

TRACT 37907 (PACIFIC LANTANA) AIR QUALITY AND GREENHOUSE GAS IMPACT STUDY City of Perris



**TRACT 37907 (PACIFIC LANTANA)
AIR QUALITY, GREENHOUSE GAS, AND ENERGY
IMPACT STUDY
City of Perris, California**

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1.0 Introduction

This report contains analyses of air quality and greenhouse gas (GHG) emissions and energy usage for the proposed Tract 37907 (Pacific Lantana) (hereinafter referred to as project). The analyses contained within this report were conducted within the context of the California Environmental Quality Act (CEQA, California Public Resources Code Sections 21000, et seq.).

The purpose of the air quality and GHG impact study is to determine whether the estimated criteria air pollutants and greenhouse gas emissions generated from the construction and operation of the proposed would cause significant impacts to air resources. The assessment and methodology follow the California Air Resources Board (CARB), the South Coast Air Quality Management District (SCAQMD), and City of Perris recommendations for quantification of emissions and evaluation of potential impacts.

1.1 Site Location

The proposed project site is located at the northwest corner of A street and Metz Road, in City of Perris, California. The project site is bounded by the residential use to the north, Metz Road to the south, A street to the east and McKimball Road to the west.

The project site is currently vacant.

The project site is located within the South Coast Air Basin (SCAB), the SCAQMD Hemet/Elsinore Area General Forecast Area, and the Perris Valley Coastal Air Monitoring Area-24.

The project location map is provided in Exhibit A.

1.2 Project Description

The project applicant proposes to construct and provide for sale 92 single family residential homes and approximately 3.84 acres of on-site and off-site street improvements on an approximately 13.56 acre vacant site. As part of the project development, a recreational area, including a recreational building, pool/spa area, outdoor play areas, and dog park, would be constructed within Lot A.

The site plan used for this analysis, provided by the PACIFIC COMMUNITY BUILDER, INC., is illustrated in Exhibit B. Table 1 summarizes the proposed project land uses.

**Table 1
Land Use Summary**

Project Land Use	CalEEMod Land Use Category	Quantity	Metric
Residential – Single Family	Single Family Residential	92	Dwelling Units
On-site Recreational Amenities ¹	Health Club	2.04	TSF
Paved Surfaces (On-Site/off-site Circulation and Parking)	Parking Lot	3.84	Acres

¹ On-site recreational amenities would consist of a 2,045-square-foot recreational building, pool spa area, outdoor play areas, and dog park.

The project is expected to require the import of a maximum of 10,000 cubic yards of earthwork material during grading phase. The project is expected to be operational in the year 2028.

Construction of the project is estimated to begin in the year 2025 and last approximately 36 months. Construction activities are expected to consist of site preparation, grading, building construction, paving, and architectural coating.

1.3 Sensitive Receptors

Sensitive receptors are considered land uses or other types of population groups that are more sensitive to air pollution exposure. Sensitive population groups include children, the elderly, the acutely and chronically ill, and those with cardio-respiratory diseases. For CEQA purposes, the SCAQMD considers a sensitive receptor to be a location where a sensitive individual could remain for 24-hours or longer, such as residences, hospitals, and schools (etc), as described in the Localized Significance Threshold Methodology (SCAQMD 2008a, page 3-2).

The nearest sensitive land uses to the project site include the following:

- Existing residential dwelling units located adjacent to the site to the north of the project site. Sensitive receptors are located within 25 meters of the project site.

- Existing residential dwelling units located at approximately 75 feet to the west of the project site, across McKimball Road. Sensitive receptors are located within 25 meters of the project site.

1.4 Summary of Air Quality and Greenhouse Gas Impacts

Table 2 provides a summary of the CEQA air quality impact analysis results.

Table 2
CEQA Air Quality Impact Criteria

Air Quality Impact Criteria	Potentially Significant	Potentially Significant Unless Mitigated	Less Than Significant Impact	No Impact
<i>Would the project:</i>				
a) Conflict with, or obstruct implementation of, the applicable air quality plan?			X	
c) 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?			X	
d) Expose sensitive receptors to substantial pollutant concentrations?			X	
e) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?			X	

Table 3 provides a summary of the CEQA GHG impact criteria analysis results.

**Table 3
CEQA GHG Impact Criteria**

GHG Impact Criteria	Potentially Significant	Potentially Significant Unless Mitigated	Less Than Significant Impact	No Impact
<i>Would the project:</i>				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X	
b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing emissions of greenhouse gases?			X	

1.5 Recommended Project Design Features

The following recommended project design features include standard dust control measures, construction best practices and building code requirements that are intended to reduce air quality and GHG emissions. Project design features should be included as part of the conditions of approval for the project, but are not typically considered mitigation under CEQA.

Construction Design Features:

DF-1 Prior to starting construction, submit a Construction Management Plan to the City of Perris that specifies how all construction design features will be implemented.

DF-2 The project must follow the standard SCAQMD rules and requirements with regards to fugitive dust control, which includes, but are not limited to the following:

1. All active construction areas shall be watered two (2) times daily.
2. Speed on unpaved roads shall be reduced to less than 15 mph.
3. Any visible dirt deposition on any public roadway shall be swept or washed at the site access points within 30 minutes.
4. Any on-site stockpiles of debris, dirt or other dusty material shall be covered or watered twice daily.

5. All operations on any unpaved surface shall be suspended if winds exceed 15 mph.
6. Access points shall be washed or swept daily.
7. Construction sites shall be sandbagged for erosion control.
8. Apply nontoxic chemical soil stabilizers according to manufacturers' specifications to all inactive construction areas (previously graded areas inactive for 10 days or more).
9. Cover all trucks hauling dirt, sand, soil, or other loose materials, and maintain at least 2 feet of freeboard space in accordance with the requirements of California Vehicle Code (CVC) section 23114.
10. Pave or gravel construction access roads at least 100 feet onto the site from the main road and use gravel aprons at truck exits.
11. Replace the ground cover of disturbed areas as quickly possible.

DF-3 All diesel construction equipment should have Tier 4 low emission "clean diesel" engines (OEM or retrofit) that include diesel oxidation catalysts and diesel particulate filters that meet the latest CARB best available control technology.

DF-4 Construction equipment should be maintained in proper tune.

DF-5 All construction vehicles should be prohibited from excessive idling. Excessive idling is defined as five (5) minutes or longer.

DF-6 Minimize the simultaneous operation of multiple construction equipment units, to the maximum extent feasible.

DF-7 The use of heavy construction equipment and earthmoving activity should be suspended during Air Alerts when the Air Quality Index reaches the "Unhealthy" level.

DF-8 Establish an electricity supply to the construction site and use electric powered equipment instead of diesel-powered equipment or generators, where feasible.

DF-9 Establish staging areas for the construction equipment that as far from adjacent residential homes, as feasible.

DF-10 Use haul trucks with on-road engines instead of off-road engines for on-site hauling.

Operational Design Features

DF-11 The project will comply with the mandatory requirements of the California Building Standards Code, Title 24, Part 6 (Energy Code) and Part 11 (CALGreen), including, but not limited to:

- Install low flow fixtures and toilets, water efficient irrigation systems, drought tolerant/native landscaping, and reduce the amount of turf.
- Provide the necessary infrastructure to support electric vehicle charging.
- Provide solar installations per the prescribed Energy Design Ratings.

DF-12 Participate in the local waste management recycling and composting programs.

DF-13 Encourage the property management company and landscape maintenance crews to use electric powered landscaping equipment for landscape maintenance.

2.0 Air Quality Setting

The Federal Clean Air Act (§ 7602) defines air pollution as any agent or combination of such agents, including any physical, chemical, biological, or radioactive substance which is emitted into or otherwise enters the ambient air. Household combustion devices, motor vehicles, industrial facilities and forest fires are common sources of air pollution. Air pollution can cause disease, allergies and even death. It affects soil, water, crops, vegetation, manmade materials, animals, wildlife, weather, visibility, and climate. It can also cause damage to and deterioration of property, present hazards to transportation, and negatively impact the economy.

This section provides background information on criteria air pollutants, the applicable federal, state and local regulations concerning air pollution, and the existing physical setting of the project within the context of local air quality.

2.1 Description of Air Pollutants¹.

The following section describes the air pollutants of concern related to the project. Criteria air pollutants are defined as those pollutants for which the federal and state governments have established air quality standards for outdoor or ambient concentrations to protect public health. The following descriptions of criteria air pollutants have been provided by the SCAQMD.

- **Carbon Monoxide (CO)** is a colorless, odorless, toxic gas produced by incomplete combustion of carbon-containing fuels (e.g., gasoline, diesel fuel, and biomass). Sources include motor vehicle exhaust, industrial processes (metals processing and chemical manufacturing), residential wood burning, and natural sources. CO is somewhat soluble in water; therefore, rainfall and fog can suppress CO conditions. CO enters the body through the lungs, dissolves in the blood, and competes with oxygen, often replacing it in the blood, thus reducing the blood's ability to transport oxygen to vital organs in the body. The ambient air quality standard for carbon monoxide is intended to protect persons whose medical condition already compromises their circulatory system's ability to deliver oxygen. These medical conditions include certain heart ailments, chronic lung diseases, and anemia. Persons with these conditions have reduced exercise capacity even when exposed to relatively low levels of CO. Fetuses are at risk because their blood has an even greater affinity to bind with CO. Smokers are also at risk from ambient CO levels because smoking

¹ SCAQMD. Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning (May 6, 2005)

increases the background level of CO in their blood. The South Coast basin has recently achieved attainment status for carbon monoxide by both USEPA and CARB.

- **Nitrogen Dioxide (NO₂)** is a byproduct of fuel combustion. The principal form of nitrogen oxide produced by combustion is nitric oxide (NO), but NO reacts quickly to form NO₂, creating the mixture of NO and NO₂ commonly called NO_x. NO₂ acts as an acute irritant and, in equal concentrations, is more injurious than NO. At atmospheric concentrations, however, NO₂ is only potentially irritating. There is some indication of a relationship between NO₂ and chronic pulmonary fibrosis. Some increase in bronchitis in young children has also been observed at concentrations below 0.3 parts per million (ppm). NO₂ absorbs blue light which results in a brownish red cast to the atmosphere and reduced visibility. Although NO₂ concentrations have not exceeded national standards since 1991 and the state hourly standard since 1993, NO_x emissions remain of concern because of their contribution to the formation of O₃ and particulate matter.
- **Ozone (O₃)** is one of several substances called photochemical oxidants that are formed when volatile organic compounds (VOC) and NO_x react in the presence of ultraviolet sunlight. O₃ concentrations in the South Coast basin are typically among the highest in the nation, and the damaging effects of photochemical smog, which is a popular name for a number of oxidants in combination, are generally related to the concentrations of O₃. Individuals exercising outdoors, children, and people with preexisting lung disease, such as asthma and chronic pulmonary lung disease, are considered to be the subgroups most susceptible to O₃ effects. Short-term exposures (lasting for a few hours) to O₃ at levels typically observed in southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes. In recent years, a correlation between elevated ambient O₃ levels and increases in daily hospital admission rates, as well as mortality, has also been reported. The South Coast Air Basin is designated by the USEPA as an extreme non-attainment area for ozone. Although O₃ concentrations have declined substantially since the early 1990s, the South Coast basin continues to have peak O₃ levels that exceed both state and federal standards.
- **Fine Particulate Matter (PM₁₀)** consists of extremely small, suspended particles or droplets 10 microns or smaller in diameter that can lodge in the lungs, contributing to respiratory problems. PM₁₀ arises from such sources as re-entrained road dust, diesel soot, combustion products, tire and brake abrasion, construction operations, and fires. It is also formed in the atmosphere from NO_x and SO₂ reactions with ammonia. PM₁₀ scatters light and significantly reduces visibility. Inhalable particulates

pose a serious health hazard, alone or in combination with other pollutants. More than half of the smallest particles inhaled will be deposited in the lungs and can cause permanent lung damage. Inhalable particulates can also have a damaging effect on health by interfering with the body's mechanism for clearing the respiratory tract or by acting as a carrier of an absorbed toxic substance. The South Coast basin has recently achieved federal attainment status for PM₁₀, but is non-attainment based on state requirements.

- **Ultra-Fine Particulate Matter (PM_{2.5})** is defined as particulate matter with a diameter less than 2.5 microns and is a subset of PM₁₀. PM_{2.5} consists mostly of products from the reaction of NO_x and SO₂ with ammonia, secondary organics, finer dust particles, and the combustion of fuels, including diesel soot. PM_{2.5} can cause exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease, declines in pulmonary function growth in children, and increased risk of premature death from heart or lung diseases in the elderly. Daily fluctuations in PM_{2.5} levels have been related to hospital admissions for acute respiratory conditions, school absences, and increased medication use in children and adults with asthma. The South Coast basin is designated as non-attainment for PM_{2.5} by both federal and state standards.
- **Sulfur dioxide (SO₂)** is a colorless, pungent gas formed primarily by the combustion of sulfur-containing fossil fuels. Health effects include acute respiratory symptoms and difficulty in breathing for children. Individuals with asthma may experience constriction of airways with exposure to SO₂. Though SO₂ concentrations have been reduced to levels well below state and federal standards, further reductions in SO₂ emissions are needed because SO₂ is a precursor to sulfate and PM₁₀. The South Coast basin is considered a SO₂ attainment area by USEPA and CARB.
- **Lead (Pb)** is a toxic heavy metal that can be emitted into the air through some industrial processes, burning of leaded gasoline and past use of lead-based consumer products. Lead is a neurotoxin that accumulates in soft tissues and bones, damages the nervous system, and causes blood disorders. It is particularly problematic in children, in that permanent brain damage may result, even if blood levels are promptly normalized with treatment. Concentrations of lead once exceeded the state and federal air quality standards by a wide margin, but as a result of the removal of lead from motor vehicle gasoline, ambient air quality standards for lead have not been exceeded since 1982. Though special monitoring sites immediately downwind of lead sources recorded localized violations of the state standard in 1994, no violations have been recorded since. Consequently, the South Coast basin is designated as an attainment area for lead by both the USEPA and CARB. This report

does not analyze lead emissions from the project, as it is not expected to emit lead in any significant measurable quantity.

- **Volatile Organic Compounds (VOC)**, although not actually a criteria air pollutant, VOCs are regulated by the SCAQMD because they cause chemical reactions which contribute to the formation of ozone. VOCs are also transformed into organic aerosols in the atmosphere, contributing to higher PM₁₀ and lower visibility levels. Sources of VOCs include combustion engines, and evaporative emissions associated with fuel, paints and solvents, asphalt paving, and the use of household consumer products such as aerosols. Although health-based standards have not been established for VOCs, health effects can occur from exposures to high concentrations of VOC. Some hydrocarbon components classified as VOC emissions are hazardous air pollutants. Benzene, for example, is a hydrocarbon component of VOC emissions that are known to be a human carcinogen. The term reactive organic gases (ROG) are often used interchangeably with VOC.
- **Toxic Air Contaminants (TACs)** are defined as air pollutants which may cause or contribute to an increase in mortality or serious illness, or which may pose a hazard to human health, and for which there is no concentration that does not present some risk. This contrasts with the criteria pollutants, in that there is no threshold level for TAC exposure below which adverse health impacts are not expected to occur. The majority of the estimated health risk from TACs can be attributed to a relatively few compounds, the most common being diesel particulate matter (DPM) from diesel engine exhaust. In addition to DPM, benzene and 1,3-butadiene are also significant contributors to overall ambient public health risk in California.

2.2 Federal and State Ambient Air Quality Standards

The Federal Clean Air Act, which was last amended in 1990, requires the EPA to set National Ambient Air Quality Standards (NAAQS) for criteria pollutants considered harmful to public health and the environment. The State of California has also established additional and more stringent California Ambient Air Quality Standards (CAAQS) in addition to the seven criteria pollutants designated by the federal government.

AAQS are designed to protect the health and welfare of the populace with a reasonable margin of safety. The standards are divided into two categories, primary standards, and secondary standards. Primary standards are implemented to provide protection for the “sensitive” populations such as those with asthma, or the children and elderly. Secondary standards are to provide protection against visible pollution as well as damage to the surrounding environment, including animals, crops, and buildings.

Table 4 shows the Federal and State Ambient Air Quality Standards.

**Table 4
Federal and State Ambient Air Quality Standards (AAQS)¹**

Air Pollutant	Averaging Time ²	Federal Standard (NAAQS) ²	California Standard (CAAQS) ²
Ozone	1 Hour	--	0.09 ppm
	8 Hour	0.070 ppm	0.070 ppm
Carbon Monoxide (CO)	1 Hour	35 ppm	20 ppm
	8 Hour	9 ppm	9 ppm
Nitrogen Dioxide (NO ₂)	1 Hour	0.100 ppm	0.18 ppm
	Annual	0.053 ppm	0.030 ppm
Sulfur Dioxide (SO ₂)	1 Hour	0.075 ppm	0.25 ppm
	3 Hour	0.5 ppm ³	--
	24 Hour	--	0.04 ppm
Particulate Matter (PM ₁₀)	24 Hour	150 µg/m ³	50 µg/m ³
	Mean	--	20 µg/m ³
Particulate Matter (PM _{2.5})	24 Hour	35 µg/m ³	--
	Annual	12 µg/m ³	12 µg/m ³
Lead	30-day	--	1.5 µg/m
	Quarter	1.5 µg/m	--
	3-month average	0.15 µg/m	--
Visibility reducing particles	8 Hour	--	0.23/km extinction coefficient. (10-mile visibility standard)
Sulfates	24 Hour	--	25 µg/m
Vinyl chloride	24 Hour	--	0.01 ppm
Hydrogen sulfide	24 Hour	--	0.03 ppm

¹ Source: USEPA: <https://www.epa.gov/criteria-air-pollutants/naaqs-table> and

CARB: <https://ww2.arb.ca.gov/resources/california-ambient-air-quality-standards>

² ppm = parts per million of air, by volume; µg/m³ = micrograms per cubic meter; Annual = Annual Arithmetic Mean; 30-day = 30-day average; Quarter = Calendar quarter.

³ Secondary standards

Several pollutants listed in Table 4 are not addressed in this analysis. Lead is not included because the project is not anticipated to emit lead. Visibility-reducing particles are not explicitly addressed in this analysis because particulate matter is addressed. The project is not expected to generate or be exposed to vinyl chloride because proposed project uses do not utilize the chemical processes that create this pollutant and there are no such uses in the project vicinity. The proposed project is not expected to cause exposure to hydrogen sulfide because it would not generate hydrogen sulfide in any substantial quantity.

2.3 Attainment Status

The Clean Air Act requires states to prepare a State Implementation Plan (SIP) to ensure air quality meets the NAAQS. The California Air Resources Board (CARB) provides designations of attainment for air basins where AAQS are either met or exceeded. If the AAQS are met, the area is designated as being in “attainment”, if the air pollutant concentrations exceed the AAQS, than the area is designated as being “nonattainment”. If there is inadequate or inconclusive data to make a definitive attainment designation, the area is considered “unclassified.”

National nonattainment areas are further designated as marginal, moderate, serious, severe, or extreme as a function of deviation from standards. Each standard has a different definition, or ‘form’ of what constitutes attainment, based on specific air quality statistics. For example, the Federal 8-hour CO standard is not to be exceeded more than once per year; therefore, an area is in attainment of the CO standard if no more than one 8-hour ambient air monitoring values exceeds the threshold per year. In contrast, the federal annual PM_{2.5} standard is met if the three-year average of the annual average PM_{2.5} concentration is less than or equal to the standard.

When a state submits a request to the EPA to re-designate a nonattainment area to attainment, the Clean Air Act (CAA) section 175A(a) requires that the state (or states, if the area is a multi-state area) submit a maintenance plan ensuring the area can maintain the air quality standard for which the area is to be re-designated for at least 10 years following the effective date of re-designation.

