes can act on asbestos-bearing rock and make it easier for asbestos fibers to become airborne if such rock is disturbed. According to the California Department of Conservation Division of Mines and Geology, *A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos Report*, serpentinite and ultramafic rocks are not known to occur within the project area (California DOC 2000). The project is a storm water drainage improvement project and does not involve any buildings that would contain asbestos materials.

Long-Term (Operational) Emissions

The project proposes storm water drainage improvements in the project area and would not directly generate vehicle trips after construction is completed, which is a predominant source of air pollutant emissions. Additionally, the project does not propose any occupied buildings and would not introduce new stationary source emissions. Overall, as the project would not include new mobile sources of emissions or permanent stationary sources, it would not have the potential to generate significant criteria air pollutants emissions from project operation. Therefore, impacts in this regard would be less than significant.

Air Quality Health Impacts

Adverse health effects induced by criteria pollutant emissions are highly dependent on a multitude of interconnected variables (e.g., cumulative concentrations, local meteorology and atmospheric conditions, and the number and character of exposed individual [e.g., age, gender]). In particular, ozone precursors VOCs and NO_x affect air quality on a regional scale. Health effects related to ozone are therefore the product of emissions generated by numerous sources throughout a region. Existing models have limited sensitivity to small changes in criteria pollutant concentrations, and, as such, translating project-generated criteria pollutants to specific health effects or additional days of nonattainment would produce meaningless results. In other words, the project's less than significant increases in regional air pollution from criteria air pollutants would have nominal or negligible impacts on human health.

As noted in the Brief of Amicus Curiae by the South Coast Air Quality Management District (SCAQMD),³ the SCAQMD acknowledged it would be extremely difficult, if not impossible, to quantify health impacts of criteria pollutants for various reasons including modeling limitations as well as where air pollutants interact and form in the atmosphere. Further, as noted in the Brief of Amicus Curiae by the San Joaquin Valley Air Pollution Control District (SJVAPCD),⁴ SJVAPCD has acknowledged that currently available modeling tools are not equipped to provide a meaningful analysis of the correlation between an individual development project's air emissions and specific human health impacts.

The SCAQMD acknowledges that health effects quantification from O₃, as an example, is correlated with the increases in ambient level of O₃ in the air (concentration) that an individual person breathes. SCAQMD's Brief of Amicus Curiae states that it would take a large amount of additional emissions to cause a modeled increase in ambient O₃ levels over the entire region. The

³ Brief for the SCAQMD as Amicus Curiae, p. 36, *Sierra Club v. County of Fresno*, 6 Cal.5th 502 (2018). <https://supreme.courts.ca.gov/sites/default/files/supremecourt/default/documents/9-s219783-ac-south-coast-air-quality-mgt-dist-041315.pdf>.

⁴ Brief for the SJVAPCD. as Amicus Curiae, p. 35, *Sierra Club v. County of Fresno*, 6 Cal.5th 502 (2018). <https://supreme.courts.ca.gov/sites/default/files/supremecourt/default/documents/7-s219783-ac-san-joaquin-valley-unified-air-pollution-control-dist-041315.pdf>.

SCAQMD states that based on their own modeling in the SCAQMD's 2012 *Air Quality Management Plan*, a reduction of 432 tons (864,000 pounds) per day of NO_x and a reduction of 187 tons (374,000 pounds) per day of VOCs would reduce O₃ levels at the highest monitored site by only nine parts per billion. As such, the SCAQMD concludes that it is not currently possible to accurately quantify O₃-related health impacts caused by NO_x or VOC emissions from relatively small projects (defined as projects with regional scope) due to photochemistry and regional model limitations. Therefore, for the purpose of this analysis, since the project would not exceed SDAPCD's thresholds for construction and operational air emissions, the project would have a less than significant impact for air quality health impacts as well.

Cumulative Impacts

If emissions exceed the thresholds shown in Table 5 for nonattainment pollutants (O₃, with O₃ precursors NO_x and VOCs, PM₁₀, and PM_{2.5}), the project could have the potential to result in a cumulatively considerable net increase in these pollutants and, thus, could have a significant impact on the ambient air quality. However, as shown in Table 6, project emissions would not exceed the significance thresholds and therefore would not result in a cumulatively significant increase of any nonattainment criteria pollutant. As such, the project's contribution to cumulative impacts would also be less than significant.

Mitigation Measures: No mitigation measures are required.

AQ-3 Would the project expose sensitive receptors to substantial pollutant concentrations?

Level of Significance: Less Than Significant Impact.

Toxic Air Contaminants

Construction

If a project has the potential to result in Toxic Air Contaminants (TAC) emissions with a cancer risk greater than 10 in 1 million or substantial non-cancer risk, the project would be deemed to have a potentially significant impact. Project construction activities are anticipated to involve the operation of diesel-powered equipment, which would emit Diesel Particulate Matter (DPM). In 1998, the CARB identified diesel exhaust as a TAC. Cancer health risks associated with exposures to diesel exhaust typically are associated with chronic exposure, in which a 30-year exposure period is often assumed. The project would construct storm water drainage improvements while complying with the California Code of Regulations, Title 13, Sections 2449(d)(3) and 2485, which minimize the idling time of construction equipment either by shutting the equipment off when not in use or by reducing the time of idling to no more than five minutes. Implementation of these regulations would reduce the amount of DPM emissions from the construction of the project.

The nearest sensitive receptors to the project site are adjacent residential uses, institutional uses, and schools as the construction moves along the project limits. However, health impacts on sensitive receptors associated with exposure to DPM from project construction are anticipated to be less than significant because emissions are well below the SDAPCD-established construction thresholds. Furthermore, the project would comply with the required regulations, such as Rule 55, *Fugitive Dust Control*. Additionally, emissions would be short-term and intermittent in nature, and construction activities would only occur for a few days adjacent to each sensitive receptor.

Therefore, construction activities would not generate TAC emissions at high enough exposure concentrations to represent a health hazard. Therefore, construction of the proposed project is not anticipated to result in excessive TAC emissions to nearby sensitive receptors, and the impact would be less than significant.

Operations

The project would involve storm water drainage improvements and would not result in operational activities that would result in potential health risks. Therefore, operation of the proposed project is not anticipated to result in TAC emissions to nearby sensitive receptors. Impacts would be less than significant in this regard.

Carbon Monoxide Hotspots

CO emissions are a function of vehicle idling time, meteorological conditions, and traffic flow. Under certain extreme meteorological conditions, CO concentrations near a congested roadway or intersection may reach unhealthful levels (i.e., adversely affecting residents, school children, hospital patients, the elderly, etc.).

The SDAB is designated as an attainment area for the federal and State CO standards. There has been a decline in CO emissions even though vehicle miles traveled on U.S. urban and rural roads have increased. Nationwide estimated anthropogenic CO emissions have decreased 68 percent between 1990 and 2014. In 2014, mobile sources accounted for 82 percent of the nation's total anthropogenic CO emissions. CO emissions have continued to decline since this time. Three major control programs have contributed to the reduced per-vehicle CO emissions: exhaust standards, cleaner burning fuels, and motor vehicle inspection/maintenance programs.

A potential CO hotspot may occur at any location where the background CO concentration already exceeds 20 ppm, which is the 1-hour CAAQS. As shown in [Table 1](#), the closest monitoring station that monitors CO concentration is the Rancho Carmel Drive Monitoring Site located at 11403 Rancho Carmel Drive, San Diego, CA 92128, approximately 10 miles south of the project site, and the maximum CO concentration was measured at 1.600 ppm in 2023. Given that the background CO concentration does not currently exceed 20 ppm, and the project would not generate trips during operation, a CO hotspot would not occur at the project site. Therefore, there would be no CO hotspot impacts in this regard.

Mitigation Measures: No mitigation measures are required.

AQ-4 Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Level of Significance: Less Than Significant Impact.