Table 5 lists the attainment status for the criteria pollutants in the South Coast Air Basin (SCAB).

Table 5
South Coast Air Basin Attainment Status¹

Pollutant	State Status	National Status
Ozone	Nonattainment	Nonattainment (Extreme) ²
Carbon monoxide	Attainment	Attainment (Maintenance)
Nitrogen dioxide	Attainment	Attainment (Maintenance)
PM ₁₀	Nonattainment	Attainment (Maintenance)
PM _{2.5}	Nonattainment	Nonattainment
Lead	Attainment	Nonattainment (Partial) ³

¹ Source: California Air Resources Board. <http://www.arb.ca.gov/desig/adm/adm.htm>

² 8-Hour Ozone.

³ Partial Nonattainment designation – Los Angeles County portion of Basin only.

2.4 South Coast Air Quality Management District (SCAQMD)

The agency responsible for air pollution control for the South Coast Air Basin (SCAB) is the South Coast Air Quality Management District (SCAQMD). The SCAQMD is responsible for controlling emissions primarily from stationary sources. The SCAQMD maintains air quality monitoring stations throughout the SCAB. SCAQMD, in coordination with the Southern California Association of Governments, is also responsible for developing, updating, and implementing the Air Quality Management Plan (AQMP) for the SCAB. An AQMP is a plan prepared and implemented by an air pollution district for a county or region designated as nonattainment of the federal and/or California ambient air quality standards. The term nonattainment area is used to refer to an air SCAB where one or more ambient air quality standards are exceeded.

The latest version is the 2022 AQMP, adopted in December 2022. The 2022 AQMP is a regional blueprint for achieving the federal air quality standards and healthful air. While air quality has dramatically improved over the years, the SCAB still exceeds federal public health standards for both ozone and particulate matter (PM) and experiences some of the worst air pollution in the nation. The 2022 AQMP includes both stationary and mobile source strategies to ensure that rapidly approaching attainment deadlines are met, that public health is protected to the maximum extent feasible, and that the region is not faced with burdensome sanctions if the Plan is not approved or if the NAAQS are not met on time.

According to the 2022 AQMP, the most significant air quality challenge in the SCAB is to reduce nitrogen oxide (NOx) emissions sufficiently to meet the upcoming ozone standard deadlines. Based on the inventory and modeling results, the 2022 AQMP projects that 184 tons per day (tpd) of NOx will be emitted in the year 2037 as a result of continued implementation of already adopted regulatory actions (“baseline emissions”). The analysis suggests that in order to meet the ozone standard of 60 tpd, NOx emissions need to be reduced about 67 percent beyond the projected 2037 baseline emissions and about 83 percent below current levels².

2.4.1 SCAQMD Rules and Regulations

The SCAQMD establishes a program of rules and regulations to obtain attainment of the state and federal standards in conjunction with the AQMP. Several of the rules and regulations that may be applicable to this project include, but are not limited to, the following:

- **SCAQMD Rule 402** prohibits a person from discharging from any source whatsoever such quantities of air contaminants or other material which 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.
- **SCAQMD Rule 403** governs emissions of fugitive dust during construction and operation activities. Compliance with this rule is achieved through application of standard Best Management Practices, such as application of water or chemical stabilizers to disturbed soils, covering haul vehicles, restricting vehicle speeds on unpaved roads to 15 miles per hour, sweeping loose dirt from paved site access roadways, cessation of construction activity when winds exceed 25 mph, and establishing a permanent ground cover on finished sites.
- **SCAQMD Rule 445** restricts wood burning devices from being installed into any new development and is intended to reduce the emissions of particulate matter for wood burning devices.
- **SCAQMD Rule 1113** governs the sale, use, and manufacturing of architectural coating and limits the VOC content in paints and paint solvents. This rule regulates

² Source: 2022 Air Quality Management Plan, South Coast Air Quality Management District, Adopted December 2, 2022.

the VOC content of paints available during construction. Therefore, all paints and solvents used during construction and operation of project must comply with Rule 1113.

- **SCAQMD Rule 1143** governs the manufacture, sale, and use of paint thinners and solvents used in thinning of coating materials, cleaning of coating application equipment, and other solvent cleaning operations by limiting their VOC content. This rule regulates the VOC content of solvents used during construction. Solvents used during the construction phase must comply with this rule.
- **SCAQMD Rule 1186** limits the presence of fugitive dust on paved and unpaved roads and sets certification protocols and requirements for street sweepers that are under contract to provide sweeping services to any federal, state, county, agency or special district such as water, air, sanitation, transit, or school district.

2.5 Local Climate and Meteorology

The project is located in the South Coast Air Basin (SCAB). Climatological data from the nearest weather station to the project site is summarized in Table 6.

Table 6
Meteorological Summary¹

Month	Temperature (°F)			Mean Precipitation (inches)
	Max.	Min.	Mean	
January	65.3	34.7	50.0	1.63
February	68.1	37.5	52.8	1.93
March	68.3	38.9	53.6	1.29
April	74.2	41.6	57.9	1.04
May	79.6	47.5	63.5	0.16
June	85.3	51.7	68.5	0.06
July	96.7	57.4	77.1	0.33
August	96.9	58.7	77.8	0.06
September	90.8	53.2	72.0	0.35
October	82.5	47.1	64.8	0.14
November	72.0	40.5	56.2	1.97
December	64.5	34.9	49.7	1.45
Annual	78.7	45.3	62.0	10.42

¹ Source: Western Regional Climate Center 2016-2019. Averages derived from measurements recorded between 1961 and 1973 at Perris Station, (046816).

2.6 Local Air Quality

The air quality at any site is dependent on the regional air quality and local pollutant sources. Regional air quality is determined by the release of pollutants throughout the air basin.

The SCAQMD has divided the SCAB into fourteen general forecasting areas and thirty eight Source Receptor Areas (SRA) for monitoring and reporting local air quality. The SCAQMD provides daily reports of the current air quality conditions in each general forecast area and SRA. The monitoring areas provide a general representation of the local meteorological, terrain, and air quality conditions within the SCAB.

The project site is located within the Hemet/Elsinore Area general forecasting area and the Perris Valley air monitoring area (SRA-24). For criteria pollutants not monitored at the Perris Valley air monitoring station, air quality data is derived from the nearest adjacent Metropolitan Riverside Station 1 (SRA-23).

Table 7 summarizes the published air quality monitoring for the most recent 3-year period available. These pollutant levels were used to comprise a “background” for the project location and existing local air quality.

**Table 7
Local Air Quality**

Air Pollutant Location	Averaging Time	Item	2020	2021	2022
Carbon Monoxide -- Metropolitan Riverside County 1	1 Hour	Max 1-Hour (ppm)	1.9	2.1	3.3
		Exceeded State Standard (20 ppm)	No	No	No
		Exceeded National Standard (35 ppm)	No	No	No
	8 Hour	Max 8 Hour (ppm)	1.4	1.8	1.2
		Days > State Standard (9 ppm)	No	No	No
		Days > National Standard (9 ppm)	No	No	No
Ozone -- Perris Valley	1 Hour	Max 1-Hour (ppm)	0.125	0.117	--
		Days > State Standard (0.09 ppm)	34.0	25.0	--
	8 Hour	Max 8 Hour (ppm)	0.106	0.094	--
		Days > State Standard (0.070 ppm)	74	60	--
		Days > National Standard (0.070 ppm)	74	55	--
Nitrogen Dioxide -- Metropolitan Riverside County 1	1 Hour	Max 1-Hour (ppm)	0.066	0.052	0.056
		Exceeded State Standard (0.18 ppm)	No	No	No
	Annual	Annual Average (ppm)	0.014	0.014	0.013
		Exceeded State Standard (0.030 ppm)	No	No	No
		Exceeded National Standard (0.053 ppm)	No	No	No
Sulfur Dioxide -- Metropolitan Riverside County 1	1 Hour	Max 1 Hour (ppm)	0.0022	0.0021	0.0067
		Exceeded State Standard (0.25 ppm)	No	No	No
		Exceeded National Standard (0.075 ppm)	No	No	No
	24 Hour	Max 24-Hour ($\mu\text{g}/\text{m}^3$)	77	--	--
		Days > State Standard ($50 \mu\text{g}/\text{m}^3$)	6	--	--
		Days > National Standard ($150 \mu\text{g}/\text{m}^3$)	0	--	--
Perris Valley	Annual	Annual Average ($\mu\text{g}/\text{m}^3$)	35.90	--	--
		Exceeded State Standard ($20 \mu\text{g}/\text{m}^3$)	Yes	--	--
Fine Particulates (PM2.5) -- Metropolitan Riverside County 1	24 Hour	Max 24-Hour ($\mu\text{g}/\text{m}^3$)	41.00	82.10	38.50
		Days > National Standard ($35 \mu\text{g}/\text{m}^3$)	4	10	1
	Annual	Annual Average ($\mu\text{g}/\text{m}^3$)	12.63	12.58	10.80
		Exceeded State Standard ($12 \mu\text{g}/\text{m}^3$)	Yes	Yes	No
		Exceeded National Standard ($15 \mu\text{g}/\text{m}^3$)	No	No	No

Source : <https://www.aqmd.gov/home/air-quality/historical-air-quality-data/historical-data-by-year>

$\mu\text{g}/\text{m}^3$ = micrograms per cubic meter

ARB = California Air Resource Board

EPA= Environmental Protection Agency

ppm = part per million

(- -) = Data not provided

3.0 Global Climate Change Setting

Global climate change is the change in the average weather of the earth that is measured by such things as alterations in temperature, wind patterns, storms, and precipitation. Current data shows that the recent period of warming is occurring more rapidly than past geological events. The average global surface temperature has increased by approximately 1.4° Fahrenheit since the early 20th Century. 1.4° Fahrenheit may seem like a small change, but it's an unusual event in Earth's recent history, and as we are seeing, even small changes in temperature can cause enormous changes in the environment.

The planet's climate record, preserved in tree rings, ice cores, and coral reefs, shows that the global average temperature has been stable over long periods of time. For example, at the end of the last ice age, when the Northeast United States was covered by more than 3,000 feet of ice, average global temperatures were only 5° to 9° Fahrenheit cooler than today. The Intergovernmental Panel on Climate Change (IPCC), which includes more than 1,300 scientists from the United States and other countries, forecasts a temperature rise of 2.5° to 10° Fahrenheit over the next century. Therefore, significant changes to the environment are expected in the near future.

The consequences of global climate change include more frequent and severe weather, worsening air pollution by increasing ground level ozone, higher rates of plant and animal extinction, more acidic and oxygen depleted oceans, strain on food and water resources, and threats to densely populated coastal and low lying areas from sea level rise.

The impacts of climate change are already visible in the Southwest United States. In California, the consequences of climate change include;

- A rise in sea levels resulting in the displacement of coastal businesses and residencies
- A reduction in the quality and supply of water from the Sierra snowpack
- Increased risk of large wildfires
- Exacerbation of air quality problems
- Reductions in the quality and quantity of agricultural products
- An increased temperature and extreme weather events
- A decrease in the health and productivity of California's forests

3.1 Greenhouse Gases

GHGs comprise less than 0.1 percent of the total atmospheric composition, yet they play an essential role in influencing climate. Greenhouse gases include naturally occurring compounds such as carbon dioxide (CO₂), methane (CH₄), water vapor (H₂O), and nitrous oxide (N₂O), while others are synthetic. Man-made GHGs include the chlorofluorocarbons (CFCs), hydrofluorocarbons (HFCs) and Perfluorocarbons (PFCs), as well as sulfur hexafluoride (SF₆). Different GHGs have different effects on the Earth's warming. GHGs differ from each other in their ability to absorb energy (their "radiative efficiency") and how long they stay in the atmosphere, also known as the "lifetime".

The Global Warming Potential (GWP) was developed to allow comparisons of the global warming impacts of different gases. Specifically, it is a measure of how much energy the emissions of 1 ton of a gas will absorb over a given period of time, relative to the emissions of 1 ton of CO₂. The larger the GWP, the more that a given gas warms the Earth compared to CO₂ over that time period. The time period usually used for GWPs is 100 years. GWPs provide a common unit of measure, which allows analysts to add up emissions estimates of different gases and allows policymakers to compare emissions reduction opportunities across sectors and gases.

Table 8 lists the 100-year GWP of GHGs from the Intergovernmental Panel on Climate Change (IPCC) fifth assessment report (AR5).

Table 8
Global Warming Potential of Greenhouse Gases^{1, 2}

Gas Name	Formula	Lifetime (years)	GWP
Carbon Dioxide	CO ₂		1
Methane	CH ₄	12	28
Nitrous Oxide	N ₂ O	114	265
Sulphur Hexafluoride	SF ₆	3200	23,500
Nitrogen Trifluoride	NF ₃	740	16,100
Hexafluoroethane (PFC-116)	C ₂ F ₆	10,000	11,100
Octafluoropropane (PFC-218)	C ₃ F ₈	2,600	8,900
Octafluorocyclobutane (PFC-318)	C ₄ F ₈	3,200	9,540
Tetrafluoromethane (PFC-14)	CF ₄	50,000	6,630
Hydrofluorocarbon 125	HFC-125	29	3,170
Hydrofluorocarbon 134a	HFC-134a	14	1,300
Hydrofluorocarbon 143a	HFC-143a	52	4,800
Hydrofluorocarbon 152a	HFC-152a	1	138
Hydrofluorocarbon 227ea	HFC-227ea	34	3,350
Hydrofluorocarbon 23	HFC-23	270	12,400
Hydrofluorocarbon 236fa	HFC-236fa	240	8,060
Hydrofluorocarbon 245fa	HFC-245fa	8	858
Hydrofluorocarbon 32	HFC-32	5	677
Hydrofluorocarbon 365mfc	HFC-365mfc	9	804
Hydrofluorocarbon 43-10mee	HFC-43-10mee	16	1,650

¹ Source: IPCC Fifth Assessment Report (AR5)

https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_Chapter08_FINAL.pdf

² GWPs are used to convert GHG emission values to "carbon dioxide equivalent" (CO₂e) units

3.2 GHG Regulatory Setting – State of California

The State of California has been a leader in climate change legislation and has passed numerous bills to reduce greenhouse gas emissions across all sectors of the economy. Some of the key climate legislation in the State include the following:

- **Assembly Bill (AB) 32, California Global Warming Solutions Act of 2006.** AB 32 set the stage for the State’s transition to a sustainable, low-carbon future. AB 32 was the first program in the country to take a comprehensive, long-term approach to addressing climate change.³
- **Senate Bill (SB) 375, Sustainable Communities & Climate Protection Act of 2008.** SB 375 requires the Air Resources Board to develop regional greenhouse gas emission reduction targets for passenger vehicles GHG reduction targets for 2020 and 2035 for each region covered by the State's 18 metropolitan planning organizations.⁴
- **Senate Bill (SB) 100, California Renewables Portfolio Standard Program.** SB 100 established a landmark policy requiring renewable energy and zero-carbon resources supply 100 percent of electric retail sales to end-use customers by 2045.⁵

In addition to the above legislation, the state of California has established standards in the 2022 California Green Building Standards Code (CALGreen) Title 24, Part 11 in order to meet the goals of AB 32. CALGreen includes mandatory residential and nonresidential measures for planning, design, and development of land uses.

The proposed project will be required to comply with the measures established in CALGreen Title 24, Part 11. The sections applicable to the proposed project include, but are not limited to the following. Copies of the CALGreen Title 24, Part 11 mandatory residential and nonresidential measures are provided in Appendix A.

Residential

- 4.106 – Site Development
- 4.303 – Indoor Water Use
- 4.304 – Outdoor Water Use
- 4.305 – Water Reuse Systems
- 4.406 – Enhanced Durability and Reduced Maintenance
- 4.408 – Construction Waste Reduction, Disposal, and Recycling
- 4.410 – Building Maintenance and Operation

³ California Air Resources Board. AB 32 Global Warming Solutions Act of 2006.

<https://ww2.arb.ca.gov/resources/fact-sheets/ab-32-global-warming-solutions-act-2006>

⁴ California Air Resources Board. Sustainable Communities and Climate Protection Program.

<https://ww2.arb.ca.gov/our-work/programs/sustainable-communities-climate-protection-program/about>

⁵ California Energy Commission. SB 100 Joint Agency Report. <https://www.energy.ca.gov/sb100>

- 4.503 – Fireplaces
- 4.504 – Pollutant Control
- 4.505 – Interior Moisture Control
- 4.506 – Indoor Air Quality and Exhaust
- 4.507 – Environmental Comfort

Nonresidential

- 5.106 – Site Development
- 5.303 – Indoor Water Use
- 5.304 – Outdoor Water Use
- 5.305 – Water Reuse Systems
- 5.407 – Water Resistance and Moisture Management
- 5.408 – Construction Waste Reduction, Disposal and Recycling
- 5.409 – Life Cycle Assessment
- 5.410 – Building Maintenance and Operation
- 5.503 – Fireplaces
- 5.504 – Pollutant Control
- 5.505 – Indoor Moisture Control
- 5.506 – Indoor Air Quality
- 5.507 – Environmental Comfort
- 5.508 – Outdoor Air Quality

3.3 GHG Emissions Inventory

Table 9 shows the latest GHG emission inventories at the national, state, regional and local levels.

Table 9
GHG Emissions Inventory¹

United States (2019)²	State of California (2019)³	SCAG (2020)⁴	City of Perris (2020)⁵
6,558 MMTCO ₂ e	418 MMTCO ₂ e	216.4 MMTCO ₂ e	0.514 MMTCO ₂ e

¹ MMTCO₂e = Million Metric Tons of Carbon Dioxide Equivalent

² <https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks>

³ https://ww3.arb.ca.gov/cc/inventory/pubs/reports/2000_2019/ghg_inventory_trends_00-19.pdf

⁴ <http://www.scag.ca.gov/programs/Pages/GreenhouseGases.aspx>. Projected Emission from SACG - Regional GHG Inventory and Reference Case Projections, 1990-2035, dated May 30, 2012.

⁵ City of Perris Climate Action Plan, February 23, 2016. (Forecasted emissions)

4.0 Modeling Parameters and Assumptions

The California Emissions Estimator Model Version 2020.4.0 (CalEEMod) was used to calculate criteria air pollutants and GHG emissions from the construction and operation of the project. CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify criteria air pollutant and GHG emissions.

The model quantifies direct emissions from construction and operation activities (including vehicle use), as well as indirect emissions, such as GHG emissions from off-site energy generation, solid waste disposal, vegetation planting and/or removal, and water use. The model also identifies design features to reduce criteria pollutant and GHG emissions. The model was developed for the California Air Pollution Control Officers Association (CAPCOA) in collaboration with the California air districts.

4.1 Construction Assumptions

Construction of the project is estimated to begin in the year 2025 and last approximately 36 months. Construction activities are expected to consist of site preparation, grading, building construction, paving, and architectural coating. The project is expected to be operational in the year 2028. For the purposes of this analysis, construction phases are not expected to overlap.

The project is expected to require the import of approximately 10,000 cubic yards of earthwork material during the grading phase.

The CalEEMod default construction equipment list is based on survey data and the size of the site. The parameters used to estimate construction emissions, such as the worker and vendor trips and trip lengths, utilize the CalEEMod defaults. The construction equipment list is shown in Table 10.

The project would be required to comply with several standard fugitive dust control measures, per SCAQMD Rule 403. The following key inputs are utilized in CalEEMod and are based upon data provided from the SCAQMD⁶:

- Utilize soil stabilizers - 30% PM₁₀ and PM_{2.5} reduction.

⁶ SCAQMD. Fugitive Dust Mitigation Measures. <http://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook/mitigation-measures-and-control-efficiencies/fugitive-dust>

- Replace ground cover - 15% PM₁₀ and PM_{2.5} reduction.
- Water exposed areas 2x per day.
- Unpaved road moisture content – 25%.
- Unpaved road vehicle speed – 15 mph.