Odor

Project construction could result in minor amounts of odor compounds associated with diesel heavy equipment exhaust. These compounds would be emitted in various amounts and at various locations during construction. The nearest sensitive receptors to the project site are adjacent residential uses, institutional uses, and schools as construction activities move along the project limits. Odors are highest near the source and would quickly dissipate off-site. Any odors associated with construction would be temporary. In addition, the project would be required to comply with the California Code of Regulations, Title 13, Sections 2449(d)(3) and 2485, which

minimize the idling time of construction equipment either by shutting the equipment off when not in use or by reducing the time of idling to no more than five minutes. This would further reduce the detectable odors from heavy-duty equipment exhaust. Thus, given the fact that construction-related odorous emissions would be short-term and temporary, construction activities would result in less than significant impacts in this regard.

The project is a storm water drainage improvement project and would not include land uses that would be sources of objectionable odors. Thus, the potential for odor impacts associated with the project is less than significant.

Dust

Construction activities associated with the proposed project would be required to implement emissions control measures detailed in SDAPCD's Rule 55, *Fugitive Dust Control*, which restricts construction activities from creating visible dust emissions at the property line that lasts more than three minutes in any hour and requires the removal of all track-out from the nearby roadways. With implementation of SDAPCD's Rule 55, the proposed project would not exceed the SDAPCD standards for fugitive dust.

As shown in [Table 6](#), project construction would not generate any emissions that exceed SDAPCD thresholds. During construction, the highest maximum daily emissions of particulate matter would be 4.18 pounds per day (both PM₁₀ and PM_{2.5} combined), which would occur during the first year of construction. As the regulatory standards of equipment become stricter over time and due to dust emissions being linked to land clearing and ground excavation, which would occur during the early stage of the project, the highest maximum daily emissions would occur during the first year of construction. Therefore, the project would not generate more than 100 pounds per day of particulate matter, and this impact would be less than significant.

The project is a storm water drainage improvement project and would not generate dust emissions during operation. As such, impacts from dust during operation would be less than significant.

Mitigation Measures: No mitigation measures are required.

GREENHOUSE GAS EMISSIONS IMPACT ANALYSIS

GHG-1 Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

GHG-2 Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Level of Significance: Less Than Significant Impact.

Project-Related Greenhouse Gas Emissions

As a storm water drainage improvement project, the only direct project-related GHG emissions would come from construction activities. CalEEMod version 2022.1 was used to calculate project-related construction GHG emissions. Construction activity is anticipated to take approximately 24 months to complete. CalEEMod outputs are contained within [Appendix A, Table 7, *Estimated Greenhouse Gas Emissions*](#), presents the estimated GHG emissions associated with the project.

**Table 7
Estimated Greenhouse Gas Emissions**

Source	CO ₂ Metric Tons/year ¹	CH ₄ Metric Tons/year ¹	N ₂ O Metric Tons/year ¹	Refrigerants Metric Tons/year ¹	CO ₂ e Metric Tons/year ¹
Direct Emissions: Total Construction GHG Emissions	1,694.50	0.08	0.13	0.79	1,733.60
Direct Emissions: Construction (amortized over 30 years) ²	56.48	<0.01	<0.01	0.03	57.79
Total Project Construction Emissions			57.79		

Notes:
1. Emissions calculated using California Emissions Estimator Model Version 2022.1 (CalEEMod) computer model; totals may be slightly off due to rounding.
Source: Refer to Appendix A, Air Quality/Greenhouse Gas Emissions/Energy Data, for assumptions used in this analysis.

Construction GHG emissions are amortized over 30 years (i.e., total construction emissions divided by the lifetime of the project, assumed to be 30 years), as recommended by the SCAQMD.⁵ As shown in Table 7, the project would result in 57.79 MTCO₂e per year in construction-related GHG emissions when amortized over 30 years, or a total of 1,733.60 MTCO₂e in 30 years. Therefore, the project would result in 57.79 MTCO₂e per year, which would not exceed the CAP’s GHG screening threshold of 500 MTCO₂e per year. As such, the CAP Consistency Checklist is not required for the project.

Consistency With Applicable Plans

As a storm water drainage improvement project with minimal construction GHG emissions, the project is not anticipated to conflict with or obstruct any applicable plans an agency adopted for the purpose of reducing emissions of GHG. Specifically, as shown in Table 7, the project-related GHG emissions would be approximately 57.79 MTCO₂e per year, which is minimal. Overall, the project would generate a nominal amount of GHG emissions and would not have the potential to conflict with the CARB’s 2022 Scoping Plan, or any other applicable plans, policies, or regulations adopted for the purpose of reducing the emissions of GHGs. As a storm water drainage improvement project, the project does not propose any buildings and would not generate vehicle trips during operation, and, as such, the SANDAG 2021 Regional Plan is not applicable. As such, impacts would be less than significant in this regard.

Mitigation Measures: No mitigation measures are required.

ENERGY CONSUMPTION IMPACT ANALYSIS

ENE-1 Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Level of Significance: Less Than Significant Impact.

Project-Related Sources of Energy Consumption

The project proposes storm water drainage improvements within a portion of the city. This analysis focuses on the on-road (automotive) fuel consumption associated with construction vehicle trips and off-road fuel consumption associated with construction equipment usage. The estimated construction fuel consumption is based on the project’s construction equipment list, timing/phasing, and hours of duration for construction equipment, as well as vendor, hauling, and

⁵ The project lifetime is based on the standard 30-year assumption of the SCAQMD (South Coast Air Quality Management District, *Draft Guidance Document – Interim CEQA Greenhouse Gas [GHG] Significance Threshold*, October 2008). Since the SDAPCD does not provide similar guidance, the project lifetime was assumed to be 30 years.

construction worker trips. Furthermore, the project does not propose any buildings and would not generate any trips during operation; as such, the project would not consume energy during operation.

Table 8, Project and Countywide Energy Consumption, summarizes the project’s estimated energy consumption. As shown in Table 8, the project’s construction off-road equipment and construction on-road (vehicle) fuel consumption would increase the County’s consumption by 0.4189 and 0.0028 percent, respectively (**CEQA Appendix F - Criterion 1**). Overall, the project would result in a nominal energy consumption increase over the County’s existing consumption. Therefore, the project would not result in a significant increase in energy consumption, and impacts would be less than significant in this regard.

**Table 8
Project and Countywide Energy Consumption**

Energy Type	Project Annual Energy Consumption ¹	San Diego County Annual Energy Consumption ²	Percentage Increase Countywide
Construction Off-Road Fuel Consumption During Construction	62,386 gallons	14,892,532 gallons	0.4189%
Construction On-Road Fuel Consumption During Construction	44,424 gallons	1,564,725,141 gallons	0.0028%

Notes:

1. As modeled in CalEEMod version 2022.1.
 2. The project’s construction and operational automotive fuel consumption is compared with the projected Countywide fuel consumption in 2026 (construction start year).
 3. Project fuel consumption calculated based on CalEEMod results. Countywide fuel consumption is from the CARB EMFAC2021 model.
- Refer to Appendix A, *Air Quality/Greenhouse Gas Emissions/Energy Data*, for assumptions used in this analysis.

Construction

During construction, the project would consume energy in two general forms: (1) the fuel energy consumed by construction vehicles and equipment; and (2) bound energy in construction materials, such as asphalt, steel, concrete, pipes, and manufactured or processed materials such as lumber and glass.

Fossil fuels used for construction vehicles and other energy-consuming equipment would be used during construction activities. Fuel energy consumed during construction would cease upon completion of construction and would not represent a significant demand on energy resources. In addition, some incidental energy conservation would occur during construction through compliance with State requirements that heavy-duty diesel equipment, not in use for more than five minutes, must be turned off. Project construction equipment would also be required to comply with the latest EPA and CARB engine emissions standards. These emissions standards require highly efficient combustion systems that maximize fuel efficiency and reduce unnecessary fuel consumption. Due to increasing transportation costs and fuel prices, contractors and owners have a strong financial incentive to avoid wasteful, inefficient, and unnecessary consumption of energy during construction (**CEQA Appendix F - Criterion 4**).