Table 10
Construction Equipment Assumptions¹

Phase	Equipment	Number	Hours Per Day	Soil Disturbance Rate (Acres/8hr-Day) ²	Off-Road Equipment Daily Disturbance Footprint (Acres)	Total Daily Disturbance Footprint (Acres)
Site Preparation	Rubber Tired Dozers	3	8	0.50	1.50	3.50
	Tractors/Loaders/Backhoes	4	8	0.50	2.00	
Grading	Excavators	2	8	0.50	1.00	5.00
	Graders	1	8	0.50	0.50	
	Rubber Tired Dozers	1	8	0.50	0.50	
	Scrapers	2	8	1.00	2.00	
	Tractors/Loaders/Backhoes	2	8	0.50	1.00	
Building Construction	Cranes	1	7	0.00	0.00	1.31
	Forklifts	3	8	0.00	0.00	
	Generator Sets	1	8	0.00	0.00	
	Tractors/Loaders/Backhoes	3	7	0.50	1.31	
	Welders	1	8	0.00	0.00	
Paving	Pavers	2	8	0.00	0.00	0.00
	Paving Equipment	2	8	0.00	0.00	
	Rollers	2	8	0.00	0.00	
Architectural Coating	Air Compressors	1	6	0.00	0.00	0.00

¹ CalEEMod Defaults

4.2 Localized Construction Analysis Modeling Parameters

CalEEMod calculates construction emissions based on the number of equipment hours and the maximum daily disturbance activity possible for each piece of equipment. This report identifies the following parameters in the project design or applicable mitigation measures in order to compare CalEEMod reported emissions against the localized significance threshold lookup tables:

- 1) The off-road equipment list (including type of equipment, horsepower, and hours of operation) assumed for the day of construction activity with maximum emissions.
- 2) The maximum number of acres disturbed on the peak day.
- 3) Any emission control devices added onto off-road equipment.
- 4) Specific dust suppression techniques used on the day of construction activity with maximum emissions.

Based on recent discussions with SCAQMD staff, the Fact Sheet for Applying CalEEMod to Localized Significance Thresholds should no longer be used to determine disturbance acreage for the localized analysis.

4.3 Operational Assumptions

Operational emissions occur over the life of the project and are considered “long-term” sources of emissions. Operational emissions include both direct and indirect sources. This section briefly describes the operational sources of emissions analyzed for the project.

4.3.1 Mobile Source Emissions

Mobile source emissions are the largest source of long-term air pollutants from the operation of the project. Mobile sources are direct sources of project emissions that are primarily attributed to tailpipe exhaust and road dust (tire, brake, clutch, and road surface wear) from motor vehicles traveling to and from the site.

Estimates of mobile source emissions require information on four parameters: trip generation, trip length, vehicle/fleet mix, and emission factors (quantity of emission for each mile traveled or time spent idling by each vehicle).

The trip generation rates, trip length and trip percentages for this project are based on the CalEEMod defaults.

The Emission Factors (EMFAC2017) 2017 model and off-model adjustments factors to account for the SAFE Vehicle Rule is used to estimate the mobile source emissions are embedded in the CalEEMod emissions model. No adjustments have been made to default emission factors.

The project’s total vehicle miles traveled estimated by CalEEMod is shown in the Table 11 for this project.

Table 11
Operational Vehicle Miles Traveled¹

Land Use	Annual Vehicle Miles Traveled (VMT)
Single Family Residential	3,430,475

¹ CalEEMod defaults.

The operational vehicle fleet mix has been adjusted to reflect vehicle types used for typical residential home-based trips generated by the project. The Southern California Association of Governments (SCAG) regional travel demand model does not include heavy-duty trucks, buses or other large vehicles that would require passenger car equivalent (PCE) adjustments for residential home-based trips. The project does not consist of land uses that would typically require PCE adjustments to account for large trucks, such as warehousing.

To be conservative, the Air Quality/GHG analysis has assumed that 2% of the total residential home-based trips will include trucks with a gross vehicle weight rating (GVWR) of 10,000 pound or greater. This includes LHD2, MHD, HHD, OBUS, UBUS, and SBUS vehicles. The 2% mix is also consistent with the default Highway Capacity Manual (HCM) assumptions. The adjusted vehicle mix is proportioned according to the default CalEEMod vehicle mix.

Table 12 summarizes vehicle mix used for this project.

Table 12
Operational Vehicle Mix¹

YUY	Vehicle Mix (%)
Light Duty Automobile (LDA)	50.96%
Light Duty Truck (LDT1)	3.72%
Light Duty Truck (LDT2)	21.83%
Medium Duty Truck (MDV)	16.05%
Light Heavy Truck (LHD1)	3.13%
Light Heavy Truck (LHD2)	0.36%
Medium Heavy Truck (MHD)	0.63%
Heavy Heavy Truck (HHD)	0.69%
Other Bus (OBUS)	0.02%
Urban Bus (UBUS)	0.02%
Motorcycle (MCY)	2.32%
School Bus (SBUS)	0.06%
Motor Home (MH)	0.22%
Total	100.0%

¹ Adjusted fleet mix to include 2% total trucks over 10,000 lbs. GVWR. (LHD2, MHD, HHD, OBUS, UBUS, SBUS, MH)

4.3.2 Energy Source Emissions

Energy usage includes both direct and indirect sources of emissions. Direct sources of emissions include on-site natural gas usage (non-hearth) for heating, while indirect emissions include electricity generated by offsite power plants. Natural gas use is measured in units of thousand British Thermal Units (kBtu) per size metric for each land use subtype and electricity use is measured in kilowatt hours (kWh) per size metric for each land use subtype.

CalEEMod divides building electricity and natural gas use into uses that are subject to Title 24 standards and those that are not. Lighting electricity usage is also calculated as a separate category in CalEEMod. For electricity, Title 24 uses include the major building envelope systems covered by Part 6 (California Energy Code) of Title 24, such as space heating, space cooling, water heating, and ventilation. Non-Title 24 uses include all other end uses, such as appliances, electronics, and other miscellaneous plug-in uses. Because some lighting is not considered as part of the building envelope energy budget, and since a

separate mitigation measure is applicable to this end use, CalEEMod makes lighting a separate category.

For natural gas, uses are likewise categorized as Title 24 or Non-Title 24. Title 24 uses include building heating and hot water end uses. Non-Title 24 natural gas uses include cooking and appliances (including pool/spa heaters).

The baseline values are based on the California Energy Commission (CEC) sponsored California Commercial End Use Survey (CEUS) and Residential Appliance Saturation Survey (RASS) studies.

The project will be required to provide on-site renewable energy photovoltaic installations (solar panels), as prescribed by the 2022 Building Energy Efficiency Standards for Residential and Nonresidential Buildings.

In order to assess the project's future energy usage, RK has performed a quantitative energy impact analysis using CEQA energy impact criteria. The energy impact analysis is provided in Section 8.0 of this report.

4.3.3 Area Source Emissions

Area source emissions are direct sources of emissions that fall under four categories; hearths, consumer products, architectural coatings, and landscaping equipment. Per SCAQMD rule 445, no wood burning devices are allowed in new developments; therefore, no wood hearths are included in this project.

Consumer products are various solvents used in non-industrial applications which emit VOCs during their product use. These typically include cleaning supplies, kitchen aerosols, cosmetics and toiletries.

4.3.4 Other Sources of Operational Emissions

Water. Greenhouse gas emissions are generated from the upstream energy required to supply and treat the water used on the project site. Indirect emissions from water usage are counted as part of the project's overall impact. The estimated water usage for the project is reported in Table 13 and recommendations to reduce water usage are discussed in Section 6.0.

Waste. CalEEMod calculates the indirect GHG emissions associated with waste that is disposed of at a landfill. The program uses annual waste disposal rates from the California Department of Resources Recycling and Recovery (CalRecycle) data for individual land uses. The program quantifies the GHG emissions associated with the decomposition of the waste which generates methane based on the total amount of degradable organic carbon.

The estimated waste generation by the project is reported in Table 13 and recommendations to reduce waste generation in landfills are discussed in Section 6.0

Table 13
Operational Water Usage and Waste Generation¹

Land Use	Water Usage (gallons/year)			Waste Generation (tons/year) ¹
	Indoor	Outdoor	Total	
Single Family Housing	3,741,987.30	1,198,945.44	4,940,932.74	84.19
Health Club	120,947.73	--	120,947.73	11.66
Total	3,862,935.03	1,198,945.44	5,061,880.47	95.85

¹ CalEEMod default unmitigated estimates.

5.0 Significance Thresholds

5.1 Air Quality Significance Thresholds

The SCAQMD has established air quality emissions thresholds for criteria air pollutants for the purposes of determining whether a project may have a significant effect on the environment per Section 15002(g) of the Guidelines for implementing CEQA. By complying with the thresholds of significance, the project would be in compliance with the SCAQMD Air Quality Management Plan (AQMP) and the federal and state air quality standards.

Table 14 lists the air quality significance thresholds for the six air pollutants analyzed in this report. Lead is not included as part of this analysis as the project is not expected to emit lead in any significant measurable quantity.

Table 14
SCAQMD Air Quality Significance Thresholds

Pollutant	Construction (lbs/day)	Operation (lbs/day)
NO_x	100	55
VOC	75	55
PM₁₀	150	150
PM_{2.5}	55	55
SO_x	150	150
CO	550	550

¹ Source: <http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf>

5.2 Air Quality Localized Significance Thresholds

Air quality emissions were analyzed using the SCAQMD's Mass Rate Localized Significant Threshold (LST) Look-up Tables.

Table 15 lists the Localized Significance Thresholds (LST) used to determine whether a project may generate significant adverse localized air quality impacts. LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an

exceedance of the most stringent applicable federal or state ambient air quality standard. LSTs are developed based on the ambient concentrations of four applicable air pollutants for source receptor area (SRA) 24 – Perris Valley.

The nearest existing sensitive receptors are located along the property line to the north the project site, less than 25 meters from potential areas of on-site construction and operational activity. Although receptors are located closer than 25 meters to the site, SCAQMD LST methodology states that projects with boundaries located closer than 25 meters to the nearest receptor should use the LSTs for receptors located at 25 meters.

The daily disturbance area is calculated to be 4 acres, however LST thresholds are only based on 1, 2 and 5-acre sites. In order to be conservative, a linear progression model was used to estimate the threshold for 4-acre site based on the established LST thresholds.

Table 15
SCAQMD Localized Significance Thresholds¹ (LST)

Pollutant	Construction (lbs/day)	Operation (lbs/day)
NO_x	270.0	270.0
CO	1,577.0	1,577.0
PM₁₀	13.0	4.0
PM_{2.5}	8.0	2.0

¹ Source: SCAQMD Mass Rate Localized Significance Thresholds for 5-acre site in SRA-24 at 25 meters

5.3 GHG Significance Thresholds

5.3.1 SCAQMD Recommended GHG Thresholds

For GHG emissions and global warming, there is not, at this time, one established, universally agreed-upon “threshold of significance” by which to measure an impact. While CARB published some draft thresholds in 2008, they were never adopted, and CARB recommended that local air districts and lead agencies adopt their own thresholds for GHG impacts.

Instead, the determination of significance is governed by State CEQA Guidelines 15064.4, entitled “Determining the Significance of Impacts from Greenhouse Gas Emissions.” State CEQA Guidelines 15064.4(a) states, “[t]he determination of the significance of greenhouse

gas emissions calls for a careful judgment by the lead agency consistent with the provisions in Section 15064. A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, what threshold(s) should be used to qualitatively and quantitatively determine the significance of a project impact. Therefore, consistent with State CEQA Guidelines 15064.4, the GHG analysis for the project appropriately relies upon a threshold based on the exercise of careful judgement and believed to be appropriate in the context of this particular project.

The SCAQMD has been evaluating GHG significance thresholds since April 2008. On December 5, 2008, the SCAQMD Governing Board adopted an Interim CEQA Greenhouse Gas Significance Threshold of 10,000 metric tons of carbon dioxide equivalents (MTCO_{2e}) per year for stationary source/industrial projects for which the SCAQMD is the lead agency.

The SCAQMD has continued to consider then adoption of significance thresholds for projects where the SCAQMD is not the lead agency. The most recent proposal issued in September 2010 uses the following tiered approach to evaluate potential GHG impacts from various uses:

- Tier 1** Determine if CEQA categorical exemptions are applicable. If not, move to Tier 2.
- Tier 2** Consider whether or not the proposed project is consistent with a locally adopted GHG reduction plan that has gone through public hearings and CEQA review, that has an approved inventory, includes monitoring, etc. If not, move to Tier 3.
- Tier 3** Consider whether the project generates GHG emissions in excess of screening thresholds for individual land uses. The 10,000 MTCO_{2e} per year threshold for industrial uses would be recommended for use by all lead agencies. Under option 1, separate screening thresholds are proposed for residential projects (3,500 MTCO_{2e} per year), commercial projects (MTCO_{2e} per year), and mixed-use projects (3,000 MTCO_{2e} per year). Under option 2 a single numerical screening threshold of 3,000 MTCO_{2e} per year would be used for all non-industrial projects. If the project generates emissions in excess of the applicable screening threshold, move to Tier 4.
- Tier 4** Consider whether the project generates GHG emissions in excess of applicable performance standards for the project service population (population plus

employment). The efficiency targets were established based on the goal of AB 32 to reduce statewide GHG emissions by 2020 and 2035. The 2020 efficiency targets are 4.8 MTCO₂e per year per service population for project level analyses and 6.6 MTCO₂e per year per service population for plan level analyses. The 2035 targets that reduce emissions to 40 percent below 1990 levels are 3.0 MTCO₂e per year per service population for project level analyses and 4.1 MTCO₂e per year per service population for plan level analyses. If the project generates emissions in excess of the applicable efficiency targets, move to Tier 5.

Tier 5 Consider the implementation of CEQA mitigation (including the purchase of GHG offsets) to reduce the project efficiency target to Tier 4 levels.

The thresholds identified above have not been adopted by the SCAQMD or distributed for widespread public review and comment, and the working group tasked with developing the thresholds has not met since September 2010. The future schedule and likelihood of threshold adoption is uncertain. If CARB adopts statewide significance thresholds, SCAQMD staff plan to report back to the SCAQMD Governing Board regarding any recommended changes or additions to the SCAQMD's interim threshold. The only update to the SCAQMD's GHG thresholds since 2010 is that the 10,000 MTCO₂e per year threshold for industrial projects is now included in the SCAQMD's March 2023 South Coast AQMD Air Quality Significance Thresholds document that is published for use by local agencies.

In the absence of other thresholds of significance adopted by the SCAQMD, the City of Perris has been using the 10,000 MTCO₂e per year threshold of significance for industrial projects and the draft thresholds for non-industrial projects for the purpose of evaluating impacts with respect to project-level GHG emissions. Specifically, the emissions from a residential project would be potentially significant if it was to generate more than 3,500 MTCO₂e per year.

6.0 Air Quality Impact Analysis

Consistent with CEQA and the State CEQA Guidelines, a significant impact related to air quality would occur if the proposed project is determined to:

- a) Conflict with or obstruct implementation of the applicable air quality plan.
- b) 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.
- c) Expose sensitive receptors to substantial pollutant concentrations.
- d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

6.1 Short Term Air Quality Impacts - Construction

6.1.1 Daily Emissions - Construction

Daily air quality emissions include both on-site and off-site emissions associated with construction of the project. Regional daily emissions of criteria pollutants are compared to the SCAQMD thresholds of significance.

As shown in Table 16, daily emissions of criteria pollutants are expected to be below the allowable thresholds of significance.

CalEEMod daily emissions outputs are provided in Appendix B.

Table 16
Daily Construction Emissions

Maximum Daily Emissions (lbs/day) ¹						
Activity	VOC	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Site Preparation	0.57	2.67	29.33	0.05	7.99	4.09
Grading	0.90	6.44	37.32	0.07	4.41	1.78
Building Construction	0.64	3.68	17.71	0.03	0.65	0.24
Paving	0.67	2.39	11.60	0.01	0.29	0.13
Architectural Coating	28.43	0.86	1.47	0.00	0.11	0.04
Maximum¹	28.43	6.44	37.32	0.07	7.99	4.09
SCAQMD Threshold	75	100	550	150	150	55
Exceeds Threshold (?)	No	No	No	No	No	No

¹ Maximum daily emission during summer or winter; includes both on-site and off-site project emissions.

The project must follow mandatory SCAQMD rules and requirements with regards to fugitive dust control, as described in Section 6.1.3. Compliance with the standard dust control measures is considered to be part of the conditions of approval for the project and built into the design features.

Table 16 shows that, the project's daily construction emissions would be below the applicable SCAQMD air quality standards and thresholds of significance. As a result, the project would not contribute substantially to an existing or projected air quality violation during construction.

Furthermore, by complying with the SCAQMD standards, the project would not contribute to 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors).

The project's short-term construction impact on regional air resources would be less than significant.

6.1.2 Localized Emissions - Construction

Table 17 illustrates the construction related localized emissions and compares the results to the SCAQMD LST thresholds. As shown in Table 17, the emissions would be below the

SCAQMD thresholds of significance for localized construction emissions. The project must follow all standard SCAQMD rules and requirements with regards to fugitive dust control, as described in Section 6.1.3. Compliance with the dust control is considered a standard requirement and included as part of the project’s design features, not mitigation.

The project’s short-term construction impact to localized air resources would be less than significant.

**Table 17
Localized Construction Emissions**

Maximum Daily Emissions (lbs/day)¹				
Activity	NOx	CO	PM₁₀	PM_{2.5}
On-site Emissions	4.76	35.40	7.77	4.04
SCAQMD Construction Threshold ²	270.0	1,577.0	13.0	8.0
Exceeds Threshold (?)	No	No	No	No

¹ Maximum daily emission during summer or winter; includes on-site project emissions only.

² Reference 2006-2008 SCAQMD Mass Rate Localized Significant Thresholds for construction and operation. SRA-24, Perris Valley, 5-acre site, receptor distance 25 meters.

6.1.3 Fugitive Dust - Construction

The Project is required to comply with regional rules that assist in reducing short-term air pollutant emissions associated with suspended particulate matter, also known as fugitive dust. Fugitive dust emissions are commonly associated with land clearing activities, cut-and-fill grading operations, and exposure of soils to the air and wind. SCAQMD Rule 403 requires that fugitive dust is controlled with best-available control measures so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. In addition, SCAQMD Rules 402 and 403 require implementation of dust suppression techniques to prevent fugitive dust from creating a nuisance off site.

To ensure full compliance with the applicable dust control standards, the following project design are recommended for the project:

- DF-1** Prior to starting construction, submit a Construction Management Plan to the City of Perris that specifies how all construction design features will be implemented.

DF-2

The project must follow the standard SCAQMD rules and requirements with regards to fugitive dust control, which includes, but are not limited to the following:

1. All active construction areas shall be watered two (2) times daily.
2. Speed on unpaved roads shall be reduced to less than 15 mph.
3. Any visible dirt deposition on any public roadway shall be swept or washed at the site access points within 30 minutes.
4. Any on-site stockpiles of debris, dirt or other dusty material shall be covered or watered twice daily.
5. All operations on any unpaved surface shall be suspended if winds exceed 15 mph.
6. Access points shall be washed or swept daily.
7. Construction sites shall be sandbagged for erosion control.
8. Apply nontoxic chemical soil stabilizers according to manufacturers' specifications to all inactive construction areas (previously graded areas inactive for 10 days or more).
9. Cover all trucks hauling dirt, sand, soil, or other loose materials, and maintain at least 2 feet of freeboard space in accordance with the requirements of California Vehicle Code (CVC) section 23114.
10. Pave or gravel construction access roads at least 100 feet onto the site from the main road and use gravel aprons at truck exits.
11. Replace the ground cover of disturbed areas as quickly possible.