The project-related incremental increase in the use of energy bound in construction materials such as asphalt, steel, concrete, pipes, and manufactured or processed materials would not substantially increase demand for energy compared to overall local and regional demand for construction materials. As indicated in Table 8, the project’s fuel consumption from off-road construction equipment use would be approximately 62,386 gallons, which would increase fuel use in the county by 0.4189 percent. Also indicated in Table 8, the project’s fuel consumption from on-road construction vehicle use would be approximately 44,424 gallons, which would increase fuel use in the county by 0.0028 percent. As such, construction would have a nominal effect on the local and regional energy supplies (**CEQA Appendix F – Criterion 2**). It is noted

that construction fuel use is temporary and would cease upon completion of construction activities. There are no unusual project characteristics that would necessitate the use of construction equipment that would be less energy efficient than at comparable construction sites in the region or state (**CEQA Appendix F – Criterion 5**). Therefore, construction fuel consumption would not be any more inefficient, wasteful, or unnecessary than other similar development projects of this nature. As such, a less than significant impact would occur in this regard.

Operations

The project proposes storm water drainage improvements and would not directly generate vehicle trips after construction, which is the source of fuel consumption. Additionally, the project does not propose any occupied buildings with natural gas or electricity consumption. Overall, the project would not have the potential to consume a significant amount of energy during operation. Therefore, impacts in this regard would be less than significant.

Mitigation Measures: No mitigation measures are required.

ENE-2 Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Level of Significance: Less Than Significant Impact.

As a storm water drainage improvement project with minimal energy consumption during construction and operation, the project is not anticipated to conflict with or obstruct any State plan for renewable energy or energy efficiency. Specifically, as shown in Table 8, the project's off-road fuel consumption and on-road fuel consumption from construction would increase San Diego County's consumption by approximately 0.4189 and 0.0028 percent, respectively. In addition, project implementation would not result in increased operational electricity, natural gas, or fuel consumption compared to existing conditions. Further, the project would be required to adhere to all applicable federal, State, and local requirements pertaining to energy efficiency during construction. Therefore, less than significant impacts would occur in this regard.

Mitigation Measures: No mitigation measures are required.

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Escondido Stormwater
Construction Start Date	2/1/2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.20
Precipitation (days)	6.20
Location	33.13769776876032, -117.0519952248312
County	San Diego
City	Escondido
Air District	San Diego County APCD
Air Basin	San Diego
TAZ	6286
EDFZ	12
Electric Utility	San Diego Gas & Electric
Gas Utility	San Diego Gas & Electric
App Version	2022.1.1.29

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
Road Construction	6.10	Mile	5.10	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads
Construction	C-12	Sweep Paved Roads

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.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.57	2.76	27.0	32.4	0.08	0.81	2.10	2.91	0.71	0.56	1.27	—	10,646	10,646	0.48	1.03	14.6	10,980
Mit.	3.57	2.76	27.0	32.4	0.08	0.81	2.10	2.91	0.71	0.56	1.27	—	10,646	10,646	0.48	1.03	14.6	10,980
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.55	2.75	27.3	32.1	0.08	0.81	2.10	2.91	0.71	0.56	1.27	—	10,620	10,620	0.48	1.03	0.38	10,939
Mit.	3.55	2.75	27.3	32.1	0.08	0.81	2.10	2.91	0.71	0.56	1.27	—	10,620	10,620	0.48	1.03	0.38	10,939
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.22	1.75	16.5	20.5	0.05	0.50	1.13	1.63	0.45	0.30	0.74	—	6,157	6,157	0.28	0.53	3.33	6,327
Mit.	2.22	1.75	16.5	20.5	0.05	0.50	1.13	1.63	0.45	0.30	0.74	—	6,157	6,157	0.28	0.53	3.33	6,327
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.41	0.32	3.02	3.74	0.01	0.09	0.21	0.30	0.08	0.05	0.14	—	1,019	1,019	0.05	0.09	0.55	1,047
Mit.	0.41	0.32	3.02	3.74	0.01	0.09	0.21	0.30	0.08	0.05	0.14	—	1,019	1,019	0.05	0.09	0.55	1,047
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	3.57	2.76	27.0	32.4	0.08	0.81	2.10	2.91	0.71	0.56	1.27	—	10,646	10,646	0.48	1.03	14.6	10,980
2027	3.43	2.65	26.1	32.1	0.08	0.74	2.10	2.84	0.65	0.56	1.21	—	10,494	10,494	0.48	0.99	13.5	10,814
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	3.55	2.75	27.3	32.1	0.08	0.81	2.10	2.91	0.71	0.56	1.27	—	10,620	10,620	0.48	1.03	0.38	10,939
2027	3.42	2.64	26.3	31.9	0.08	0.74	2.10	2.84	0.65	0.56	1.21	—	10,468	10,468	0.48	0.99	0.35	10,776
2028	1.46	1.23	8.77	11.7	0.02	0.34	0.25	0.59	0.31	0.06	0.37	—	2,584	2,584	0.10	0.03	0.02	2,595
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	2.22	1.75	16.5	20.5	0.05	0.50	1.13	1.63	0.45	0.30	0.74	—	6,157	6,157	0.28	0.53	3.33	6,327
2027	1.75	1.42	12.2	17.0	0.03	0.37	0.60	0.98	0.34	0.15	0.49	—	3,905	3,905	0.17	0.22	1.46	3,977
2028	0.10	0.08	0.58	0.78	< 0.005	0.02	0.02	0.04	0.02	< 0.005	0.02	—	172	172	0.01	< 0.005	0.02	173
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.41	0.32	3.02	3.74	0.01	0.09	0.21	0.30	0.08	0.05	0.14	—	1,019	1,019	0.05	0.09	0.55	1,047
2027	0.32	0.26	2.22	3.10	0.01	0.07	0.11	0.18	0.06	0.03	0.09	—	647	647	0.03	0.04	0.24	658
2028	0.02	0.01	0.11	0.14	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	28.5	28.5	< 0.005	< 0.005	< 0.005	28.6

2.3. Construction Emissions by Year, Mitigated

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

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	3.57	2.76	27.0	32.4	0.08	0.81	2.10	2.91	0.71	0.56	1.27	—	10,646	10,646	0.48	1.03	14.6	10,980
2027	3.43	2.65	26.1	32.1	0.08	0.74	2.10	2.84	0.65	0.56	1.21	—	10,494	10,494	0.48	0.99	13.5	10,814
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	3.55	2.75	27.3	32.1	0.08	0.81	2.10	2.91	0.71	0.56	1.27	—	10,620	10,620	0.48	1.03	0.38	10,939
2027	3.42	2.64	26.3	31.9	0.08	0.74	2.10	2.84	0.65	0.56	1.21	—	10,468	10,468	0.48	0.99	0.35	10,776
2028	1.46	1.23	8.77	11.7	0.02	0.34	0.25	0.59	0.31	0.06	0.37	—	2,584	2,584	0.10	0.03	0.02	2,595
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	2.22	1.75	16.5	20.5	0.05	0.50	1.13	1.63	0.45	0.30	0.74	—	6,157	6,157	0.28	0.53	3.33	6,327
2027	1.75	1.42	12.2	17.0	0.03	0.37	0.60	0.98	0.34	0.15	0.49	—	3,905	3,905	0.17	0.22	1.46	3,977
2028	0.10	0.08	0.58	0.78	< 0.005	0.02	0.02	0.04	0.02	< 0.005	0.02	—	172	172	0.01	< 0.005	0.02	173
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.41	0.32	3.02	3.74	0.01	0.09	0.21	0.30	0.08	0.05	0.14	—	1,019	1,019	0.05	0.09	0.55	1,047
2027	0.32	0.26	2.22	3.10	0.01	0.07	0.11	0.18	0.06	0.03	0.09	—	647	647	0.03	0.04	0.24	658
2028	0.02	0.01	0.11	0.14	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	28.5	28.5	< 0.005	< 0.005	< 0.005	28.6

3. Construction Emissions Details

3.1. Linear, Grubbing & Land Clearing (2026) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.66	2.22	18.1	26.7	0.05	0.63	—	0.63	0.58	—	0.58	—	4,714	4,714	0.19	0.04	—	4,730
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
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	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.66	2.22	18.1	26.7	0.05	0.63	—	0.63	0.58	—	0.58	—	4,714	4,714	0.19	0.04	—	4,730
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
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	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.38	0.32	2.58	3.80	0.01	0.09	—	0.09	0.08	—	0.08	—	672	672	0.03	0.01	—	674
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