6.1.4 Odors - Construction

Heavy-duty equipment in the project area during construction will emit odors; however, the construction activity would cease to occur after individual construction is completed. The project is required to comply with Rule 402 during construction, which states that a person shall not discharge from any source whatsoever such quantities of air contaminants or other material which 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. No other sources of objectionable odors have been identified for the proposed Project.

Therefore, the project impact from odor emissions would be less than significant.

6.1.5 Asbestos - Construction

Asbestos is a carcinogen and is categorized as a hazardous air pollutant by the Environmental Protection Agency (EPA). Asbestos fibers imbedded within construction materials become a health hazard once they are disturbed and rendered airborne, such as through physical contact like building renovation and demolition activities. Asbestos is regulated through the National Emissions Standards for Hazardous Air Pollutants (NESHAP) and SCAQMD is the local enforcement authority for asbestos.

The project site is vacant and construction would not require the demolition of existing building or structures. Therefore, no potential risk from exposure to asbestos-containing materials during construction would occur.

Asbestos also occurs naturally in serpentine and ultramafic rock. Based on the California Division of Mines and Geology General Location Guide for Ultramafic Rocks in California - Areas More Likely to Contain Naturally Occurring Asbestos, naturally occurring asbestos has not been shown to occur within in the vicinity of the project site. Therefore, the potential risk for naturally occurring asbestos (NOA) during project construction is small.

In the event asbestos is found on the site, the project would be required to comply with SCAQMD and NESHAP standards and protocols. SCAQMD Rule 1403 establishes the survey requirements, notification, and work practice requirements to prevent asbestos emissions during construction activities. By following the required asbestos abatement protocols, the project impact from asbestos would be less than significant.

6.1.6 Diesel Particulate Matter - Construction

The project will generate diesel particulate matter (DPM) during construction from off-road diesel equipment and trucks. The California Office of Environmental Health Hazard Assessment (OEHHA) adopted the Guidance Manual for Preparation of Health Risk Assessments (HRA Guidelines) to provide procedures for use in the Air Toxics Hot Spots Program or for the permitting of existing, new, or modified stationary sources.⁷

The HRA Guidelines provide risk factors based on exposure to toxic substances over a 30-year lifetime span. The proposed project's construction activity is not expected to be a long-term (i.e., 30 years) source of toxic air contaminant emissions and short-term risk

⁷ OEHHA. Air Toxics Hot Spots Program. Risk Assessment Guidelines. Guidance for Preparation of Health Risk Assessments. February 2015.

factors have not been developed. Due the significantly reduced risk from short-term exposure, the SCAQMD does not typically require the evaluation of long-term cancer risk or chronic health impacts for construction operations from a project such as the one being proposed.

Hence, the impacts from short-term exposure to DPM during project construction may be presumed to be less than significant without the need for a detailed HRA study.

To help further reduce the potential health risks associated with DPM exposure during construction, the following project design features are recommended. Project design features include a recommendation for Tier 4 engines on all off-road diesel equipment. Tier 4 engines, along with the latest national fuel standards, have been shown to yield PM reductions of over 95% from the typical Tier 2 and Tier 3 engines.⁸ Thus ensuring the potential DPM exposure to adjacent sensitive receptors is reduced to the maximum extent feasible.

- DF-3** All diesel construction equipment should have Tier 4 low emission “clean diesel” engines (OEM or retrofit) that include diesel oxidation catalysts and diesel particulate filters that meet the latest CARB best available control technology.
- DF-4** Construction equipment should be maintained in proper tune.
- DF-5** All construction vehicles should be prohibited from excessive idling. Excessive idling is defined as five (5) minutes or longer.
- DF-6** Minimize the simultaneous operation of multiple construction equipment units, to the maximum extent feasible.
- DF-7** The use of heavy construction equipment and earthmoving activity should be suspended during Air Alerts when the Air Quality Index reaches the “Unhealthy” level.
- DF-8** Establish an electricity supply to the construction site and use electric powered equipment instead of diesel-powered equipment or generators, where feasible.

⁸ EPA. Control of Emissions of Air Pollution from Nonroad Diesel Engines and Fuel; Final Rule. (40 CFR Parts 9, 69, et al.)

- DF-9** Establish staging areas for the construction equipment that as far from adjacent residential homes, as feasible.
- DF-10** Use haul trucks with on-road engines instead of off-road engines for on-site hauling.

6.2 Long Term Air Quality Impacts - Operation

6.2.1 Daily Emissions - Operation

Long-term operational air pollutant impacts from the project are shown in Table 18. The project is not expected to exceed any of the allowable daily emissions thresholds for criteria pollutants at the regional level. CalEEMod daily emissions outputs are provided in Appendix B.

The project's daily operational emissions would be below the applicable SCAQMD air quality thresholds of significance and the project would not contribute substantially to an existing or projected air quality violation. Furthermore, by complying with the SCAQMD standards, the project would not contribute to 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors).

The project related long-term air quality impacts would be less than significant.

Table 18
Daily Operational Emissions

Maximum Daily Emissions (lbs/day) ¹						
Activity	VOC	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Mobile Sources	3.23	2.50	29.20	0.07	6.85	1.76
Energy Sources	4.78	1.58	5.97	0.01	0.13	0.13
Area Sources	0.05	0.85	0.37	0.01	0.07	0.07
Total	8.06	4.93	35.53	0.09	7.05	1.96
SCAQMD Threshold	55	55	550	150	150	55
Exceeds Threshold (?)	No	No	No	No	No	No

¹ Maximum daily emission during summer or winter; includes both on-site and off-site project emissions.

² Daily emissions reports are provided in Appendix B.

6.2.2 Localized Operational Emissions - Operation

Table 19 shows the localized operational emissions and compares the results to SCAQMD LST thresholds of significance. As shown in Table 19, the emissions would be below the SCAQMD thresholds of significance for localized operational emissions. **The project would result in less than significant localized operational emissions impacts.**

Table 19
Localized Operational Emissions

Maximum Daily Emissions (lbs/day) ¹				
LST Pollutants	NO _x (lbs/day)	CO (lbs/day)	PM ₁₀ (lbs/day)	PM _{2.5} (lbs/day)
On-site Emissions ¹	4.99	7.80	0.54	0.28
SCAQMD Operation Threshold ²	270.0	1,577.0	4.0	2.0
Exceeds Threshold (?)	No	No	No	No

¹ Maximum daily emission in summer or winter.

² Mobile source emissions include on-site vehicle emissions only. It is estimated that approximately 5% of mobile emissions will occur on the project site.

³ Reference: 2006-2008 SCAQMD Mass Rate Localized Significant Thresholds for construction and operation Table C-1 through C-6; SRA 24, Perris Valley disturbance area of 5-acre and receptor distance of 25 meters.

6.2.3 Odors - Operation

Land uses that commonly receive odor complaints include agricultural uses (farming and livestock), chemical plants, composting operations, dairies, fiberglass molding facilities, food processing plants, landfills, refineries, rail yards, and wastewater treatment plants. The proposed project does not contain land uses that would typically be associated with significant odor emissions.

The project would be required to comply with standard building code requirements related to exhaust ventilation, as well as comply with SCAQMD Rule 402. Rule 402 requires that a person may not discharge from any source whatsoever such quantities of air contaminants or other material which 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. Project related odors are not expected to meet the criteria of being a nuisance. **The project's operation would result in less than significant odor impacts.**

6.2.4 Toxic Air Contaminants - Operations

The project would consist of residential land uses. These types of projects do not include major sources of toxic air contaminants (TAC) emissions that would result in significant exposure of sensitive receptors to substantial pollutant concentrations. Therefore, **the project impact is considered to be less than significant.**

6.3 South Coast Air Quality Management Plan Consistency

The proposed project consists of 92 single family residential homes on an approximately 13.56 acre vacant site (i.e., approximately 6.78 dwelling units per acre). The proposed project would be consistent with the project site's existing land use designation of R-6,000, which allows for up to 7 dwelling units per acre. As a result, the project is expected to be consistent with the growth projections in the AQMP.

Furthermore, as shown above, the proposed project will comply with the air quality emissions thresholds established by the SCAQMD for criteria air pollutants. As discussed in Section 5, the SCAQMD criteria air pollutant thresholds have been established in order to determine whether a project may have a significant effect on the environment under

CEQA, and by complying with the thresholds of significance, the project would be in compliance with the SCAQMD AQMP and the federal and state air quality standards.

Hence, the proposed project would be consistent with the AQMP, and the impact would be less than significant.

7.0 Greenhouse Gas Impact Analysis

7.1 Greenhouse Gas Emissions - Construction

Greenhouse gas emissions are estimated for on-site and off-site construction activity using CalEEMod. Table 20 shows the construction greenhouse gas emissions, including equipment and worker vehicle emissions for all phases of construction. Construction emissions are averaged over 30 years and added to the long-term operational emissions, pursuant to SCAQMD recommendations.

CalEEMod annual GHG output calculations are provided in Appendix B.

Table 20
Construction Greenhouse Gas Emissions

Activity	Emissions (MTCO ₂ e) ¹		
	On-site	Off-site	Total
Site Preparation	50.61	2.22	52.83
Grading	189.22	48.57	237.79
Building Construction	687.42	217.98	905.40
Paving	28.89	3.65	32.54
Architectural Coating	4.34	1.62	5.96
Total	960.48	274.04	1,234.52
Amortized over 30 years²	32.02	9.13	41.15

¹ MTCO₂e = metric tons of carbon dioxide equivalents (includes carbon dioxide, methane, nitrous oxide, and/or hydrofluorocarbon).

² The emissions are amortized over 30 years and added to the operational emissions, pursuant to SCAQMD recommendations.

Because impacts from construction activities occur over a relatively short-term period of time, they contribute a relatively small portion of the overall lifetime project GHG emissions. By itself, the construction activities from this project are less than significant when compared to the thresholds recommended by the SCAQMD. However, the SCAQMD recommends that construction emissions be amortized over a 30-year project lifetime and added to the overall project operational emissions. In doing so, construction GHG emissions are included in the overall contribution of the project, as further discussed in the following section.

7.2 Greenhouse Gas Emissions - Operation

Greenhouse gas emissions are estimated for on-site and off-site operational activity using CalEEMod. Greenhouse gas emissions from mobile sources, area sources and energy sources are shown in Table 21. CalEEMod annual GHG output calculations are provided in Appendix B.

Table 21
Operational Greenhouse Gas Emissions

Emission Source	GHG Emissions (MTCO₂e)¹
Mobile Source	1,110.59
Area Source	23.62
Energy Source	427.11
Water	13.17
Waste	29.92
Refrigerant	0.21
Construction (30 year average)	41.15
Total Annual Emissions	1,645.78
SCAQMD Tier 3 Screening Threshold ²	3,500
Exceed Tier 3 Threshold?	No

¹ MTCO₂e = metric tons of carbon dioxide equivalents

² Per South Coast Air Quality Management District (SCAQMD) September 2010 meeting notes.

As shown in Table 21, the project GHG emissions would not exceed the SCAQMD/City's screening threshold of 3,500 MTCO₂e per year for residential projects.

The project related long-term GHG impacts would be less than significant.

7.3 Project Consistency with Perris CAP

The City of Perris Climate Action Plan, 2016 (CAP) establishes emission reduction targets consistent with the state law and the City's planning priorities. The project will be required to comply with the applicable goals and policies of the Perris Cap and also comply with the mandatory requirements of the latest 2019 California Building Standards Code, including Title 24, Part 11, CALGreen and Title 24, Part 6, Energy Code. The purpose of the building standards is to reduce

negative impacts on the environment through improved planning and design, energy efficiency, water efficiency and conservation and material and resource conservation. The California Building Standards were developed to help meet the requirements of the Global Warming Solutions Act (AB 32).

As part of the latest Energy Code requirements, the project will be required to include rooftop solar panels, community solar panels, and/or other sources of on-site renewable energy capable of meeting the required California Energy Code Energy Design Rating. Compliance with the latest building standards, which are more stringent than estimated at the time of adopting the City's CAP, will ensure the project does not conflict with an applicable plan, policy, or regulation for the purpose of reducing the emissions of greenhouse gases and the impact is considered less than significant.

The following project design features will be implemented to ensure the project is consistent with applicable GHG reduction standards.

DF-11 The project will comply with the mandatory requirements of the California Building Standards Code, Title 24, Part 6 (Energy Code) and Part 11 (CALGreen), including, but not limited to:

- Install low flow fixtures and toilets, water efficient irrigation systems, drought tolerant/native landscaping, and reduce the amount of turf.
- Provide the necessary infrastructure to support electric vehicle charging.
- Provide solar installations per the prescribed Energy Design Ratings.

DF-12 Participate in the local waste management recycling and composting programs.

DF-13 Encourage the property management company and landscape maintenance crews to use electric powered landscaping equipment for landscape maintenance.

As a result, the project would not conflict with an applicable plan, policy, or regulation for the purpose of reducing the emissions of greenhouse gases and the impact is considered less than significant.

8.0 Energy Impact Analysis

8.1 Study Objectives

The purpose of this energy conservation analysis is to review the energy implications of the proposed project and provide recommendations to reduce wasteful, inefficient, and unnecessary consumption of energy during the operation of the project. This analysis has been prepared within the context of the California Environmental Quality Act (CEQA, California Public Resources Code Sections 21000, et seq.).

CEQA Guidelines, Appendix F, Energy Conservation, describes the framework within which energy conservation should be analyzed. Conserving energy implies the wise and efficient use of energy through decreasing overall per capita energy consumption, decreasing reliance on fossil fuels (such as coal, natural gas, and oil), and increasing reliance on renewable energy sources.

8.2 Utility Providers

The proposed project would be served by the following utility providers, as shown in Table 22.

Table 22
Utility Providers

Utility	Provider
Electricity	Southern California Edison
Natural Gas	Southern California Gas Company

8.3 Project Energy Consumption

The three (3) main types of energy expected to be consumed by the project include electricity, natural gas, and petroleum products in the form of gasoline and diesel fuel.

CalEEMod is used to calculate energy usage associated with the construction and operation of the project. The CalEEMod calculation sheets for the project are provided in Appendix B.

8.3.1 Electricity Consumption

The project will use electricity for operational activities including, but not limited to, building heating and cooling, lighting, appliances, electronics, mechanical equipment, and parking lot lighting. Indirect electricity usage will also be required to supply, distribute, and treat water and wastewater. Electricity will be provided to the site by Southern California Edison.

Temporary electricity usage for construction activities may include lighting, electric equipment, and mobile office uses. However, CalEEMod does not calculate electricity usage during construction. Electricity usage during construction is expected to be short-term and relatively minor compared to the operational demand. Therefore, construction-related electricity usage is not included in this analysis.

Table 23 shows the project's estimated operational electricity consumption in kilowatt-hours per year (kWh/yr) and millions of BTU per year (MBTU/yr).

Table 23
Project Electricity Consumption¹

Land Use/Activity	Electricity Consumption	
	(kWh/yr) ²	(MBTU/yr) ³
Single Family Housing	859,210.42	2,931.63
Health Club	19,568.75	66.77
Parking Lot	146,528.87	499.96
Water Supply and Treatment	34,456.22	117.56
Total	1,059,764.26	3,615.92

¹ Source: CalEEMod defaults.

² kWh/yr = Kilowatt hours per year

MBTU/yr = Million British Thermal Units per year

8.3.2 Natural Gas Consumption

The project will use natural gas for such things as building heating and cooling and gas water heaters. Natural gas is not expected to be used during construction in any significant quantities and is not included in the overall calculation of the project's natural gas consumption.

Table 24 shows the project’s estimated operational natural gas consumption in MBTU/yr.

Table 24
Project Natural Gas Consumption¹

Land Use/Activity	Natural Gas Consumption (MBTU/yr) ²
Single Family Housing	3,271.92
Health Club	87,833.42
Parking Lot	-
Total	91,105.34

¹ Source: CalEEMod Defaults.

² MBTU/yr = Million British Thermal Units per year

8.3.3 Petroleum Consumption

The project’s energy consumption from petroleum products is primarily associated with transportation-related activities. This includes gasoline and diesel fuel usage for auto and truck trips during construction and operation and off-road equipment usage during construction.

Petroleum Consumption – Construction

Construction of the project is expected to consist of site preparation, grading, building construction, paving, and architectural coating phases. Construction activities will consume energy in the form of motor vehicle fuel (gasoline and diesel) for off-road construction equipment and on-road vehicle trips. Vehicle trips include workers and vendors traveling to and from the project site.

Tables 25 and 26 show the project’s energy consumption for all off-road and on-road equipment during construction, respectively. For the purposes of this analysis, all off-road equipment is assumed to run on diesel fuel.

Appendix C provides the EMFAC2021 fuel consumption data used for this analysis.

**Table 25
Construction Off-Road Equipment Energy Consumption**

Phase ¹	Phase Duration (Days) ¹	Equipment ¹	Amount ¹	Hours/Day ¹	Horsepower (HP) ¹	Load Factor ¹	HP-hrs ²	Fuel Consumption Rate ³ (hp-hr/gal)	Diesel Fuel Consumption (gal.)	Diesel Fuel Consumption by Phase (gal.)	MBtu ⁴
Site Preparation	21	Rubber Tired Dozers	3	8	367	0.40	73,987.2	18.5	3,999.3	5,128.27	704.53
		Tractors/Loaders/Backhoes	4	8	84	0.37	20,885.8		1,129.0		
Grading	63	Excavators	2	8	36	0.38	13,789.4		745.4	19,154.18	2,631.42
		Graders	1	8	148	0.41	30,582.7		1,653.1		
		Rubber Tired Dozers	1	8	367	0.40	73,987.2		3,999.3		
		Scrapers	2	8	423	0.48	204,664.3		11,062.9		
		Tractors/Loaders/Backhoes	2	8	84	0.37	31,328.6		1,693.4		
Building Construction	630	Cranes	1	7	367	0.29	469,356.3		25,370.6	69,462.44	9,542.82
		Forklifts	3	8	82	0.20	247,968.0		13,403.7		
		Generator Sets	1	8	14	0.74	52,214.4		2,822.4		
		Tractors/Loaders/Backhoes	3	7	84	0.37	411,188.4		22,226.4		
		Welders	1	8	46	0.45	104,328.0		5,639.4		
Paving	42	Pavers	2	8	81	0.42	22,861.4	1,235.8	2,896.50	397.92	
		Paving Equipment	2	8	89	0.36	21,530.9	1,163.8			
		Rollers	2	8	36	0.38	9,193.0	496.9			
Architectural Coating	42	Air Compressors	1	6	37	0.48	4,475.5	241.9	241.92	33.24	
Total Energy Requirements									96,883.31	13,309.93	

¹ Source: CalEEMod Defaults (CalEEMod v.2022.1.1)

² HP-hrs = Horsepower Hours.

³ Source: Carl Moyer Program Guidelines. 2017 Revisions. Table D-21. <https://www.arb.ca.gov/msprog/moyer/guidelines/current.htm>

⁴ Mbtu = Millions of Btu; assuming 1 gallon of diesel fuel = 137,381 Btu.