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Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
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	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.47	0.69	< 0.005	0.02	—	0.02	0.02	—	0.02	—	111	111	< 0.005	< 0.005	—	112
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
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	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20	0.17	0.13	2.05	0.00	0.00	0.40	0.40	0.00	0.09	0.09	—	442	442	0.02	0.02	1.55	448
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.19	0.17	0.15	1.81	0.00	0.00	0.40	0.40	0.00	0.09	0.09	—	417	417	0.02	0.02	0.04	423
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.26	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	59.9	59.9	< 0.005	< 0.005	0.09	60.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.92	9.92	< 0.005	< 0.005	0.02	10.1

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.2. Linear, Grubbing & Land Clearing (2026) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.66	2.22	18.1	26.7	0.05	0.63	—	0.63	0.58	—	0.58	—	4,714	4,714	0.19	0.04	—	4,730
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
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	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.66	2.22	18.1	26.7	0.05	0.63	—	0.63	0.58	—	0.58	—	4,714	4,714	0.19	0.04	—	4,730
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
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	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Off-Road Equipment	0.38	0.32	2.58	3.80	0.01	0.09	—	0.09	0.08	—	0.08	—	672	672	0.03	0.01	—	674
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
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	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.47	0.69	< 0.005	0.02	—	0.02	0.02	—	0.02	—	111	111	< 0.005	< 0.005	—	112
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
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	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20	0.17	0.13	2.05	0.00	0.00	0.40	0.40	0.00	0.09	0.09	—	442	442	0.02	0.02	1.55	448
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.19	0.17	0.15	1.81	0.00	0.00	0.40	0.40	0.00	0.09	0.09	—	417	417	0.02	0.02	0.04	423
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.26	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	59.9	59.9	< 0.005	< 0.005	0.09	60.8

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.92	9.92	< 0.005	< 0.005	0.02	10.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Linear, Grading & Excavation (2026) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.93	2.44	19.3	27.3	0.04	0.69	—	0.69	0.64	—	0.64	—	4,046	4,046	0.16	0.03	—	4,060
Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 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	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.93	2.44	19.3	27.3	0.04	0.69	—	0.69	0.64	—	0.64	—	4,046	4,046	0.16	0.03	—	4,060

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Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Dust From Material Mover	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 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	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.49	1.25	9.88	13.9	0.02	0.35	—	0.35	0.33	—	0.33	—	2,066	2,066	0.08	0.02	—	2,074
Dust From Material Mover	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 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	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.27	0.23	1.80	2.54	< 0.005	0.06	—	0.06	0.06	—	0.06	—	342	342	0.01	< 0.005	—	343
Dust From Material Mover	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 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	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.23	0.20	0.15	2.38	0.00	0.00	0.47	0.47	0.00	0.11	0.11	—	511	511	0.02	0.02	1.79	519
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	24.6	24.6	< 0.005	< 0.005	0.06	25.7
Hauling	0.41	0.12	7.45	2.72	0.04	0.11	1.61	1.73	0.08	0.44	0.52	—	6,065	6,065	0.29	0.97	12.8	6,375

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.22	0.20	0.17	2.10	0.00	0.00	0.47	0.47	0.00	0.11	0.11	—	483	483	0.03	0.02	0.05	489
Vendor	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	24.6	24.6	< 0.005	< 0.005	< 0.005	25.7
Hauling	0.41	0.11	7.72	2.74	0.04	0.11	1.61	1.73	0.08	0.44	0.52	—	6,066	6,066	0.29	0.97	0.33	6,365
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.09	1.08	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	249	249	0.01	0.01	0.39	252
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	12.6	12.6	< 0.005	< 0.005	0.01	13.1
Hauling	0.21	0.06	3.93	1.39	0.02	0.06	0.82	0.88	0.04	0.22	0.26	—	3,098	3,098	0.15	0.50	2.83	3,253
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.20	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	41.2	41.2	< 0.005	< 0.005	0.07	41.8
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.08	2.08	< 0.005	< 0.005	< 0.005	2.17
Hauling	0.04	0.01	0.72	0.25	< 0.005	0.01	0.15	0.16	0.01	0.04	0.05	—	513	513	0.02	0.08	0.47	539

3.4. Linear, Grading & Excavation (2026) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.93	2.44	19.3	27.3	0.04	0.69	—	0.69	0.64	—	0.64	—	4,046	4,046	0.16	0.03	—	4,060
Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—

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Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
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	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.93	2.44	19.3	27.3	0.04	0.69	—	0.69	0.64	—	0.64	—	4,046	4,046	0.16	0.03	—	4,060
Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 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	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.49	1.25	9.88	13.9	0.02	0.35	—	0.35	0.33	—	0.33	—	2,066	2,066	0.08	0.02	—	2,074
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 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	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.27	0.23	1.80	2.54	< 0.005	0.06	—	0.06	0.06	—	0.06	—	342	342	0.01	< 0.005	—	343
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 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	0.00	0.00

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.23	0.20	0.15	2.38	0.00	0.00	0.47	0.47	0.00	0.11	0.11	—	511	511	0.02	0.02	1.79	519
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	24.6	24.6	< 0.005	< 0.005	0.06	25.7
Hauling	0.41	0.12	7.45	2.72	0.04	0.11	1.61	1.73	0.08	0.44	0.52	—	6,065	6,065	0.29	0.97	12.8	6,375
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.22	0.20	0.17	2.10	0.00	0.00	0.47	0.47	0.00	0.11	0.11	—	483	483	0.03	0.02	0.05	489
Vendor	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	24.6	24.6	< 0.005	< 0.005	< 0.005	25.7
Hauling	0.41	0.11	7.72	2.74	0.04	0.11	1.61	1.73	0.08	0.44	0.52	—	6,066	6,066	0.29	0.97	0.33	6,365
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.09	1.08	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	249	249	0.01	0.01	0.39	252
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	12.6	12.6	< 0.005	< 0.005	0.01	13.1
Hauling	0.21	0.06	3.93	1.39	0.02	0.06	0.82	0.88	0.04	0.22	0.26	—	3,098	3,098	0.15	0.50	2.83	3,253
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.20	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	41.2	41.2	< 0.005	< 0.005	0.07	41.8
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.08	2.08	< 0.005	< 0.005	< 0.005	2.17
Hauling	0.04	0.01	0.72	0.25	< 0.005	0.01	0.15	0.16	0.01	0.04	0.05	—	513	513	0.02	0.08	0.47	539

3.5. Linear, Grading & Excavation (2027) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Off-Road	2.80	2.34	18.7	27.2	0.04	0.62	—	0.62	0.57	—	0.57	—	4,046	4,046	0.16	0.03	—	4,060
Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 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	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.80	2.34	18.7	27.2	0.04	0.62	—	0.62	0.57	—	0.57	—	4,046	4,046	0.16	0.03	—	4,060
Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 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	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.58	0.48	3.85	5.60	0.01	0.13	—	0.13	0.12	—	0.12	—	831	831	0.03	0.01	—	834
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 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	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.70	1.02	< 0.005	0.02	—	0.02	0.02	—	0.02	—	138	138	0.01	< 0.005	—	138

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Dust From Material Mover	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 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	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21	0.19	0.14	2.25	0.00	0.00	0.47	0.47	0.00	0.11	0.11	—	503	503	0.02	0.02	1.63	510
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	24.0	24.0	< 0.005	< 0.005	0.05	25.1
Hauling	0.41	0.12	7.17	2.64	0.04	0.11	1.61	1.73	0.08	0.44	0.52	—	5,921	5,921	0.29	0.94	11.8	6,219
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21	0.19	0.17	1.98	0.00	0.00	0.47	0.47	0.00	0.11	0.11	—	475	475	0.03	0.02	0.04	481
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	24.1	24.1	< 0.005	< 0.005	< 0.005	25.1
Hauling	0.41	0.11	7.40	2.66	0.04	0.11	1.61	1.73	0.08	0.44	0.52	—	5,923	5,923	0.29	0.94	0.31	6,209
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.41	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	98.4	98.4	< 0.005	< 0.005	0.14	99.8
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.94	4.94	< 0.005	< 0.005	< 0.005	5.16
Hauling	0.08	0.02	1.52	0.54	0.01	0.02	0.33	0.35	0.02	0.09	0.11	—	1,217	1,217	0.06	0.19	1.05	1,277
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	16.3	16.3	< 0.005	< 0.005	0.02	16.5
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.82	0.82	< 0.005	< 0.005	< 0.005	0.85
Hauling	0.02	< 0.005	0.28	0.10	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	201	201	0.01	0.03	0.17	211

3.6. Linear, Grading & Excavation (2027) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.80	2.34	18.7	27.2	0.04	0.62	—	0.62	0.57	—	0.57	—	4,046	4,046	0.16	0.03	—	4,060
Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 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	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.80	2.34	18.7	27.2	0.04	0.62	—	0.62	0.57	—	0.57	—	4,046	4,046	0.16	0.03	—	4,060
Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 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	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.58	0.48	3.85	5.60	0.01	0.13	—	0.13	0.12	—	0.12	—	831	831	0.03	0.01	—	834
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—

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Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
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	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.70	1.02	< 0.005	0.02	—	0.02	0.02	—	0.02	—	138	138	0.01	< 0.005	—	138
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 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	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21	0.19	0.14	2.25	0.00	0.00	0.47	0.47	0.00	0.11	0.11	—	503	503	0.02	0.02	1.63	510
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	24.0	24.0	< 0.005	< 0.005	0.05	25.1
Hauling	0.41	0.12	7.17	2.64	0.04	0.11	1.61	1.73	0.08	0.44	0.52	—	5,921	5,921	0.29	0.94	11.8	6,219
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21	0.19	0.17	1.98	0.00	0.00	0.47	0.47	0.00	0.11	0.11	—	475	475	0.03	0.02	0.04	481
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	24.1	24.1	< 0.005	< 0.005	< 0.005	25.1
Hauling	0.41	0.11	7.40	2.66	0.04	0.11	1.61	1.73	0.08	0.44	0.52	—	5,923	5,923	0.29	0.94	0.31	6,209
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.41	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	98.4	98.4	< 0.005	< 0.005	0.14	99.8
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.94	4.94	< 0.005	< 0.005	< 0.005	5.16
Hauling	0.08	0.02	1.52	0.54	0.01	0.02	0.33	0.35	0.02	0.09	0.11	—	1,217	1,217	0.06	0.19	1.05	1,277
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	16.3	16.3	< 0.005	< 0.005	0.02	16.5

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.82	0.82	< 0.005	< 0.005	< 0.005	0.85
Hauling	0.02	< 0.005	0.28	0.10	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	201	201	0.01	0.03	0.17	211

3.7. Linear, Drainage, Utilities, & Sub-Grade (2027) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.12	1.77	14.9	22.5	0.04	0.47	—	0.47	0.43	—	0.43	—	3,420	3,420	0.14	0.03	—	3,432
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
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	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.12	1.77	14.9	22.5	0.04	0.47	—	0.47	0.43	—	0.43	—	3,420	3,420	0.14	0.03	—	3,432
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
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	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Off-Road Equipment	0.76	0.64	5.34	8.08	0.01	0.17	—	0.17	0.15	—	0.15	—	1,228	1,228	0.05	0.01	—	1,232
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
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	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.12	0.97	1.47	< 0.005	0.03	—	0.03	0.03	—	0.03	—	203	203	0.01	< 0.005	—	204
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
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	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17	0.16	0.11	1.84	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	411	411	0.02	0.01	1.33	417
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17	0.15	0.14	1.62	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	388	388	0.02	0.02	0.03	394
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.59	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	141	141	0.01	0.01	0.21	143

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.11	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	23.3	23.3	< 0.005	< 0.005	0.03	23.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.8. Linear, Drainage, Utilities, & Sub-Grade (2027) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.12	1.77	14.9	22.5	0.04	0.47	—	0.47	0.43	—	0.43	—	3,420	3,420	0.14	0.03	—	3,432
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
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	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.12	1.77	14.9	22.5	0.04	0.47	—	0.47	0.43	—	0.43	—	3,420	3,420	0.14	0.03	—	3,432

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Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Dust From Material Mover	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
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	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.76	0.64	5.34	8.08	0.01	0.17	—	0.17	0.15	—	0.15	—	1,228	1,228	0.05	0.01	—	1,232
Dust From Material Mover	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
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	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.12	0.97	1.47	< 0.005	0.03	—	0.03	0.03	—	0.03	—	203	203	0.01	< 0.005	—	204
Dust From Material Mover	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
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	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17	0.16	0.11	1.84	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	411	411	0.02	0.01	1.33	417
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17	0.15	0.14	1.62	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	388	388	0.02	0.02	0.03	394
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.59	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	141	141	0.01	0.01	0.21	143
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.11	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	23.3	23.3	< 0.005	< 0.005	0.03	23.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Linear, Paving (2027) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.40	1.17	8.99	10.7	0.02	0.37	—	0.37	0.34	—	0.34	—	2,329	2,329	0.09	0.02	—	2,337
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	0.00	0.00

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Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.21	0.17	1.34	1.59	< 0.005	0.05	—	0.05	0.05	—	0.05	—	346	346	0.01	< 0.005	—	348
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	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.24	0.29	< 0.005	0.01	—	0.01	0.01	—	0.01	—	57.4	57.4	< 0.005	< 0.005	—	57.5
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	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.09	1.08	0.00	0.00	0.25	0.25	0.00	0.06	0.06	—	259	259	0.01	0.01	0.02	262
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.16	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	38.9	38.9	< 0.005	< 0.005	0.06	39.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.43	6.43	< 0.005	< 0.005	0.01	6.52
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.10. Linear, Paving (2027) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.40	1.17	8.99	10.7	0.02	0.37	—	0.37	0.34	—	0.34	—	2,329	2,329	0.09	0.02	—	2,337
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	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.21	0.17	1.34	1.59	< 0.005	0.05	—	0.05	0.05	—	0.05	—	346	346	0.01	< 0.005	—	348
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	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.24	0.29	< 0.005	0.01	—	0.01	0.01	—	0.01	—	57.4	57.4	< 0.005	< 0.005	—	57.5
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	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.09	1.08	0.00	0.00	0.25	0.25	0.00	0.06	0.06	—	259	259	0.01	0.01	0.02	262
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.16	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	38.9	38.9	< 0.005	< 0.005	0.06	39.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.43	6.43	< 0.005	< 0.005	0.01	6.52
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Linear, Paving (2028) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	8.69	10.7	0.02	0.34	—	0.34	0.31	—	0.31	—	2,329	2,329	0.09	0.02	—	2,337
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	0.00	0.00

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Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.07	0.58	0.71	< 0.005	0.02	—	0.02	0.02	—	0.02	—	155	155	0.01	< 0.005	—	156
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	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.11	0.13	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	25.7	25.7	< 0.005	< 0.005	—	25.7
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	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.08	1.02	0.00	0.00	0.25	0.25	0.00	0.06	0.06	—	254	254	0.01	0.01	0.02	257
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.07	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	17.1	17.1	< 0.005	< 0.005	0.02	17.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.83	2.83	< 0.005	< 0.005	< 0.005	2.86
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.12. Linear, Paving (2028) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	8.69	10.7	0.02	0.34	—	0.34	0.31	—	0.31	—	2,329	2,329	0.09	0.02	—	2,337
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	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.07	0.58	0.71	< 0.005	0.02	—	0.02	0.02	—	0.02	—	155	155	0.01	< 0.005	—	156
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	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.11	0.13	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	25.7	25.7	< 0.005	< 0.005	—	25.7
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	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.08	1.02	0.00	0.00	0.25	0.25	0.00	0.06	0.06	—	254	254	0.01	0.01	0.02	257
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.07	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	17.1	17.1	< 0.005	< 0.005	0.02	17.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.83	2.83	< 0.005	< 0.005	< 0.005	2.86
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