**Table 26
Construction On-Road Trips Energy Consumption**

Construction Phase ¹	Phase Duration (Days) ¹	Trips /Day ¹	Trip Length ¹	Phase VMT	Vehicle Class ¹	Vehicle Mix ¹	Average Fuel Economy (MPG) ²	Gasoline			Diesel			Total MBtu ³
								Fuel Split ²	Fuel Consumption by Veh. Class (gal.)	Fuel Consumption by Phase (gal.)	Fuel Split ²	Fuel Consumption by Veh. Class (gal.)	Fuel Consumption by Phase	
Worker Trips														
Demolition	0	0	0	0	LDA	0.50	31.75	0.9989	0.00		0.0011	0.00		0.00
					LDT1	0.25	26.28	0.9999	0.00	0.00	0.0001	0.00	0.00	
					LDT2	0.25	26.25	0.9972	0.00		0.0028	0.00		
Site Preparation	21	18	18.5	6,799	LDA	0.50	31.75	0.9989	106.97		0.0011	0.12		
					LDT1	0.25	26.28	0.9999	64.68	236.21	0.0001	0.00	0.30	28.49
					LDT2	0.25	26.25	0.9972	64.57		0.0028	0.18		
Grading	63	20	18.5	23,310	LDA	0.50	31.75	0.9989	366.74		0.0011	0.40		
					LDT1	0.25	26.28	0.9999	221.75	809.86	0.0001	0.01	1.02	97.67
					LDT2	0.25	26.25	0.9972	221.37		0.0028	0.61		
Building Construction	630	34	18.5	396,024	LDA	0.50	31.75	0.9989	6,230.75		0.0011	6.74		
					LDT1	0.25	26.28	0.9999	3,767.33	13,759.09	0.0001	0.20	17.33	1,659.37
					LDT2	0.25	26.25	0.9972	3,761.01		0.0028	10.39		
Paving	42	15	18.5	11,655	LDA	0.50	31.75	0.9989	183.37		0.0011	0.20		
					LDT1	0.25	26.28	0.9999	110.87	404.93	0.0001	0.01	0.51	48.84
					LDT2	0.25	26.25	0.9972	110.69		0.0028	0.31		
Architectural Coating	42	7	18.5	5,280	LDA	0.50	31.75	0.9989	83.08		0.0011	0.09		
					LDT1	0.25	26.28	0.9999	50.23	183.45	0.0001	0.00	0.23	22.12
					LDT2	0.25	26.25	0.9972	50.15		0.0028	0.14		
Sub-Total Worker Trips Energy Consumption								Gasoline (gal.)		15,393.54	Diesel (gal.)		19.38	1,856.49
Vendor Trips														
Building Construction	630	10	10.2	65,352	MHDT	0.50	8.01	0.2883	1,176.35		0.7117	2,904.02		
					HHDT	0.50	6.43	0.0004	1.82	1,178.16	0.9996	5,083.21	7,987.24	1,239.18
Sub-Total Vendor Trips Energy Consumption								Gasoline (gal.)		1,178.16	Diesel (gal.)		7,987.24	1,239.18
Hauling Trips														
Grading	63	20	20.0	25000	HHDT	1.00	6.43	0.0004	1.39	1.39	0.9996	3,889.09	3,889.09	534.45
Sub-Total Hauling Trips Energy Consumption								Gasoline (gal.)		1.39	Diesel (gal.)		3,889.09	534.45
Total On-Road Construction Trips Energy Consumption								Gasoline (gal.)		16,573.09	Diesel (gal.)		11,895.71	3,630.12

¹ Source: CalEEMod Defaults (CalEEMod v.2022.1.1)

² Source: EMFAC2021 Web Database. <https://www.arb.ca.gov/emfac/2021/>. (See Appendix C for more details.)

³ Mbtu = Millions of Btu; assuming 1 gallon of gasoline fuel = 120,429 Btu and 1 gallon of diesel fuel = 137,381 Btu

Petroleum Consumption – Operation

The project is expected to consume energy from auto and truck trips generated by the proposed land uses. Operational vehicle trips are associated with workers, customers, and vendors/non-workers (i.e., delivery, service, maintenance, etc.) traveling to and from the site.

Table 27 shows the project's annual petroleum energy consumption for all operational trips.

**Table 27
Operational Trips Energy Consumption - Annual**

Vehicle Class	Vehicle Mix	Average Fuel Economy (MPG)	Annual VMT	Gasoline		Diesel		MBtu
				Fuel Split	Fuel Consumption (gal.)	Fuel Split	Fuel Consumption (gal.)	
LDA	50.42%	31.75	3,430,476	0.9989	54,425.95	0.0011	58.87	6,562.55
LDT1	4.13%	26.28		0.9999	5,391.09	0.0001	0.29	649.28
LDT2	23.72%	26.25		0.9972	30,910.90	0.0028	85.35	3,734.29
MDV	14.70%	21.37		0.9898	23,358.99	0.0102	240.06	2,846.08
LHD1	2.80%	16.64		0.6969	4,023.83	0.3031	1,750.08	725.01
LHD2	0.42%	15.69		0.4150	381.02	0.5850	537.00	119.66
MHD	0.91%	8.01		0.2883	1,123.83	0.7117	2,774.38	516.49
HHD	0.33%	6.43		0.0004	0.63	0.9996	1,761.07	242.01
OBUS	0.04%	6.27		0.5091	111.39	0.4909	107.41	28.17
UBUS	0.02%	7.31		0.9965	93.48	0.0035	0.33	11.30
MCY	2.23%	42.00		1.0000	1,821.29	0.0000	0.00	219.34
SBUS	0.06%	8.49		0.6533	158.33	0.3467	84.01	30.61
MH	0.22%	5.83		0.8138	1,053.44	0.1862	240.99	159.97
Total Operational Trips Energy Usage				Gasoline Consumption (gal.)	122,854.17	Diesel Consumption (gal.)	7,639.84	15,844.76

8.4 Summary of Project Energy Consumption

Table 28 provides a summary of the project's annual operational energy consumption.

Table 28
Annual Energy Consumption

Activity	Energy Consumption (MBTU/yr)¹
Electricity	3,615.92
Natural Gas	91,105.34
Petroleum	15,844.76
Total	110,566.02

¹ MBTU/yr = Million British Thermal Units per year.

8.5 Energy Impacts

This analysis has been prepared within the context of the CEQA Guidelines, Appendix F, Energy Conservation, and Appendix G, Environmental Checklist Form. According to CEQA, the goal of conserving energy includes the wise and efficient use of energy through decreasing overall per capita energy consumption, decreasing reliance on fossil fuels (such as coal, natural gas, and oil), and increasing reliance on renewable energy sources.

A significant environmental impact would result if the project would:

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

8.5.1 Energy Impact – A

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

The project will implement the mandatory requirements of California's Building Efficiency Standards (Title 24, Part 6) to reduce energy consumption. California's building standards are some of the strictest in the nation and the project's compliance with the Building Code would ensure that wasteful, inefficient, or unnecessary consumption of energy is minimized. The California Building Code is designed to reduce the amount of energy needed to heat or cool a building, reduce energy usage for lighting and appliances, and promote usage of energy from renewable sources.

In particular, the project will provide solar installations (or other sources of on-site renewable energy) to satisfy the prescribed Energy Design Ratings from the Energy Code.

By providing renewable sources of energy, the project satisfies recent court rulings which indicate that when determining if a project would have a potentially significant impact to energy conservation, the analysis should discuss whether any renewable energy features could be incorporated into the project⁹. Furthermore, by including rooftop solar panels, the proposed project ensures that wasteful, inefficient, or unnecessary consumption of energy is minimized.

Therefore, the project impact is considered less than significant under Criterion A.

8.5.2 Energy Impact – B

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

The project is not expected to conflict with or obstruct a state or local plan for renewable energy or energy efficiency. The project will purchase electricity through Southern California Edison which is subject to the requirements of California Senate Bill 100 (SB 100). SB 100 is the most stringent and current energy legislation in California, requiring that renewable energy resources and zero-carbon resources supply 100% of retail sales of electricity to California end-use customers and 100% of electricity procured to serve all state agencies by December 31, 2045¹⁰.

The project will also comply with the mandatory requirements of California's Green Building and Building Energy Efficiency standards that promote renewable energy and

⁹ *League to Save Lake Tahoe Mountain Area Preservation Foundation, et al. v. County of Placer, et al.*

¹⁰ SB-100 California Renewables Portfolio Standard Program.

http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201720180SB100

energy efficiency. Hence, **the project impact is considered less than significant under Criterion B.**

Exhibits

Exhibit A
Location Map

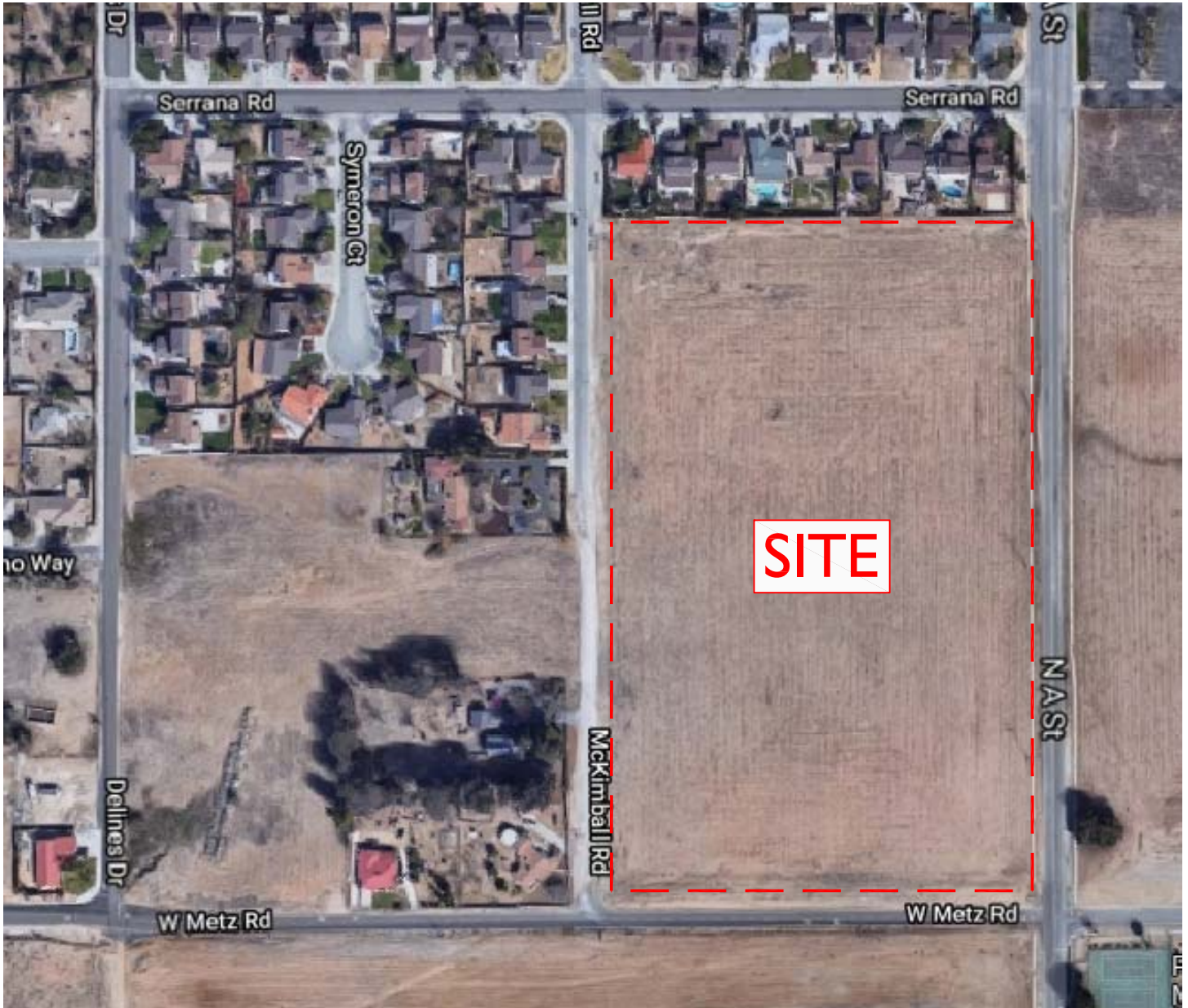


Exhibit B
Site Plan



Appendices

Appendix A

California Green Building Standards Code (CALGreen) Title 24, Part 11
Mandatory Residential and Nonresidential Measures



2022 CALIFORNIA GREEN BUILDING STANDARDS CODE
RESIDENTIAL MANDATORY MEASURES, SHEET 1 (January 2023)

Y = YES
N/A = NOT APPLICABLE
RESPON. PARTY = RESPONSIBLE PARTY (i.e. ARCHITECT, ENGINEER, OWNER, CONTRACTOR, INSPECTOR ETC.)

CHAPTER 3 GREEN BUILDING
SECTION 301 GENERAL
301.1 SCOPE. Buildings shall be designed to include the green building measures specified as mandatory in the application checklists contained in this code.
4.106.4.1 NEW one- and two-family dwellings and townhouses with attached private garages. For each dwelling unit, install a listed raceway to accommodate a dedicated 208/240-volt branch circuit.

2022 CALIFORNIA GREEN BUILDING STANDARDS CODE

RESIDENTIAL MANDATORY MEASURES, SHEET 2 (January 2023)

Y = YES
N/A = NOT APPLICABLE
RESPON. PARTY = RESPONSIBLE PARTY (i.e. ARCHITECT, ENGINEER, OWNER, CONTRACTOR, INSPECTOR ETC.)

MAXIMUM INCREMENTAL REACTIVITY (MIR). The maximum change in weight of ozone formed by adding a compound to the Base Reactant Organic Gas (ROG) Mixture per weight of compound added, expressed to hundredths of a gram (g O₃/g ROG).
Note: MIR values for individual compounds and hydrocarbon solvents are specified in CCR, Title 17, Sections 94700 and 94701.

MOISTURE CONTENT. The weight of the water in wood expressed in percentage of the weight of the oven-dry wood.

PRODUCT-WEIGHTED MIR (PWMIR). The sum of all weighted-MIR for all ingredients in a product subject to this article. The PWMIR is the total product reactivity expressed to hundredths of a gram of ozone formed per gram of product (excluding container and packaging).
Note: PWMIR is calculated according to equations found in CCR, Title 17, Section 94521 (a).

REACTIVE ORGANIC COMPOUND (ROC). Any compound that has the potential, once emitted, to contribute to ozone formation in the troposphere.

VOC. A volatile organic compound (VOC) broadly defined as a chemical compound based on carbon chains or rings with vapor pressures greater than 0.1 millimeters of mercury at room temperature. These compounds typically contain hydrogen and may contain oxygen, nitrogen and other elements. See CCR Title 17, Section 94508(a).

4.503 FIREPLACES
4.503.1 **GENERAL.** Any installed gas fireplace shall be a direct-vent sealed-combustion type. Any installed woodstove or pellet stove shall comply with U.S. EPA New Source Performance Standards (NSPS) emission limits as applicable, and shall have a permanent label indicating they are certified to meet the emission limits. Woodstoves, pellet stoves and fireplaces shall also comply with applicable local ordinances.

4.504 POLLUTANT CONTROL
4.504.1 **COVERING OF DUCT OPENINGS & PROTECTION OF MECHANICAL EQUIPMENT DURING CONSTRUCTION.** At the time of rough installation, during storage on the construction site and until final startup of the heating, cooling and ventilating equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheet metal or other methods acceptable to the enforcing agency to reduce the amount of water, dust or debris which may enter the system.

4.504.2 FINISH MATERIAL POLLUTANT CONTROL. Finish materials shall comply with this section.

4.504.2.1 Adhesives, Sealants and Caulks. Adhesives, sealant and caulks used on the project shall meet the requirements of the following standards unless more stringent local or regional air pollution or air quality management district rules apply:

- Adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers and caulks shall comply with local or regional air pollution control or air quality management district rules where applicable or SCAQMD Rule 1168 VOC limits, as shown in Table 4.504.1 or 4.504.2, as applicable. Such products also shall comply with the Rule 1168 prohibition on the use of certain toxic compounds (chloroform, ethylene dichloride, methylene chloride, perchloroethylene and trichloroethylene), except for aerosol products, as specified in Subsection 2 below.
- Aerosol adhesives, and smaller unit sizes of adhesives, and sealant or caulking compounds (in units of product, less packaging, which do not weigh more than 1 pound and do not consist of more than 16 fluid ounces) shall comply with statewide VOC standards and other requirements, including prohibitions on use of certain toxic compounds, of California Code of Regulations, Title 17, commencing with section 94507.

4.504.2.2 Paints and Coatings. Architectural paints and coatings shall comply with VOC limits in Table 1 of the ARB Architectural Suggested Control Measure, as shown in Table 4.504.3, unless more stringent local limits apply. The VOC content limit for coatings that do not meet the definitions for the specialty coatings categories listed in Table 4.504.3 shall be determined by classifying the coating as a Flat, Nonflat or Nonflat-High Gloss coating, based on its gloss, as defined in subsections 4.21, 4.36, and 4.37 of the 2007 California Air Resources Board, Suggested Control Measure, and the corresponding Flat, Nonflat or Nonflat-High Gloss VOC limit in Table 4.504.3 shall apply.

4.504.2.3 Aerosol Paints and Coatings. Aerosol paints and coatings shall meet the Product-weighted MIR Limits for ROC in Section 94522(a)(2) and other requirements, including prohibitions on use of certain toxic compounds and ozone depleting substances, in Sections 94522(e)(1) and (f)(1) of California Code of Regulations, Title 17, commencing with Section 94520; and in areas under the jurisdiction of the Bay Area Air Quality Management District additionally comply with the percent VOC by weight of product limits of Regulation 8, Rule 49.

4.504.2.4 Verification. Verification of compliance with this section shall be provided at the request of the enforcing agency. Documentation may include, but is not limited to, the following:

- Manufacturer's product specification.
- Field verification of on-site product containers.

TABLE 4.504.1 - ADHESIVE VOC LIMIT _{1,2}	
(Less Water and Less Exempt Compounds in Grams per Liter)	
ARCHITECTURAL APPLICATIONS	VOC LIMIT
INDOOR CARPET ADHESIVES	50
CARPET PAD ADHESIVES	50
OUTDOOR CARPET ADHESIVES	150
WOOD FLOORING ADHESIVES	100
RUBBER FLOOR ADHESIVES	60
SUBFLOOR ADHESIVES	50
CERAMIC TILE ADHESIVES	65
VCT & ASPHALT TILE ADHESIVES	50
DRYWALL & PANEL ADHESIVES	50
COVE BASE ADHESIVES	50
MULTIPURPOSE CONSTRUCTION ADHESIVE	70
STRUCTURAL GLAZING ADHESIVES	100
SINGLE-PLY ROOF MEMBRANE ADHESIVES	250
OTHER ADHESIVES NOT LISTED	50
SPECIALTY APPLICATIONS	
PVC WELDING	510
CPVC WELDING	490
ABS WELDING	325
PLASTIC CEMENT WELDING	250
ADHESIVE PRIMER FOR PLASTIC	550
CONTACT ADHESIVE	80
SPECIAL PURPOSE CONTACT ADHESIVE	250
STRUCTURAL WOOD MEMBER ADHESIVE	140
TOP & TRIM ADHESIVE	250
SUBSTRATE SPECIFIC APPLICATIONS	
METAL TO METAL	30
PLASTIC FOAMS	50
POROUS MATERIAL (EXCEPT WOOD)	50
WOOD	30
FIBERGLASS	80

- IF AN ADHESIVE IS USED TO BOND DISSIMILAR SUBSTRATES TOGETHER, THE ADHESIVE WITH THE HIGHEST VOC CONTENT SHALL BE ALLOWED.
- FOR ADDITIONAL INFORMATION REGARDING METHODS TO MEASURE THE VOC CONTENT SPECIFIED IN THIS TABLE, SEE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT RULE 1168.

TABLE 4.504.2 - SEALANT VOC LIMIT	
(Less Water and Less Exempt Compounds in Grams per Liter)	
SEALANTS	VOC LIMIT
ARCHITECTURAL	250
MARINE DECK	760
NONMEMBRANE ROOF	300
ROADWAY	250
SINGLE-PLY ROOF MEMBRANE	450
OTHER	420
SEALANT PRIMERS	
ARCHITECTURAL	
NON-POROUS	250
POROUS	775
MODIFIED BITUMINOUS	500
MARINE DECK	760
OTHER	750

TABLE 4.504.3 - VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS _{1,2}	
GRAMS OF VOC PER LITER OF COATING, LESS WATER & LESS EXEMPT COMPOUNDS	
COATING CATEGORY	VOC LIMIT
FLAT COATINGS	50
NON-FLAT COATINGS	100
NONFLAT-HIGH GLOSS COATINGS	150
SPECIALTY COATINGS	
ALUMINUM ROOF COATINGS	400
BASEMENT SPECIALTY COATINGS	400
BITUMINOUS ROOF COATINGS	50
BITUMINOUS ROOF PRIMERS	350
BOND BREAKERS	350
CONCRETE CURING COMPOUNDS	350
CONCRETE/MASONRY SEALERS	100
DRIVEWAY SEALERS	50
DRY FOG COATINGS	150
FAUX FINISHING COATINGS	350
FIRE RESISTIVE COATINGS	350
FLOOR COATINGS	100
FORM-RELEASE COMPOUNDS	250
GRAPHIC ARTS COATINGS (SIGN PAINTS)	500
HIGH TEMPERATURE COATINGS	420
INDUSTRIAL MAINTENANCE COATINGS	250
LOW SOLIDS COATINGS ₁	120
MAGNESITE CEMENT COATINGS	450
MASTIC TEXTURE COATINGS	100
METALLIC PIGMENTED COATINGS	500
MULTICOLOR COATINGS	250
PRETREATMENT WASH PRIMERS	420
PRIMERS, SEALERS, & UNDERCOATERS	100
REACTIVE PENETRATING SEALERS	350
RECYCLED COATINGS	250
ROOF COATINGS	50
RUST PREVENTATIVE COATINGS	250
SHELLACS	
CLEAR	730
OPAQUE	550
SPECIALTY PRIMERS, SEALERS & UNDERCOATERS	100
STAINS	250
STONE CONSOLIDANTS	450
SWIMMING POOL COATINGS	340
TRAFFIC MARKING COATINGS	100
TUB & TILE REFINISH COATINGS	420
WATERPROOFING MEMBRANES	250
WOOD COATINGS	275
WOOD PRESERVATIVES	350
ZINC-RICH PRIMERS	340

- GRAMS OF VOC PER LITER OF COATING, INCLUDING WATER & EXEMPT COMPOUNDS
- THE SPECIFIED LIMITS REMAIN IN EFFECT UNLESS REVISED LIMITS ARE LISTED IN SUBSEQUENT COLUMNS IN THE TABLE.
- VALUES IN THIS TABLE ARE DERIVED FROM THOSE SPECIFIED BY THE CALIFORNIA AIR RESOURCES BOARD, ARCHITECTURAL COATINGS SUGGESTED CONTROL MEASURE, FEB. 1, 2008. MORE INFORMATION IS AVAILABLE FROM THE AIR RESOURCES BOARD.

TABLE 4.504.5 - FORMALDEHYDE LIMITS:	
MAXIMUM FORMALDEHYDE EMISSIONS IN PARTS PER MILLION	
PRODUCT	CURRENT LIMIT
HARDWOOD PLYWOOD VENEER CORE	0.05
HARDWOOD PLYWOOD COMPOSITE CORE	0.05
PARTICLE BOARD	0.09
MEDIUM DENSITY FIBERBOARD	0.11
THIN MEDIUM DENSITY FIBERBOARD ₂	0.13

- VALUES IN THIS TABLE ARE DERIVED FROM THOSE SPECIFIED BY THE CALIF. AIR RESOURCES BOARD, AIR TOXICS CONTROL MEASURE FOR COMPOSITE WOOD AS TESTED IN ACCORDANCE WITH ASTM E 1333. FOR ADDITIONAL INFORMATION, SEE CALIF. CODE OF REGULATIONS, TITLE 17, SECTIONS 93120 THROUGH 93120.12.
- THIN MEDIUM DENSITY FIBERBOARD HAS A MAXIMUM THICKNESS OF 5/16" (8 MM).

DIVISION 4.5 ENVIRONMENTAL QUALITY (continued)
4.504.3 **CARPET SYSTEMS.** All carpet installed in the building interior shall meet the requirements of the California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers," Version 1.2, January 2017 (Emission testing method for California Specification 01350)
See California Department of Public Health's website for certification programs and testing labs.
<https://www.cdph.ca.gov/Programs/CCDPHP/DEODD/EHLB/IAQ/Pages/VOC.aspx>.

4.504.3.1 Carpet cushion. All carpet cushion installed in the building interior shall meet the requirements of the California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers," Version 1.2, January 2017 (Emission testing method for California Specification 01350)
See California Department of Public Health's website for certification programs and testing labs.
<https://www.cdph.ca.gov/Programs/CCDPHP/DEODD/EHLB/IAQ/Pages/VOC.aspx>.

4.504.3.2 Carpet adhesive. All carpet adhesive shall meet the requirements of Table 4.504.1.

4.504.4 RESILIENT FLOORING SYSTEMS. Where resilient flooring is installed, at least 80% of floor area receiving resilient flooring shall meet the requirements of the California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers," Version 1.2, January 2017 (Emission testing method for California Specification 01350)
See California Department of Public Health's website for certification programs and testing labs.
<https://www.cdph.ca.gov/Programs/CCDPHP/DEODD/EHLB/IAQ/Pages/VOC.aspx>.

4.504.5 COMPOSITE WOOD PRODUCTS. Hardwood plywood, particleboard and medium density fiberboard composite wood products used on the interior or exterior of the buildings shall meet the requirements for formaldehyde as specified in ARB's Air Toxics Control Measure for Composite Wood (17CCR 93120 et seq.), by or before the dates specified in those sections, as shown in Table 4.504.5

4.504.5.1 Documentation. Verification of compliance with this section shall be provided as requested by the enforcing agency. Documentation shall include at least one of the following:

- Product certifications and specifications.
- Chain of custody certifications.
- Product labeled and invoiced as meeting the Composite Wood Products regulation (see CCR, Title 17, Section 93120, et seq.).
- Exterior grade products marked as meeting the PS-1 or PS-2 standards of the Engineered Wood Association, the Australian AS/NZS 2269, European EN 13986 standards, and Canadian CSA 0121, CSA 0151, CSA 0153 and CSA 0325 standards.
- Other methods acceptable to the enforcing agency.

4.505 INTERIOR MOISTURE CONTROL
4.505.1 **General.** Buildings shall meet or exceed the provisions of the *California Building Standards Code*.

4.505.2 CONCRETE SLAB FOUNDATIONS. Concrete slab foundations required to have a vapor retarder by California Building Code, Chapter 19, or concrete slab-on-ground floors required to have a vapor retarder by the California Residential Code, Chapter 5, shall also comply with this section.

4.505.2.1 Capillary break. A capillary break shall be installed in compliance with at least one of the following:

- A 4-inch (101.6 mm) thick base of 1/2 inch (12.7mm) or larger clean aggregate shall be provided with a vapor barrier in direct contact with concrete and a concrete mix design, which will address bleeding, shrinkage, and curling, shall be used. For additional information, see American Concrete Institute, ACI 302.2R-06.
- Other equivalent methods approved by the enforcing agency.
- A slab design specified by a licensed design professional.

4.505.3 MOISTURE CONTENT OF BUILDING MATERIALS. Building materials with visible signs of water damage shall not be installed. Wall and floor framing shall not be enclosed when the framing members exceed 19 percent moisture content. Moisture content shall be verified in compliance with the following:

- Moisture content shall be determined with either a probe-type or contact-type moisture meter. Equivalent moisture verification methods may be approved by the enforcing agency and shall satisfy requirements found in Section 101.8 of this code.
- Moisture readings shall be taken at a point 2 feet (610 mm) to 4 feet (1219 mm) from the grade stamped end of each piece verified.
- At least three random moisture readings shall be performed on wall and floor framing with documentation acceptable to the enforcing agency provided at the time of approval to enclose the wall and floor framing.

Insulation products which are visibly wet or have a high moisture content shall be replaced or allowed to dry prior to enclosure in wall or floor cavities. Wet-applied insulation products shall follow the manufacturers' drying recommendations prior to enclosure.

4.506 INDOOR AIR QUALITY AND EXHAUST
4.506.1 **Bathroom exhaust fans.** Each bathroom shall be mechanically ventilated and shall comply with the following:

- Fans shall be ENERGY STAR compliant and be ducted to terminate outside the building.
- Unless functioning as a component of a whole house ventilation system, fans must be controlled by a humidity control.
 - Humidity controls shall be capable of adjustment between a relative humidity range less than or equal to 50% to a maximum of 80%. A humidity control may utilize manual or automatic means of adjustment.
 - A humidity control may be a separate component to the exhaust fan and is not required to be integral (i.e., built-in)

Notes:

- For the purposes of this section, a bathroom is a room which contains a bathtub, shower or tub/shower combination.
- Lighting integral to bathroom exhaust fans shall comply with the *California Energy Code*.

4.507 ENVIRONMENTAL COMFORT
4.507.2 **HEATING AND AIR CONDITIONING SYSTEM DESIGN.** Heating and air conditioning systems shall be sized, designed and have their equipment selected using the following methods:

- The heat loss and heat gain is established according to ANSI/ACCA 2 Manual J - 2011 (Residential Load Calculation), ASHRAE handbooks or other equivalent design software or methods.
- Duct systems are sized according to ANSI/ACCA 1 Manual D - 2014 (Residential Duct Systems), ASHRAE handbooks or other equivalent design software or methods.
- Select heating and cooling equipment according to ANSI/ACCA 3 Manual S - 2014 (Residential Equipment Selection), or other equivalent design software or methods.

Exception: Use of alternate design temperatures necessary to ensure the system functions are acceptable.

CHAPTER 7 INSTALLER & SPECIAL INSPECTOR QUALIFICATIONS
702 QUALIFICATIONS
702.1 **INSTALLER TRAINING.** HVAC system installers shall be trained and certified in the proper installation of HVAC systems including ducts and equipment by a nationally or regionally recognized training or certification program. Uncertified persons may perform HVAC installations when under the direct supervision and responsibility of a person trained and certified to install HVAC systems or contractor licensed to install HVAC systems. Examples of acceptable HVAC training and certification programs include but are not limited to the following:

- State certified apprenticeship programs.
- Public utility training programs.
- Training programs sponsored by trade, labor or statewide energy consulting or verification organizations.
- Programs sponsored by manufacturing organizations.
- Other programs acceptable to the enforcing agency.

702.2 SPECIAL INSPECTION [HCD]. When required by the enforcing agency, the owner or the responsible entity acting as the owner's agent shall employ one or more special inspectors to provide inspection or other duties necessary to substantiate compliance with this code. Special inspectors shall demonstrate competence to the satisfaction of the enforcing agency for the particular type of inspection or task to be performed. In addition to other certifications or qualifications acceptable to the enforcing agency, the following certifications or education may be considered by the enforcing agency when evaluating the qualifications of a special inspector:

- Certification by a national or regional green building program or standard publisher.
- Certification by a statewide energy consulting or verification organization, such as HERS raters, building performance contractors, and home energy auditors.
- Successful completion of a third party apprentice training program in the appropriate trade.
- Other programs acceptable to the enforcing agency.

Notes:

- Special inspectors shall be independent entities with no financial interest in the materials or the project they are inspecting for compliance with this code.
- HERS raters are special inspectors certified by the California Energy Commission (CEC) to rate homes in California according to the Home Energy Rating System (HERS).

[BSC] When required by the enforcing agency, the owner or the responsible entity acting as the owner's agent shall employ one or more special inspectors to provide inspection or other duties necessary to substantiate compliance with this code. Special inspectors shall demonstrate competence to the satisfaction of the enforcing agency for the particular type of inspection or task to be performed. In addition, the special inspector shall have a certification from a recognized state, national or international association, as determined by the local agency. The area of certification shall be closely related to the primary job function, as determined by the local agency.

Note: Special inspectors shall be independent entities with no financial interest in the materials or the project they are inspecting for compliance with this code.

703 VERIFICATIONS
703.1 **DOCUMENTATION.** Documentation used to show compliance with this code shall include but is not limited to, construction documents, plans, specifications, builder or installer certification, inspection reports, or other methods acceptable to the enforcing agency which demonstrate substantial conformance. When specific documentation or special inspection is necessary to verify compliance, that method of compliance will be specified in the appropriate section or identified applicable checklist.



2022 CALIFORNIA GREEN BUILDING STANDARDS CODE
NONRESIDENTIAL MANDATORY MEASURES, SHEET 1 (January 2023)

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N/A = NOT APPLICABLE
RESPON. PARTY = RESPONSIBLE PARTY (i.e. ARCHITECT, ENGINEER, OWNER, CONTRACTOR, INSPECTOR, ETC.)

CHAPTER 3 GREEN BUILDING
SECTION 301 GENERAL
301.1 SCOPE. Buildings shall be designed to include the green building measures specified as mandatory in the application checklists contained in this code.
301.3 NONRESIDENTIAL ADDITIONS AND ALTERATIONS. [BSC-CG] The provisions of individual sections of Chapter 5 apply to newly constructed buildings, building additions of 1,000 square feet or greater, and/or building alterations with a permit valuation of \$200,000 or above...

5.106.2 STORMWATER POLLUTION PREVENTION FOR PROJECTS THAT DISTURB ONE OR MORE ACRES OF LAND. Comply with all lawfully enacted stormwater discharge regulations for projects that (1) disturb one acre or more of land, or (2) disturb less than one acre of land but are part of a larger common plan of development sale.
5.106.4 BICYCLE PARKING. For buildings within the authority of California Building Standards Commission as specified in Section 103, comply with Section 5.106.4.1. For buildings within the authority of the Division of the State Architect pursuant to Section 106, comply with Section 5.106.4.2.
5.106.5.3 Electric vehicle (EV) charging. [N] Construction to provide electric vehicle infrastructure and facilitate electric vehicle charging shall comply with Section 5.106.5.3.1 and shall be provided in accordance with regulations in the California Building Code and the California Electrical Code.

5.106.5.3.3 Use of automatic load management systems (ALMS). ALMS shall be permitted for EVCS. When ALMS is installed, the required electrical load capacity specified in Section 5.106.5.3.1 for each EVCS may be reduced when serviced by an EVSE controlled by an ALMS.
5.106.5.4 Electric Vehicle (EV) charging: medium-duty and heavy-duty. [N] Construction shall comply with section 5.106.5.4.1 to facilitate future installation of electric vehicle supply equipment (EVSE). Construction for warehouses, grocery stores and retail stores with planned off-street loading spaces shall also comply with Section 5.106.5.4.1 for future installation of medium- and heavy-duty EVSE.
TABLE 5.106.5.4.1 RACEWAY CONDUIT AND PANEL POWER REQUIREMENTS FOR MEDIUM- AND HEAVY-DUTY EVSE [N]

MAXIMUM ALLOWABLE GLARE RATING (G)
MAXIMUM ALLOWABLE GLARE RATING (G)
MAXIMUM ALLOWABLE GLARE RATING (G)
MAXIMUM ALLOWABLE GLARE RATING (G)
MAXIMUM ALLOWABLE GLARE RATING (G)
1. IESNA Lighting Zones 0 and 5 are not applicable; refer to Lighting Zones as defined in the California Energy Code and Chapter 10 of the California Administrative Code.
5.106.8.1 Facing-Backlight
Luminaires within 2MH of a property line shall be oriented so that the nearest property line is behind the fixture, and shall comply with the backlight rating specified in Table 5.106.8 based on the lighting zone and distance to the nearest point of that property line.
5.106.10 GRADING AND PAVING. Construction plans shall indicate how site grading or a drainage system will manage all surface water flows to keep water from entering buildings. Examples of methods to manage surface water include, but are not limited to, the following:
5.106.12 SHADE TREES [DSA-SS]. Shade Trees shall be planted to comply with Sections 5.106.12.1, 5.106.12.2, and 5.106.12.3. Percentages shown shall be measured at noon on the summer solstice. Landscape irrigation necessary to establish and maintain tree health shall comply with Section 5.304.6.



California

2022 CALIFORNIA GREEN BUILDING STANDARDS CODE

NONRESIDENTIAL MANDATORY MEASURES, SHEET 2 (January 2023)

Y	=	YES	=	NOT APPLICABLE
N/A	=	NOT APPLICABLE	=	RESPONSIBLE PARTY (i.e. ARCHITECT, ENGINEER, OWNER, CONTRACTOR, INSPECTOR ETC.)
RESPON. PARTY	=	RESPONSIBLE PARTY	=	