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

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

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

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

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

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

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

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

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

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
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
Linear, Grubbing & Land Clearing	Linear, Grubbing & Land Clearing	2/1/2026	4/14/2026	5.00	52.0	—
Linear, Grading & Excavation	Linear, Grading & Excavation	4/15/2026	4/15/2027	5.00	261	—
Linear, Drainage, Utilities, & Sub-Grade	Linear, Drainage, Utilities, & Sub-Grade	4/16/2027	10/16/2027	5.00	131	—
Linear, Paving	Linear, Paving	10/17/2027	2/3/2028	5.00	78.0	—

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
Linear, Grubbing & Land Clearing	Concrete/Industrial Saws	Diesel	Average	2.00	8.00	33.0	0.73
Linear, Grubbing & Land Clearing	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Linear, Grubbing & Land Clearing	Pressure Washers	Diesel	Average	1.00	8.00	14.0	0.30
Linear, Grubbing & Land Clearing	Rough Terrain Forklifts	Diesel	Average	1.00	8.00	96.0	0.40
Linear, Grubbing & Land Clearing	Rubber Tired Loaders	Diesel	Average	2.00	8.00	150	0.36
Linear, Grubbing & Land Clearing	Signal Boards	Diesel	Average	4.00	8.00	6.00	0.82
Linear, Grubbing & Land Clearing	Skid Steer Loaders	Diesel	Average	1.00	8.00	71.0	0.37
Linear, Grubbing & Land Clearing	Surfacing Equipment	Diesel	Average	1.00	8.00	399	0.30

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Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Linear, Grubbing & Land Clearing	Sweepers/Scrubbers	Diesel	Average	2.00	8.00	36.0	0.46
Linear, Grubbing & Land Clearing	Tractors/Loaders/Back hoes	Diesel	Average	1.00	8.00	84.0	0.37
Linear, Grubbing & Land Clearing	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Linear, Grading & Excavation	Concrete/Industrial Saws	Diesel	Average	2.00	8.00	33.0	0.73
Linear, Grading & Excavation	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Linear, Grading & Excavation	Pressure Washers	Diesel	Average	1.00	8.00	14.0	0.30
Linear, Grading & Excavation	Pumps	Diesel	Average	2.00	8.00	11.0	0.74
Linear, Grading & Excavation	Rough Terrain Forklifts	Diesel	Average	1.00	8.00	96.0	0.40
Linear, Grading & Excavation	Rubber Tired Loaders	Diesel	Average	2.00	8.00	150	0.36
Linear, Grading & Excavation	Signal Boards	Diesel	Average	4.00	8.00	6.00	0.82
Linear, Grading & Excavation	Skid Steer Loaders	Diesel	Average	1.00	8.00	71.0	0.37
Linear, Grading & Excavation	Sweepers/Scrubbers	Diesel	Average	2.00	8.00	36.0	0.46
Linear, Grading & Excavation	Tractors/Loaders/Back hoes	Diesel	Average	1.00	8.00	84.0	0.37
Linear, Grading & Excavation	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Linear, Grading & Excavation	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Linear, Drainage, Utilities, & Sub-Grade	Concrete/Industrial Saws	Diesel	Average	2.00	8.00	33.0	0.73
Linear, Drainage, Utilities, & Sub-Grade	Excavators	Diesel	Average	3.00	8.00	36.0	0.38

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Linear, Drainage, Utilities, & Sub-Grade	Pumps	Diesel	Average	2.00	8.00	11.0	0.74
Linear, Drainage, Utilities, & Sub-Grade	Rough Terrain Forklifts	Diesel	Average	1.00	8.00	96.0	0.40
Linear, Drainage, Utilities, & Sub-Grade	Rubber Tired Loaders	Diesel	Average	2.00	8.00	150	0.36
Linear, Drainage, Utilities, & Sub-Grade	Signal Boards	Diesel	Average	4.00	8.00	6.00	0.82
Linear, Drainage, Utilities, & Sub-Grade	Skid Steer Loaders	Diesel	Average	1.00	8.00	71.0	0.37
Linear, Drainage, Utilities, & Sub-Grade	Tractors/Loaders/Back hoes	Diesel	Average	1.00	8.00	84.0	0.37
Linear, Drainage, Utilities, & Sub-Grade	Pressure Washers	Diesel	Average	1.00	8.00	14.0	0.30
Linear, Drainage, Utilities, & Sub-Grade	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Linear, Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Linear, Paving	Plate Compactors	Diesel	Average	1.00	8.00	8.00	0.43
Linear, Paving	Pressure Washers	Diesel	Average	1.00	8.00	14.0	0.30
Linear, Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Linear, Paving	Sweepers/Scrubbers	Diesel	Average	2.00	8.00	36.0	0.46
Linear, Paving	Signal Boards	Diesel	Average	4.00	8.00	6.00	0.82
Linear, Paving	Surfacing Equipment	Diesel	Average	1.00	8.00	399	0.30

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Linear, Grubbing & Land Clearing	Concrete/Industrial Saws	Diesel	Average	2.00	8.00	33.0	0.73
Linear, Grubbing & Land Clearing	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Linear, Grubbing & Land Clearing	Pressure Washers	Diesel	Average	1.00	8.00	14.0	0.30

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Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Linear, Grubbing & Land Clearing	Rough Terrain Forklifts	Diesel	Average	1.00	8.00	96.0	0.40
Linear, Grubbing & Land Clearing	Rubber Tired Loaders	Diesel	Average	2.00	8.00	150	0.36
Linear, Grubbing & Land Clearing	Signal Boards	Diesel	Average	4.00	8.00	6.00	0.82
Linear, Grubbing & Land Clearing	Skid Steer Loaders	Diesel	Average	1.00	8.00	71.0	0.37
Linear, Grubbing & Land Clearing	Surfacing Equipment	Diesel	Average	1.00	8.00	399	0.30
Linear, Grubbing & Land Clearing	Sweepers/Scrubbers	Diesel	Average	2.00	8.00	36.0	0.46
Linear, Grubbing & Land Clearing	Tractors/Loaders/Back hoes	Diesel	Average	1.00	8.00	84.0	0.37
Linear, Grubbing & Land Clearing	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Linear, Grading & Excavation	Concrete/Industrial Saws	Diesel	Average	2.00	8.00	33.0	0.73
Linear, Grading & Excavation	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Linear, Grading & Excavation	Pressure Washers	Diesel	Average	1.00	8.00	14.0	0.30
Linear, Grading & Excavation	Pumps	Diesel	Average	2.00	8.00	11.0	0.74
Linear, Grading & Excavation	Rough Terrain Forklifts	Diesel	Average	1.00	8.00	96.0	0.40
Linear, Grading & Excavation	Rubber Tired Loaders	Diesel	Average	2.00	8.00	150	0.36
Linear, Grading & Excavation	Signal Boards	Diesel	Average	4.00	8.00	6.00	0.82
Linear, Grading & Excavation	Skid Steer Loaders	Diesel	Average	1.00	8.00	71.0	0.37
Linear, Grading & Excavation	Sweepers/Scrubbers	Diesel	Average	2.00	8.00	36.0	0.46

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Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Linear, Grading & Excavation	Tractors/Loaders/Back hoes	Diesel	Average	1.00	8.00	84.0	0.37
Linear, Grading & Excavation	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Linear, Grading & Excavation	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Linear, Drainage, Utilities, & Sub-Grade	Concrete/Industrial Saws	Diesel	Average	2.00	8.00	33.0	0.73
Linear, Drainage, Utilities, & Sub-Grade	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Linear, Drainage, Utilities, & Sub-Grade	Pumps	Diesel	Average	2.00	8.00	11.0	0.74
Linear, Drainage, Utilities, & Sub-Grade	Rough Terrain Forklifts	Diesel	Average	1.00	8.00	96.0	0.40
Linear, Drainage, Utilities, & Sub-Grade	Rubber Tired Loaders	Diesel	Average	2.00	8.00	150	0.36
Linear, Drainage, Utilities, & Sub-Grade	Signal Boards	Diesel	Average	4.00	8.00	6.00	0.82
Linear, Drainage, Utilities, & Sub-Grade	Skid Steer Loaders	Diesel	Average	1.00	8.00	71.0	0.37
Linear, Drainage, Utilities, & Sub-Grade	Tractors/Loaders/Back hoes	Diesel	Average	1.00	8.00	84.0	0.37
Linear, Drainage, Utilities, & Sub-Grade	Pressure Washers	Diesel	Average	1.00	8.00	14.0	0.30
Linear, Drainage, Utilities, & Sub-Grade	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Linear, Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Linear, Paving	Plate Compactors	Diesel	Average	1.00	8.00	8.00	0.43
Linear, Paving	Pressure Washers	Diesel	Average	1.00	8.00	14.0	0.30
Linear, Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Linear, Paving	Sweepers/Scrubbers	Diesel	Average	2.00	8.00	36.0	0.46
Linear, Paving	Signal Boards	Diesel	Average	4.00	8.00	6.00	0.82
Linear, Paving	Surfacing Equipment	Diesel	Average	1.00	8.00	399	0.30

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Linear, Grading & Excavation	—	—	—	—
Linear, Grading & Excavation	Worker	55.0	12.0	LDA,LDT1,LDT2
Linear, Grading & Excavation	Vendor	1.00	7.63	HHDT,MHDT
Linear, Grading & Excavation	Hauling	58.0	30.0	HHDT
Linear, Grading & Excavation	Onsite truck	—	—	HHDT
Linear, Grubbing & Land Clearing	—	—	—	—
Linear, Grubbing & Land Clearing	Worker	47.5	12.0	LDA,LDT1,LDT2
Linear, Grubbing & Land Clearing	Vendor	0.00	7.63	HHDT,MHDT
Linear, Grubbing & Land Clearing	Hauling	0.00	30.0	HHDT
Linear, Grubbing & Land Clearing	Onsite truck	—	—	HHDT
Linear, Drainage, Utilities, & Sub-Grade	—	—	—	—
Linear, Drainage, Utilities, & Sub-Grade	Worker	45.0	12.0	LDA,LDT1,LDT2
Linear, Drainage, Utilities, & Sub-Grade	Vendor	0.00	7.63	HHDT,MHDT
Linear, Drainage, Utilities, & Sub-Grade	Hauling	0.00	30.0	HHDT
Linear, Drainage, Utilities, & Sub-Grade	Onsite truck	—	—	HHDT
Linear, Paving	—	—	—	—
Linear, Paving	Worker	30.0	12.0	LDA,LDT1,LDT2
Linear, Paving	Vendor	0.00	7.63	HHDT,MHDT
Linear, Paving	Hauling	0.00	30.0	HHDT
Linear, Paving	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Linear, Grading & Excavation	—	—	—	—
Linear, Grading & Excavation	Worker	55.0	12.0	LDA,LDT1,LDT2
Linear, Grading & Excavation	Vendor	1.00	7.63	HHDT,MHDT
Linear, Grading & Excavation	Hauling	58.0	30.0	HHDT
Linear, Grading & Excavation	Onsite truck	—	—	HHDT
Linear, Grubbing & Land Clearing	—	—	—	—
Linear, Grubbing & Land Clearing	Worker	47.5	12.0	LDA,LDT1,LDT2
Linear, Grubbing & Land Clearing	Vendor	0.00	7.63	HHDT,MHDT
Linear, Grubbing & Land Clearing	Hauling	0.00	30.0	HHDT
Linear, Grubbing & Land Clearing	Onsite truck	—	—	HHDT
Linear, Drainage, Utilities, & Sub-Grade	—	—	—	—
Linear, Drainage, Utilities, & Sub-Grade	Worker	45.0	12.0	LDA,LDT1,LDT2
Linear, Drainage, Utilities, & Sub-Grade	Vendor	0.00	7.63	HHDT,MHDT
Linear, Drainage, Utilities, & Sub-Grade	Hauling	0.00	30.0	HHDT
Linear, Drainage, Utilities, & Sub-Grade	Onsite truck	—	—	HHDT
Linear, Paving	—	—	—	—
Linear, Paving	Worker	30.0	12.0	LDA,LDT1,LDT2
Linear, Paving	Vendor	0.00	7.63	HHDT,MHDT
Linear, Paving	Hauling	0.00	30.0	HHDT
Linear, Paving	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

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)
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5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Linear, Grubbing & Land Clearing	—	—	5.10	0.00	—
Linear, Grading & Excavation	31,000	90,000	1.00	0.00	—
Linear, Drainage, Utilities, & Sub-Grade	—	—	5.10	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Road Construction	8.20	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2026	0.00	589	0.03	< 0.005
2027	0.00	589	0.03	< 0.005
2028	0.00	589	0.03	< 0.005

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
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5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres
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5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres
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5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres
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5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
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5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
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6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	18.0	annual days of extreme heat
Extreme Precipitation	5.25	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	34.0	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	0	0	0	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	1	1	1	2
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	55.4

Indicator	Result for Project Census Tract
AQ-PM	16.9
AQ-DPM	25.2
Drinking Water	35.3
Lead Risk Housing	61.5
Pesticides	0.00
Toxic Releases	10.5
Traffic	24.0
Effect Indicators	—
CleanUp Sites	0.00
Groundwater	71.7
Haz Waste Facilities/Generators	59.8
Impaired Water Bodies	90.1
Solid Waste	0.00
Sensitive Population	—
Asthma	37.9
Cardio-vascular	53.5
Low Birth Weights	72.5
Socioeconomic Factor Indicators	—
Education	91.0
Housing	71.2
Linguistic	78.2
Poverty	94.1
Unemployment	79.0

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—

Indicator	Result for Project Census Tract
Above Poverty	10.76607212
Employed	50.32721673
Median HI	18.36263313
Education	—
Bachelor's or higher	6.03105351
High school enrollment	100
Preschool enrollment	39.62530476
Transportation	—
Auto Access	25.2662646
Active commuting	69.21596304
Social	—
2-parent households	42.64083152
Voting	29.16720133
Neighborhood	—
Alcohol availability	40.93417169
Park access	81.35506224
Retail density	75.73463365
Supermarket access	83.66482741
Tree canopy	12.90902092
Housing	—
Homeownership	12.24175542
Housing habitability	7.583728988
Low-inc homeowner severe housing cost burden	5.3124599
Low-inc renter severe housing cost burden	51.31528295
Uncrowded housing	2.681894007
Health Outcomes	—
Insured adults	1.270370846
Arthritis	73.2

Indicator	Result for Project Census Tract
Asthma ER Admissions	64.6
High Blood Pressure	92.3
Cancer (excluding skin)	89.7
Asthma	14.8
Coronary Heart Disease	63.8
Chronic Obstructive Pulmonary Disease	23.6
Diagnosed Diabetes	41.8
Life Expectancy at Birth	14.7
Cognitively Disabled	50.3
Physically Disabled	85.5
Heart Attack ER Admissions	60.6
Mental Health Not Good	9.3
Chronic Kidney Disease	45.1
Obesity	22.5
Pedestrian Injuries	95.3
Physical Health Not Good	20.0
Stroke	51.7
Health Risk Behaviors	—
Binge Drinking	24.0
Current Smoker	10.6
No Leisure Time for Physical Activity	15.5
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	0.8
Elderly	98.5
English Speaking	11.5
Foreign-born	84.2

Indicator	Result for Project Census Tract
Outdoor Workers	2.3
Climate Change Adaptive Capacity	—
Impervious Surface Cover	31.5
Traffic Density	42.5
Traffic Access	23.0
Other Indices	—
Hardship	88.9
Other Decision Support	—
2016 Voting	31.1

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	58.0
Healthy Places Index Score for Project Location (b)	20.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
 b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Per questionnaire
Construction: Off-Road Equipment	Per questionnaire
Construction: Dust From Material Movement	Per questionnaire
Construction: Trips and VMT	Per the questionnaire, the waste is going to Miramar Landfill.
Construction: Paving	per questionnaire
Construction: Demolition	—