Y	N/A	RESPON. PARTY	SECTION	Y	N/A	RESPON. PARTY	SECTION	Y	N/A	RESPON. PARTY	SECTION	Y	N/A	RESPON. PARTY	SECTION																	
<input type="checkbox"/>	<input type="checkbox"/>		SECTION 5.303 INDOOR WATER USE 5.303.1 METERS. Separate submeters or metering devices shall be installed for the uses described in Sections 503.1.1 and 503.1.2. 5.303.1.1 Buildings in excess of 50,000 square feet. Separate submeters shall be installed as follows: 1. For each individual leased, rented or other tenant space within the building projected to consume more than 100 gal/day (380 L/day), including, but not limited to, spaces used for laundry or cleaners, restaurant or food service, medical or dental office, laboratory, or beauty salon or barber shop. 2. Where separate submeters for individual building tenants are unfeasible, for water supplied to the following subsystems: a. Makeup water for cooling towers where flow through is greater than 500 gpm (30 L/s). b. Makeup water for evaporative coolers greater than 6 gpm (0.04 L/s). c. Steam and hot water boilers with energy input more than 500,000 Btu/h (147 kW). 5.303.1.2 Excess consumption. A separate submeter or metering device shall be provided for any tenant within a new building or within an addition that is projected to consume more than 1,000 gal/day. 5.303.3 WATER CONSERVING PLUMBING FIXTURES AND FITTINGS. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the following: 5.303.3.1 Water Closets. The effective flush volume of all water closets shall not exceed 1.28 gallons per flush. Tank-type water closets shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Tank-Type Toilets. Note: The effective flush volume of dual flush toilets is defined as the composite, average flush volume of two reduced flushes and one full flush. 5.303.3.2 Urinals. 5.303.3.2.1 Wall-mounted Urinals. The effective flush volume of wall-mounted urinals shall not exceed 0.125 gallons per flush. 5.303.3.2.2 Floor-mounted Urinals. The effective flush volume of floor-mounted or other urinals shall not exceed 0.5 gallons per flush. 5.303.3.3 Showerheads. [BSC-CG] 5.303.3.3.1 Single showerhead. Showerheads shall have a maximum flow rate of not more than 1.8 gallons per minute at 80 psi. Showerheads shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Showerheads. 5.303.3.3.2 Multiple showerheads serving one shower. When a shower is served by more than one showerhead, the combined flow rate of all the showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.8 gallons per minute at 80 psi, or the shower shall be designed to allow only one shower outlet to be in operation at a time. Note: A hand-held shower shall be considered a showerhead. 5.303.3.4 Faucets and fountains. 5.303.3.4.1 Nonresidential Lavatory faucets. Lavatory faucets shall have a maximum flow rate of not more than 0.5 gallons per minute at 60 psi. 5.303.3.4.2 Kitchen faucets. Kitchen faucets shall have a maximum flow rate of not more than 1.8 gallons per minute at 60 psi. Kitchen faucets may temporarily increase the flow above the maximum rate, but not to exceed 2.2 gallons per minute at 60 psi, and must default to a maximum flow rate of 1.8 gallons per minute at 60 psi. 5.303.3.4.3 Wash fountains. Wash fountains shall have a maximum flow rate of not more than 1.8 gallons per minute/20 [rim space (inches)] at 60 psi. 5.303.3.4.4 Metering faucets. Metering faucets shall not deliver more than 0.20 gallons per cycle. 5.303.3.4.5 Metering faucets for wash fountains. Metering faucets for wash fountains shall have a maximum flow rate of not more than 0.20 gallons per minute/20 [rim space (inches)] at 60 psi. Note: Where complying faucets are unavailable, aerators or other means may be used to achieve reduction. 5.303.3.4.6 Pre-rinse spray valve When installed, shall meet the requirements in the <i>California Code of Regulations</i> , Title 20 (Appliance Efficiency Regulations), Section 1605.1 (h)(4) Table H-2, Section 1605.3 (h)(4)(A), and Section 1607 (d)(7), and shall be equipped with an integral automatic shutoff. FOR REFERENCE ONLY: The following table and code section have been reprinted from the <i>California Code of Regulations</i> , Title 20 (Appliance Efficiency Regulations), Section 1605.1 (h)(4) and Section 1605.3 (h)(4)(A). <table border="1"> <thead> <tr><th colspan="2">TABLE H-2</th></tr> <tr><th colspan="2">STANDARDS FOR COMMERCIAL PRE-RINSE SPRAY VALVES MANUFACTURED ON OR AFTER JANUARY 28, 2019</th></tr> <tr><th>PRODUCT CLASS [spray force in ounce force (ozf)]</th><th>MAXIMUM FLOW RATE (gpm)</th></tr> </thead> <tbody> <tr><td>Product Class 1 (≤ 5.0 ozf)</td><td>1.00</td></tr> <tr><td>Product Class 2 (> 5.0 ozf and ≤ 8.0 ozf)</td><td>1.20</td></tr> <tr><td>Product Class 3 (> 8.0 ozf)</td><td>1.28</td></tr> </tbody> </table>	TABLE H-2		STANDARDS FOR COMMERCIAL PRE-RINSE SPRAY VALVES MANUFACTURED ON OR AFTER JANUARY 28, 2019		PRODUCT CLASS [spray force in ounce force (ozf)]	MAXIMUM FLOW RATE (gpm)	Product Class 1 (≤ 5.0 ozf)	1.00	Product Class 2 (> 5.0 ozf and ≤ 8.0 ozf)	1.20	Product Class 3 (> 8.0 ozf)	1.28	<input type="checkbox"/>	<input type="checkbox"/>	SECTION 5.402 DEFINITIONS 5.402.1 DEFINITIONS. The following terms are defined in Chapter 2 (and are included here for reference) ADJUST. To regulate fluid flow rate and air patterns at the terminal equipment, such as to reduce fan speed or adjust a damper. BALANCE. To proportion flows within the distribution system, including sub-mains, branches and terminals, according to design quantities. BUILDING COMMISSIONING. A systematic quality assurance process that spans the entire design and construction process, including verifying and documenting that building systems and components are planned, designed, installed, tested, operated and maintained to meet the owner's project requirements. ORGANIC WASTE. Food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food soiled paper waste that is mixed in with food waste. TEST. A procedure to determine quantitative performance of a system or equipment SECTION 5.407 WATER RESISTANCE AND MOISTURE MANAGEMENT 5.407.1 WEATHER PROTECTION. Provide a weather-resistant exterior wall and foundation envelope as required by California Building Code Section 1402.2 (Weather Protection), manufacturer's installation instructions or local ordinance, whichever is more stringent. 5.407.2 MOISTURE CONTROL. Employ moisture control measures by the following methods. 5.407.2.1 Sprinklers. Design and maintain landscape irrigation systems to prevent spray on structures. 5.407.2.2 Entries and openings. Design exterior entries and/or openings subject to foot traffic or wind-driven rain to prevent water intrusion into buildings as follows: 5.407.2.2.1 Exterior door protection. Primary exterior entries shall be covered to prevent water intrusion by using nonabsorbent floor and wall finishes within at least 2 feet around and perpendicular to such openings plus at least one of the following: 1. An installed awning at least 4 feet in depth. 2. The door is protected by a roof overhang at least 4 feet in depth. 3. The door is recessed at least 4 feet. 4. Other methods which provide equivalent protection. 5.407.2.2.2 Flashing. Install flashings integrated with a drainage plane. SECTION 5.408 CONSTRUCTION WASTE REDUCTION, DISPOSAL AND RECYCLING 5.408.1 CONSTRUCTION WASTE MANAGEMENT. Recycle and/or salvage for reuse a minimum of 65% of the non-hazardous construction and demolition waste in accordance with Section 5.408.1.1, 5.408.1.2 or 5.408.1.3; or meet a local construction and demolition waste management ordinance, whichever is more stringent. 5.408.1.1 Construction waste management plan. Where a local jurisdiction does not have a construction and demolition waste management ordinance, submit a construction waste management plan that: 1. Identifies the construction and demolition waste materials to be diverted from disposal by efficient usage, recycling, reuse on the project or salvage for future use or sale. 2. Determines if construction and demolition waste materials will be sorted on-site (source-separated) or bulk mixed (single stream). 3. Identifies diversion facilities where construction and demolition waste material collected will be taken. 4. Specifies that the amount of construction and demolition waste materials diverted shall be calculated by weight or volume, but not by both. 5.408.1.2 Waste Management Company. Utilize a waste management company that can provide verifiable documentation that the percentage of construction and demolition waste material diverted from the landfill complies with this section. Note: The owner or contractor shall make the determination if the construction and demolition waste material will be diverted by a waste management company. Exceptions to Sections 5.408.1.1 and 5.408.1.2: 1. Excavated soil and land-clearing debris. 2. Alternate waste reduction methods developed by working with local agencies if diversion or recycle facilities capable of compliance with this item do not exist. 3. Demolition waste meeting local ordinance or calculated in consideration of local recycling facilities and markets. 5.408.1.3 Waste stream reduction alternative. The combined weight of new construction disposal that does not exceed two pounds per square foot of building area may be deemed to meet the 65% minimum requirement as approved by the enforcing agency. 5.408.1.4 Documentation. Documentation shall be provided to the enforcing agency which demonstrates compliance with Sections 5.408.1.1, 5.408.1.2, 5.408.1.3. The waste management plan shall be updated as necessary and shall be accessible during construction for examination by the enforcing agency. Notes: 1. Sample forms found in "A Guide to the California Green Building Standards Code (Nonresidential)" located www.dgs.ca.gov/BSC/Resources/Page-Content/Building-Standards-Commission-Resources-List-Folder/CALGreen may be used to assist in documenting compliance with the waste management plan. 2. Mixed construction and demolition debris processors can be located at the California Department of Resources Recycling and Recovery (CalRecycle). 5.408.2 UNIVERSAL WASTE. [A] Additions and alterations to a building or tenant space that meet the scoping provisions in Section 5.401.3 for residential additions and alterations, shall require verification that Universal Waste items such as fluorescent lamps and ballast and mercury containing thermostats as well as other California prohibited Universal Waste materials are disposed of properly and are diverted from landfills. A list of prohibited Universal Waste materials shall be included in the construction documents. Note: Refer to the Universal Waste Rule link at: http://www.dtsc.ca.gov/universalwaste/ 5.408.3 EXCAVATED SOIL AND LAND CLEARING DEBRIS. 100 percent of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reused or recycled. For a phased project, such material may be stockpiled on site until the storage site is developed. Exception: Reuse, either on or off-site, of vegetation or soil contaminated by disease or pest infestation. Notes: 1. If contamination by disease or pest infestation is suspected, contact the County Agricultural Commissioner and follow its direction for recycling or disposal of the material. 2. For a map of known pest and/or disease quarantine zones, consult with the California Department of Food and Agriculture. (www.cdffa.ca.gov)	<input type="checkbox"/>	<input type="checkbox"/>	5.410.2 COMMISSIONING. [N] New buildings 10,000 square feet and over. For new buildings 10,000 square feet and over, building commissioning shall be included in the design and construction processes of the building project to verify that the building systems and components meet the owner's or owner representative's project requirements. Commissioning shall be performed in accordance with this section by trained personnel with experience on projects of comparable size and complexity. For I-occupancies that are not regulated by OSHPD or for I-occupancies and L-occupancies that are not regulated by the California Energy Code Section 100.0 Scope, all requirements in Sections 5.410.2 through 5.410.2.6 shall apply. Note: For energy-related systems under the scope (Section 100) of the California Energy Code, including heating, ventilation, air conditioning (HVAC) systems and controls, indoor lighting systems and controls, as well as water heating systems and controls, refer to California Energy Code Section 120.8 for commissioning requirements Commissioning requirements shall include: 1. Owner's or Owner representative's project requirements. 2. Basis of design. 3. Commissioning measures shown in the construction documents. 4. Commissioning plan. 5. Functional performance testing. 6. Documentation and training. 7. Commissioning report. Exceptions: 1. Unconditioned warehouses of any size. 2. Areas less than 10,000 square feet used for offices or other conditioned accessory spaces within unconditioned warehouses. 3. Tenant improvements less than 10,000 square feet as described in Section 303.1.1. 4. Open parking garages of any size, or open parking garage areas, of any size, within a structure. Note: For the purposes of this section, unconditioned shall mean a building, area, or room which does not provide heating and/or air conditioning. Informational Notes: 1. IAS AC 476 is an accreditation criteria for organizations providing training and/or certification of commissioning personnel. AC 476 is available to the Authority Having Jurisdiction as a reference for qualifications of commissioning personnel. AC 476 does not certify individuals to conduct functional performance tests or to adjust and balance systems. 2. Functional performance testing for heating, ventilation, air conditioning systems and lighting controls must be performed in compliance with the <i>California Energy Code</i> . 5.410.2.1 Owner's or Owner Representative's Project Requirements (OPR). [N] The expectations and requirements of the building appropriate to its phase shall be documented before the design phase of the project begins. This documentation shall include the following: 1. Environmental and sustainability goals. 2. Building sustainable goals. 3. Indoor environmental quality requirements. 4. Project program, including facility functions and hours of operation, and need for after hours operation. 5. Equipment and systems expectations. 6. Building occupant and operation and maintenance (O&M) personnel expectations. 5.410.2.2 Basis of Design (BOD). [N] A written explanation of how the design of the building systems meets the OPR shall be completed at the design phase of the building project. The Basis of Design document shall cover the following systems: 1. Renewable energy systems. 2. Landscape irrigation systems. 3. Water reuse system. 5.410.2.3 Commissioning plan. [N] Prior to permit issuance a commissioning plan shall be completed to document how the project will be commissioned. The commissioning plan shall include the following: 1. General project information. 2. Commissioning goals. 3. Systems to be commissioned. Plans to test systems and components shall include: a. An explanation of the original design intent. b. Equipment and systems to be tested, including the extent of tests. c. Functions to be tested. d. Conditions under which the test shall be performed. e. Measurable criteria for acceptable performance. 4. Commissioning team information. 5. Commissioning process activities, schedules and responsibilities. Plans for the completion of commissioning shall be included. 5.410.2.4 Functional performance testing. [N] Functional performance tests shall demonstrate the correct installation and operation of each component, system and system-to-system interface in accordance with the approved plans and specifications. Functional performance testing reports shall contain information addressing each of the building components tested, the testing methods utilized, and include any readings and adjustments made. 5.410.2.5 Documentation and training. [N] A Systems Manual and Systems Operations Training are required, including Occupational Safety and Health Act (OSHA) requirements in <i>California Code of Regulations</i> (CCR), Title 8, Section 5142, and other related regulations. 5.410.2.5.1 Systems manual. [N] Documentation of the operational aspects of the building shall be completed within the systems manual and delivered to the building owner or representative. The systems manual shall include the following: 1. Site information, including facility description, history and current requirements. 2. Site contact information. 3. Basic operations and maintenance, including general site operating procedures, basic troubleshooting, recommended maintenance requirements, site events log. 4. Major systems. 5. Site equipment inventory and maintenance notes. 6. A copy of verifications required by the enforcing agency or this code. 7. Other resources and documentation, if applicable. 5.410.2.5.2 Systems operations training. [N] A program for training of the appropriate maintenance staff for each equipment type and/or system shall be developed and documented in the commissioning report and shall include the following: 1. System/equipment overview (what it is, what it does and with what other systems and/or equipment it interfaces). 2. Review and demonstration of servicing/preventive maintenance. 3. Review of the information in the Systems Manual. 4. Review of the record drawings on the system/equipment. 5.410.2.6 Commissioning report. [N] A report of commissioning process activities undertaken through the design and construction phases of the building project shall be completed and provided to the owner or representative. 5.410.4 TESTING AND ADJUSTING. New buildings less than 10,000 square feet. Testing and adjusting of systems shall be required for new buildings less than 10,000 square feet or new systems to serve an addition or alteration subject to Section 303.1. 5.410.4.2 (Reserved) Note: For energy-related systems under the scope (Section 100) of the California Energy Code, including heating, ventilation, air conditioning (HVAC) systems and controls, indoor lighting system and controls, as well as water heating systems and controls, refer to California Energy Code Section 120.8 for commissioning requirements and Sections 120.5, 120.6, 130.4, and 140.9(b)3 for additional testing requirements of specific systems. 5.410.4.2 Systems. Develop a written plan of procedures for testing and adjusting systems. Systems to be included for testing and adjusting shall include at a minimum, as applicable to the project: 1. Renewable energy systems. 2. Landscape irrigation systems. 3. Water reuse systems. 5.410.4.3 Procedures. Perform testing and adjusting procedures in accordance with manufacturer's specifications and applicable standards on each system. 5.410.4.3.1 HVAC balancing. In addition to testing and adjusting, before a new space-conditioning system serving a building or space is operated for normal use, the system shall be balanced in accordance with the procedures defined by the Testing Adjusting and Balancing Bureau National Standards; the National Environmental Balancing Bureau Procedural Standards; Associated Air Balance Council National Standards or as approved by the enforcing agency.	<input type="checkbox"/>	<input type="checkbox"/>	5.410.4.4 Reporting. After completion of testing, adjusting and balancing, provide a final report of testing signed by the individual responsible for performing these services. 5.410.4.5 Operation and maintenance (O & M) manual. Provide the building owner or representative with detailed operating and maintenance instructions and copies of warranties/warranties for each system. O & M instructions shall be consistent with OSHA requirements in CCR, Title 8, Section 5142, and other related regulations. 5.410.4.5.1 Inspections and reports. Include a copy of all inspection verifications and reports required by the enforcing agency.	<input type="checkbox"/>	<input type="checkbox"/>	DIVISION 5.5 ENVIRONMENTAL QUALITY SECTION 5.501 GENERAL 5.501.1 SCOPE. The provisions of this chapter shall outline means of reducing the quantity of air contaminants that are odorous, irritating, and/or harmful to the comfort and well-being of a building's installers, occupants and neighbors. SECTION 5.502 DEFINITIONS 5.502.1 DEFINITIONS. The following terms are defined in Chapter 2 (and are included here for reference) ARTERIAL HIGHWAY. A general term denoting a highway primarily for through traffic usually on a continuous route. A-WEIGHTED SOUND LEVEL (dBA). The sound pressure level in decibels as measured on a sound level meter using the internationally standardized A-weighting filter or as computed from sound spectral data to which A-weighting adjustments have been made. 1 BTU/HOUR. British thermal units per hour, also referred to as Btu. The amount of heat required to raise one pound of water one degree Fahrenheit per hour, a common measure of heat transfer rate. A ton of refrigeration is 12,000 Btu, the amount of heat required to melt a ton (2,000 pounds) of ice at 32° Fahrenheit. COMMUNITY NOISE EQUIVALENT LEVEL (CNEL). A metric similar to the day-night average sound level (Ldn), except that a 5 decibel adjustment is added to the equivalent continuous sound exposure level for evening hours (7pm to 10pm) in addition to the 10 dB nighttime adjustment used in the Ldn. COMPOSITE WOOD PRODUCTS. Composite wood products include hardwood plywood, particleboard and medium density fiberboard. "Composite wood products" does not include hardwood, structural plywood, structural panels, structural composite lumber, oriented strand board, glued laminated timber, lumber, prefabricated wood joists or finger-jointed lumber, all as specified in California Code of Regulations (CCR), Title 17, Section 93120.1(a). Note: See CCR, Title 17, Section 93120.1. DAY-NIGHT AVERAGE SOUND LEVEL (Ldn). The A-weighted equivalent continuous sound exposure level for a 24-hour period with a 10 dB adjustment added to sound levels occurring during nighttime hours (10p.m. to 7 a.m.). DECIBEL (dB). A measure on a logarithmic scale of the magnitude of a particular quantity (such as sound pressure, sound power, sound intensity) with respect to a reference quantity. ELECTRIC VEHICLE (EV). An automotive-type vehicle for on-road use, such as passenger automobiles, buses, trucks, vans, neighborhood electric vehicles, electric motorcycles, and the like, primarily powered by an electric motor that draws current from a rechargeable storage battery, fuel cell, photovoltaic array, or other source of electric current. Plug-in hybrid electric vehicles (PHEV) are considered electric vehicles. For purposes of the <i>California Electrical Code</i> , off-road, self-propelled electric vehicles, such as industrial trucks, hoists, lifts, transports, golf carts, airline ground support equipment, tractors, boats, and the like, are not included. ELECTRIC VEHICLE CHARGING STATION(S) (EVCS). One or more spaces intended for charging electric vehicles. ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE). The conductors, including the ungrounded, grounded, and equipment grounding conductors and the electric vehicle connectors, attachment plugs, and all other fittings, devices, power outlets, or apparatus installed specifically for the purpose of transferring energy between the premises wiring and the electric vehicle. ENERGY EQUIVALENT (NOISE) LEVEL (Leq). The level of a steady noise which would have the same energy as the fluctuating noise level integrated over the time of period of interest. EXPRESSWAY. An arterial highway for through traffic which may have partial control of access, but which may or may not be divided or have grade separations at intersections. FREEWAY. A divided arterial highway with full control of access and with grade separations at intersections. GLOBAL WARMING POTENTIAL (GWP). The radiative forcing impact of one mass-based unit of a given greenhouse gas relative to an equivalent unit of carbon dioxide over a given period of time. Carbon dioxide is the reference compound with a GWP of one. GLOBAL WARMING POTENTIAL VALUE (GWP VALUE). A 100-year GWP value published by the Intergovernmental Panel on Climate Change (IPCC) in either its Second Assessment Report (SAR) (IPCC, 1995); or its Fourth Assessment Report (AR4) (IPCC, 2007). The SAR GWP values are found in column "SAR (100-yr)" of Table 2.14; the AR4 GWP values are found in column "100 yr" of Table 2.14. HIGH-GWP REFRIGERANT. A compound used as a heat transfer fluid or gas that is: (a) a chlorofluorocarbon, a hydrochlorofluorocarbon, a perfluorocarbon, or any compound or blend of compounds, with a GWP value equal to or greater than 150, or (B) any ozone depleting substance as defined in Title 40 of the Code of Federal Regulations, Part 82, sec.82.3 (as amended March 10, 2009). LONG RADIUS ELBOW. Pipe fitting installed between two lengths of pipe or tubing to allow a change of direction, with a radius 1.5 times the pipe diameter. LOW-GWP REFRIGERANT. A compound used as a heat transfer fluid or gas that: (A) has a GWP value less than 150, and (B) is not an ozone depleting substance as defined in Title 40 of the Code of Federal Regulations, Part 82, sec.82.3 (as amended March 10, 2009). MERV. Filter minimum efficiency reporting value, based on ASHRAE 52.2-1999. MAXIMUM INCREMENTAL REACTIVITY (MIR). The maximum change in weight of ozone formed by adding a compound to the "Base Reactive Organic Gas (ROG) Mixture" per weight of compound added, expressed to hundredths of a gram (g O ₃ /g ROG). PRODUCT-WEIGHTED MIR (PWIMR). The sum of all weighted-MIR for all ingredients in a product subject to this article. The PWIMR is the total product reactivity expressed to hundredths of a gram of ozone formed per gram of product (excluding container and packaging). PSIG. Pounds per square inch, gauge. REACTIVE ORGANIC COMPOUND (ROC). Any compound that has the potential, once emitted, to contribute to ozone formation in the troposphere. SCHRADER ACCESS VALVES. Access fittings with a valve core installed. SHORT RADIUS ELBOW. Pipe fitting installed between two lengths of pipe or tubing to allow a change of direction, with a radius 1.0 times the pipe diameter. SUPERMARKET. For the purposes of Section 5.508.2, a supermarket is any retail food facility with 8,000 square feet or more conditioned area, and that utilizes either refrigerated display cases, or walk-in coolers or freezers connected to remote compressor units or condensing units. VOC. A volatile organic compound broadly defined as a chemical compound based on carbon chains or rings with vapor pressures greater than 0.1 millimeters of mercury at room temperature. These compounds typically contain hydrogen and may contain oxygen, nitrogen and other elements. See CCR Title 17, Section 94508(a) Note: Where specific regulations are cited from different agencies such as SCAQMD, ARB, etc., the VOC definition included in that specific regulation is the one that prevails for the specific measure in question. SECTION 5.503 FIREPLACES 5.503.1 FIREPLACES. Install only a direct-vent sealed-combustion gas or sealed wood-burning fireplace, or a sealed woodstove or pellet stove, and refer to residential requirements in the California Energy Code, Title 24, Part 6, Subchapter 7, Section 150. Woodstoves, pellet stoves and fireplaces shall comply with applicable local ordinances. 5.503.1.1 Woodstoves. Woodstoves and pellet stoves shall comply with U.S. EPA New Source Performance Standards (NSPS) emission limits as applicable, and shall have a permanent label indicating they are certified to meet the emission limits. SECTION 5.504 POLLUTANT CONTROL 5.504.1 TEMPORARY VENTILATION. The permanent HVAC system shall only be used during construction if necessary to condition the building or areas of addition or alteration within the required temperature range for material and equipment installation. If the HVAC system is used during construction, use return air filters with a Minimum Efficiency Reporting Value (MERV) of 8, based on ASHRAE 52.2-1999, or an average efficiency of 30% based on ASHRAE 52.1-1992. Replace all filters immediately prior to occupancy, or, if the building is occupied during alteration, at the conclusion of construction. 5.504.3 Covering of duct openings and protection of mechanical equipment during construction. At the time of rough installation and during storage on the construction site until final startup of the heating, cooling and ventilation equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheetmetal or other methods acceptable to the enforcing agency to reduce the amount of dust, water and debris which may enter the system.	<input type="checkbox"/>	<input type="checkbox"/>	DIVISION 5.4 MATERIAL CONSERVATION AND RESOURCE EFFICIENCY SECTION 5.401 GENERAL 5.401.1 SCOPE. The provisions of this chapter shall outline means of achieving material conservation and resource efficiency through construction waste diversion, construction waste diversion, employment of techniques to reduce pollution through recycling of materials, and building commissioning or testing and adjusting.	<input type="checkbox"/>	<input type="checkbox"/>
TABLE H-2																																
STANDARDS FOR COMMERCIAL PRE-RINSE SPRAY VALVES MANUFACTURED ON OR AFTER JANUARY 28, 2019																																
PRODUCT CLASS [spray force in ounce force (ozf)]	MAXIMUM FLOW RATE (gpm)																															
Product Class 1 (≤ 5.0 ozf)	1.00																															
Product Class 2 (> 5.0 ozf and ≤ 8.0 ozf)	1.20																															
Product Class 3 (> 8.0 ozf)	1.28																															