**Energy Calculations
Construction On-Site (Off-Road) Fuel Consumption**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	Fuel Consumption Rate (gallon/hour) ¹	Duration (total hours/day)	# days	Total Fuel Consumption (gallon)
Linear, Grubbing & Land Clearing	Concrete/Industrial Saws	2	8	33	0.73	0.96	16	52	801.72
Linear, Grubbing & Land Clearing	Excavators	3	8	36	0.38	0.55	24	52	682.91
Linear, Grubbing & Land Clearing	Pressure Washers	1	8	14	0.3	0.17	8	52	69.89
Linear, Grubbing & Land Clearing	Rough Terrain Forklifts	1	8	96	0.4	1.54	8	52	638.98
Linear, Grubbing & Land Clearing	Rubber Tired Loaders	2	8	150	0.36	2.16	16	52	1,797.12
Linear, Grubbing & Land Clearing	Signal Boards	4	8	6	0.82	0.20	32	52	327.48
Linear, Grubbing & Land Clearing	Skid Steer Loaders	1	8	71	0.37	1.05	8	52	437.13
Linear, Grubbing & Land Clearing	Surfacing Equipment	1	8	399	0.3	4.79	8	52	1,991.81
Linear, Grubbing & Land Clearing	Sweepers/Scrubbers	2	8	36	0.46	0.66	16	52	551.12
Linear, Grubbing & Land Clearing	Tractors/Loaders/Backhoes	1	8	84	0.37	1.24	8	52	517.17
Linear, Grubbing & Land Clearing	Welders	1	8	46	0.45	0.83	8	52	344.45
Linear, Grading&Excavation	Concrete/Industrial Saws	2	8	33	0.73	0.96	16	261	4,023.99
Linear, Grading&Excavation	Excavators	3	8	36	0.38	0.55	24	261	3,427.66
Linear, Grading&Excavation	Pressure Washers	1	8	14	0.3	0.17	8	261	350.78
Linear, Grading&Excavation	Pumps	2	8	11	0.74	0.33	16	261	1,359.71
Linear, Grading&Excavation	Rough Terrain Forklifts	1	8	96	0.4	1.54	8	261	3,207.17
Linear, Grading&Excavation	Rubber Tired Loaders	2	8	150	0.36	2.16	16	261	9,020.16
Linear, Grading&Excavation	Signal Boards	4	8	6	0.82	0.20	32	261	1,643.67
Linear, Grading&Excavation	Skid Steer Loaders	1	8	71	0.37	1.05	8	261	2,194.07
Linear, Grading&Excavation	Sweepers/Scrubbers	2	8	36	0.46	0.66	16	261	2,766.18
Linear, Grading&Excavation	Tractors/Loaders/Backhoes	1	8	84	0.37	1.24	8	261	2,595.80
Linear, Grading&Excavation	Welders	1	8	46	0.45	0.83	8	261	1,728.86
Linear, Drainage, Utilities, & Sub-Grade	Concrete/Industrial Saws	2	8	33	0.73	0.96	16	131	2,019.71
Linear, Drainage, Utilities, & Sub-Grade	Excavators	3	8	36	0.38	0.55	24	131	1,720.40
Linear, Drainage, Utilities, & Sub-Grade	Pumps	2	8	11	0.74	0.33	16	131	682.46
Linear, Drainage, Utilities, & Sub-Grade	Rough Terrain Forklifts	1	8	96	0.4	1.54	8	131	1,609.73
Linear, Drainage, Utilities, & Sub-Grade	Rubber Tired Loaders	2	8	150	0.36	2.16	16	131	4,527.36
Linear, Drainage, Utilities, & Sub-Grade	Signal Boards	4	8	6	0.82	0.20	32	131	824.99
Linear, Drainage, Utilities, & Sub-Grade	Skid Steer Loaders	1	8	71	0.37	1.05	8	131	1,101.24
Linear, Drainage, Utilities, & Sub-Grade	Pressure Washers	1	8	14	0.3	0.17	8	131	176.06
Linear, Drainage, Utilities, & Sub-Grade	Sweepers/Scrubbers	2	8	36	0.46	0.66	16	131	1,388.39
Linear, Drainage, Utilities, & Sub-Grade	Tractors/Loaders/Backhoes	1	8	84	0.37	1.24	8	131	1,302.87
Linear, Drainage, Utilities, & Sub-Grade	Welders	1	8	46	0.45	0.83	8	131	867.74
Linear, Paving	Pavers	1	8	81	0.42	1.36	8	78	849.14
Linear, Paving	Plate Compactors	1	8	8	0.43	0.14	8	78	85.86
Linear, Paving	Pressure Washers	1	8	14	0.3	0.17	8	78	104.83
Linear, Paving	Rollers	1	8	36	0.38	0.55	8	78	341.45
Linear, Paving	Signal Boards	4	8	6	0.82	0.20	32	78	491.21
Linear, Paving	Surfacing Equipment	1	8	399	0.3	4.79	8	78	2,987.71
Linear, Paving	Sweepers/Scrubbers	2	8	36	0.46	0.66	16	78	826.68

Total Construction Off-Road Fuel Consumption (gallon) **62,385.65**

Countywide Off-Road Fuel Consumption (2026) (gallon)² **14,892,532.43**

Percentage Increase Countywide **0.4189%**

Notes:

1. Fuel Consumption Rate = Horsepower x Load Factor x Fuel Consumption Factor

Where:

Fuel Consumption Factor for a diesel engine is 0.04 gallons per horsepower per hour (gal/hp/hr) and a gasoline engine is 0.06 gal/hp/hr.

2. Countywide operational fuel consumption, off-road construction equipment diesel fuel consumption, and on-road fuel consumption are from CARB EMFAC2021.

Source: Refer to CalEEMod outputs for assumptions used in this analysis.

**Energy Calculations
Construction Mobile (On-Road) Fuel Consumption**

WORKER TRIPS						
Phase	Phase Length (# days)	# Worker Trips	Worker Trip Length	Total VMT	Fuel Consumption Factor (Miles/Gallon/Day)	Total Fuel Consumption (gallon)
Linear, Grubbing & Land Clearing	52	55	12	68,640	24.90284233	2,756.31
Linear, Grading&Excavation	261	47.5	12	297,540		11,948.03
Linear, Drainage, Utilities, & Sub-Grade	131	45	12	141,480		5,681.28
Linear, Paving	78	30	12	56,160		2,255.16
<i>Worker Trips Total</i>						22,640.79
VENDOR TRIPS						
Phase	Phase Length (# days)	# Vendor Trips	Vendor Trip Length	Total VMT	Fuel Consumption Factor (Miles/Gallon/Day)	Total Fuel Consumption (gallon)
Linear, Grubbing & Land Clearing	52	1	7.63	794	8.343886151	95.10
Linear, Grading&Excavation	261	0	7.63	0		0.00
Linear, Drainage, Utilities, & Sub-Grade	131	0	7.63	0		0.00
Linear, Paving	78	0	7.63	0		0.00
<i>Vendor Trips Total</i>						95.10
HAULING TRIPS						
Phase	Phase Length (# days)	# Hauling Trips	Hauling Trip Length	Total VMT	Fuel Consumption Factor (Miles/Gallon/Day)¹	Total Fuel Consumption (gallon)
Linear, Grubbing & Land Clearing	52	58	30	180,960	8.343886151	21,687.74
Linear, Grading&Excavation	261	0	30	0		0.00
Linear, Drainage, Utilities, & Sub-Grade	131	0	30	0		0.00
Linear, Paving	78	0	30	0		0.00
<i>Hauling Trips Total</i>						21,687.74
Total Construction On-Road (Automotive) Fuel Consumption (gallon)						44,423.63
Countywide On-Road Fuel Consumption (2026) (gallon)¹						1,561,725,141
Percentage Increase Countywide						0.0028%
Notes:						
1. Countywide operational fuel consumption, off-road construction equipment diesel fuel consumption, and on-road fuel consumption are from CARB EMFAC2021.						
Source: Refer to CalEEMod outputs for assumptions used in this analysis.						