California

2022 CALIFORNIA GREEN BUILDING STANDARDS CODE
NONRESIDENTIAL MANDATORY MEASURES, SHEET 3 (January 2023)

Y = YES APPLICABLE
N/A = NOT APPLICABLE
RESPON. PARTY = RESPONSIBLE PARTY (i.e. ARCHITECT, ENGINEER, OWNER, CONTRACTOR, INSPECTOR, ETC.)

5.504.4 FINISH MATERIAL POLLUTANT CONTROL. Finish materials shall comply with Sections 5.504.4.1 through 5.504.4.6.
5.504.4.1 Adhesives, sealants and caulks. Adhesives, sealants, and caulks used on the project shall meet the requirements of the following standards:
1. Adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers and caulks shall comply with local or regional air pollution control or air quality management district rules where applicable, or SCAQMD Rule 1168 VOC limits, as shown in Tables 5.504.4.1 and 5.504.4.2. Such products also shall comply with the Rule 1168 prohibition on the use of certain toxic compounds (chloroform, ethylene dichloride, methylene chloride, perchloroethylene and trichloroethylene), except for aerosol products as specified in subsection 2, below.
2. Aerosol adhesives, and smaller unit sizes of adhesives, and sealant or caulking compounds (in units of product, less packaging, which do not weigh more than one pound and do not consist of more than 16 fluid ounces) shall comply with statewide VOC standards and other requirements, including prohibitions on use of certain toxic compounds, of California Code of Regulations, Title 17, commencing with Section 94507.

TABLE 5.504.4.3 - CONT.
GRAMS OF VOC PER LITER OF COATING, LESS WATER & LESS EXEMPT COMPOUNDS
COATING CATEGORY CURRENT VOC LIMIT
SPECIALTY COATINGS
ALUMINUM ROOF COATINGS 400
BASEMENT SPECIALTY COATINGS 400
BITUMINOUS ROOF COATINGS 50
BITUMINOUS ROOF PRIMERS 350
BOND BREAKERS 350
CONCRETE CURING COMPOUNDS 350
CONCRETE/MASONRY SEALERS 100
DRIVEWAY SEALERS 50
DRY FOG COATINGS 150
FAUX FINISHING COATINGS 350
FIRE RESISTIVE COATINGS 350
FLOOR COATINGS 100
FORM-RELEASE COMPOUNDS 250
GRAPHIC ARTS COATINGS (SIGN PAINTS) 500
HIGH-TEMPERATURE COATINGS 420
INDUSTRIAL MAINTENANCE COATINGS 250
LOW SOLIDS COATINGS 120
MAGNESITE CEMENT COATINGS 450
MASTIC TEXTURE COATINGS 100
METALLIC PIGMENTED COATINGS 500
MULTICOLOR COATINGS 250
PRETREATMENT WASH PRIMERS 420
PRIMERS, SEALERS, & UNDERCOATERS 100
REACTIVE PENETRATING SEALERS 350
RECYCLED COATINGS 250
ROOF COATINGS 50
RUST PREVENTATIVE COATINGS 250
SHELLACS:
CLEAR 730
OPAQUE 550
SPECIALTY PRIMERS, SEALERS & UNDERCOATERS 100
STAINS 250
STONE CONSOLIDANTS 450
SWIMMING POOL COATINGS 340
TRAFFIC MARKING COATINGS 100
TUB & TILE REFINISH COATINGS 420
WATERPROOFING MEMBRANES 250
WOOD COATINGS 275
WOOD PRESERVATIVES 350
ZINC-RICH PRIMERS 340

5.504.4.6 Resilient flooring systems. Where resilient flooring is installed, at least 80 percent of floor area receiving resilient flooring shall meet the requirements of the California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers," Version 1.2, January 2017 (Emission testing method for California Specifications 01350).
5.504.4.6.1 Verification of compliance. Documentation shall be provided verifying that resilient flooring materials meet the pollutant emission limits.
5.504.4.7 Thermal insulation
Comply with the requirements of the California Department of Public Health, "Standard Method of the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers," Version 1.2, January 1.2, January 2017 (Emission testing method for California Specification 01350). See California Department of Public Health's website for certification programs and testing labs. https://www.cdph.ca.gov/Programs/CCDPHP/DEODCEHLB/IAQ/Pages/VOC.aspx#material
5.504.4.7.1 Verification of compliance. Documentation shall be provided verifying that thermal insulation materials meet the pollutant emission limits.
5.504.4.8 Acoustical ceiling and wall panels. Comply with the requirements of the California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers," Version 1.2, January 2017 (Emission testing method for California Specification 01350). See California Department of Public Health's website for certification programs and testing labs.
5.504.4.8.1 Verification of compliance. Documentation shall be provided verifying that acoustical finish materials meet the pollutant emission limits.
5.504.5.3 Filters. In mechanically ventilated buildings, provide regularly occupied areas of the building with air filtration media for outside and return air that provides at least a Minimum Efficiency Reporting Value (MERV) of 13. MERV 13 filters shall be installed prior to occupancy, and recommendations for maintenance with filters of the same value shall be included in the operation and maintenance manual.
Exceptions: Existing mechanical equipment.
5.504.5.3.1 Labeling. Installed filters shall be clearly labeled by the manufacturer indicating the MERV rating.
5.504.7 ENVIRONMENTAL TOBACCO SMOKE (ETS) CONTROL. Where outdoor areas are provided for smoking, prohibit smoking within 25 feet of building entries, outdoor air intakes and operable windows and within the building as already prohibited by other laws or regulations, or as enforced by ordinances, regulations or policies of any city, county, city and county, California Community College, campus of the California State University, or campus of the University of California, whichever are more stringent. When ordinances, regulations or policies are not in place, post signage to inform building occupants of the prohibitions.
SECTION 5.505 INDOOR MOISTURE CONTROL
5.505.1 INDOOR MOISTURE CONTROL. Buildings shall meet or exceed the provisions of California Building Code, CCR, Title 24, Part 2, Sections 1202 (Ventilation) and Chapter 14 (Exterior Walls). For additional measures, see Section 5.407.2 of this code.
SECTION 5.506 INDOOR AIR QUALITY
5.506.1 OUTSIDE AIR DELIVERY. For mechanically or naturally ventilated spaces in buildings, meet the minimum requirements of Section 120.1 (Requirements For Ventilation) of the California Energy Code, or the applicable local code, whichever is more stringent, and Division 1, Chapter 4 of CCR, Title 8.
5.506.2 CARBON DIOXIDE (CO2) MONITORING. For buildings or additions equipped with demand control ventilation, CO2 sensors and ventilation controls shall be specified and installed in accordance with the requirements of the California Energy Code, Section 120(c)(4).
5.506.3 Carbon dioxide (CO2) monitoring in classrooms.
(DSA-SS) Each public K-12 school classroom, as listed in Table 120.1-A of the California Energy Code, shall be equipped with a carbon dioxide monitor or sensor that meets the following requirements:
1. The monitor or sensor shall be permanently affixed in a tamper-proof manner in each classroom between 3 and 6 feet (914 mm and 1829 mm) above the floor and at least 5 feet (1524 mm) away from door and operable windows.
2. When the monitor or sensor is not integral to an Energy Management Control System (EMCS), the monitor or sensor shall display the carbon dioxide readings on the device. When the sensor is integral to an EMCS, the carbon dioxide readings shall be available to and regularly monitored by facility personnel.
3. A monitor shall provide notification through a visual indicator on the monitor when the carbon dioxide levels in the classroom have exceeded 1,100ppm. A sensor integral to an EMCS shall provide notification to facility personnel through a visual and/or audible indicator when the carbon dioxide levels in the classroom have exceeded 1,100ppm.
4. The monitor or sensor shall measure carbon dioxide levels at minimum 15-minute intervals and shall maintain a record of previous carbon dioxide measurements of not less than 30 days duration.
5. The monitor or sensor used to measure carbon dioxide levels shall have the capacity to measure carbon dioxide levels with a range of 400ppm to 2000ppm or greater.
6. The monitor or sensor shall be certified by the manufacturer to be accurate within 75ppm at 1,000ppm carbon dioxide concentration and shall be certified by the manufacturer to require calibration no more frequently than once every 5 years.

5.508.2 Supermarket refrigerant leak reduction. New commercial refrigeration systems shall comply with the provisions of this section when installed in retail food stores 8,000 square feet or more conditioned area, and that utilize either refrigerated display cases, or walk-in coolers or freezers connected to remote compressor units or condensing units. The leak reduction measures apply to refrigeration systems containing high-global-warming potential (high-GWP) refrigerants with a GWP of 150 or greater. New refrigeration systems include both new facilities and the replacement of existing refrigeration systems in existing facilities.
Exception: Refrigeration systems containing low-global warming potential (low-GWP) refrigerants with a GWP value less than 150 are not subject to this section. Low-GWP refrigerants are nonozone-depleting refrigerants that include ammonia, carbon dioxide (CO2), and potentially other refrigerants.
5.508.2.1 Refrigerant piping. Piping compliant with the California Mechanical Code shall be installed to be accessible for leak protection and repairs. Piping runs using threaded pipe, copper tubing with an outside diameter (OD) less than 1/4 inch, flared tubing connections and short radius elbows shall not be used in refrigerant systems except as noted below.
5.508.2.1.1 Threaded pipe. Threaded connections are permitted at the compressor rack.
5.508.2.1.2 Copper pipe. Copper tubing with an OD less than 1/4 inch may be used in systems with a refrigerant charge of 5 pounds or less.
5.508.2.1.2.1 Anchorage. One-fourth-inch OD tubing shall be securely clamped to a rigid base to keep vibration levels below 8 mils.
5.508.2.1.3 Flared tubing connections. Double-flared tubing connections may be used for pressure controls, valve pilot lines and oil.
Exception: Single-flared tubing connections may be used with a multiring seal coated with industrial sealant suitable for use with refrigerants and tightened in accordance with manufacturer's recommendations.
5.508.2.1.4 Elbows. Short radius elbows are only permitted where space limitations prohibit use of long radius elbows.
5.508.2.2 Valves. Valves and fittings shall comply with the California Mechanical Code and as follows.
5.508.2.2.1 Pressure relief valves. For vessels containing high-GWP refrigerant, a rupture disc shall be installed between the outlet of the vessel and the inlet of the pressure relief valve.
5.508.2.2.1.1 Pressure detection. A pressure gauge, pressure transducer or other device shall be installed in the space between the rupture disc and the relief valve inlet to indicate a disc rupture or discharge of the relief valve.
5.508.2.2.2 Access valves. Only Schrader access valves with a brass or steel body are permitted for use.
5.508.2.2.2.1 Valve caps. For systems with a refrigerant charge of 5 pounds or more, valve caps shall be brass or steel and not plastic.
5.508.2.2.2.2 Seal caps. If designed for it, the cap shall have a neoprene O-ring in place.
5.508.2.2.2.1 Chain tethers. Chain tethers to fit over the stem are required for valves designed to have seal caps.
Exception: Valves with seal caps that are not removed from the valve during stem operation.
5.508.2.3 Refrigerated service cases. Refrigerated service cases holding food products containing vinegar and salt shall have evaporator coils of corrosion-resistant material, such as stainless steel, or be coated to prevent corrosion from these substances.
5.508.2.3.1 Coil coating. Consideration shall be given to the heat transfer efficiency of coil coating to maximize energy efficiency.
5.508.2.4 Refrigerant receivers. Refrigerant receivers with capacities greater than 200 pounds shall be fitted with a device that indicates the level of refrigerant in the receiver.
5.508.2.5 Pressure testing. The system shall be pressure tested during installation prior to evacuation and charging.
5.508.2.5.1 Minimum pressure. The system shall be charged with regulated dry nitrogen and appropriate tracer gas to bring system pressure up to 300 psig minimum.
5.508.2.5.2 Leaks. Check the system for leaks, repair any leaks, and retest for pressure using the same gauge.
5.508.2.5.3 Allowable pressure change. The system shall stand, unaltered, for 24 hours with no more than a +/- one pound pressure change from 300 psig, measured with the same gauge.
5.508.2.6 Evacuation. The system shall be evacuated after pressure testing and prior to charging.
5.508.2.6.1 First vacuum. Pull a system vacuum down to at least 1000 microns (+/- 50 microns), and hold for 30 minutes.
5.508.2.6.2 Second vacuum. Pull a second system vacuum to a minimum of 500 microns and hold for 30 minutes.
5.508.2.6.3 Third vacuum. Pull a third vacuum down to a minimum of 300 microns, and hold for 24 hours with a maximum drift of 100 microns over a 24-hour period.

CHAPTER 7
INSTALLER & SPECIAL INSPECTOR QUALIFICATIONS

702 QUALIFICATIONS
702.1 INSTALLER TRAINING. HVAC system installers shall be trained and certified in the proper installation of HVAC systems including ducts and equipment by a nationally or regionally recognized training or certification program. Uncertified persons may perform HVAC installations when under the direct supervision and responsibility of a person trained and certified to install HVAC systems or contractor licensed to install HVAC systems. Examples of acceptable HVAC training and certification programs include but are not limited to the following:
1. State certified apprenticeship programs.
2. Public utility training programs.
3. Training programs sponsored by trade, labor or statewide energy consulting or verification organizations.
4. Programs sponsored by manufacturing organizations.
5. Other programs acceptable to the enforcing agency.
702.2 SPECIAL INSPECTION [HCD]. When required by the enforcing agency, the owner or the responsible entity acting as the owner's agent shall employ one or more special inspectors to provide inspection or other duties necessary to substantiate compliance with this code. Special inspectors shall demonstrate competence to the satisfaction of the enforcing agency for the particular type of inspection or task to be performed. In addition to other certifications or qualifications acceptable to the enforcing agency, the following certifications or education may be considered by the enforcing agency when evaluating the qualifications of a special inspector:
1. Certification by a national or regional green building program or standard publisher.
2. Certification by a statewide energy consulting or verification organization, such as HERS raters, building performance contractors, and home energy auditors.
3. Successful completion of a third party apprentice training program in the appropriate trade.
4. Other programs acceptable to the enforcing agency.
Notes:
1. Special inspectors shall be independent entities with no financial interest in the materials or the project they are inspecting for compliance with this code.
2. HERS raters are special inspectors certified by the California Energy Commission (CEC) to rate homes in California according to the Home Energy Rating System (HERS).

[BSC-CG] When required by the enforcing agency, the owner or the responsible entity acting as the owner's agent shall employ one or more special inspectors to provide inspection or other duties necessary to substantiate compliance with this code. Special inspectors shall demonstrate competence to the satisfaction of the enforcing agency for the particular type of inspection or task to be performed. In addition, the special inspector shall have a certification from a recognized state, national or international association, as determined by the local agency. The area of certification shall be closely related to the primary job function, as determined by the local agency.
Note: Special inspectors shall be independent entities with no financial interest in the materials or the project they are inspecting for compliance with this code.

703 VERIFICATIONS
703.1 DOCUMENTATION. Documentation used to show compliance with this code shall include but is not limited to, construction documents, plans, specifications, builder or installer certification, inspection reports, or other methods acceptable to the enforcing agency which demonstrate substantial conformance. When specific documentation or special inspection is necessary to verify compliance, that method of compliance will be specified in the appropriate section or identified applicable checklist.

Appendix B

Emissions Calculations Output
(CalEEMod)

Tract 37907 (Pacific Lantana) Custom Report

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8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Tract 37907 (Pacific Lantana)
Construction Start Date	1/1/2025
Operational Year	2028
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.50
Precipitation (days)	9.00
Location	33.795411136566784, -117.23614646959263
County	Riverside-South Coast
City	Perris
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5579
EDFZ	11
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.22

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
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Single Family Housing	92.0	Dwelling Unit	10.1	179,400	60,984	1,080	297	—
Health Club	2.04	1000sqft	0.07	2,045	0.00	0.00	—	—
Parking Lot	3.84	Acre	3.84	0.00	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Energy	E-10-B	Establish Onsite Renewable Energy Systems: Solar Power

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.	0.99	0.90	6.37	37.3	0.07	0.20	4.21	4.41	0.19	1.59	1.78	—	8,248	8,248	0.30	0.28	3.95	8,343
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.98	28.4	6.44	36.9	0.07	0.20	7.89	7.99	0.19	3.99	4.09	—	8,226	8,226	0.31	0.28	0.10	8,317
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.55	2.45	3.06	16.4	0.03	0.10	1.44	1.53	0.09	0.57	0.66	—	3,263	3,263	0.13	0.09	0.87	3,294
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.10	0.45	0.56	2.99	< 0.005	0.02	0.26	0.28	0.02	0.10	0.12	—	540	540	0.02	0.02	0.14	545

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.99	0.90	6.37	37.3	0.07	0.20	4.21	4.41	0.19	1.59	1.78	—	8,248	8,248	0.30	0.28	3.95	8,343
2026	0.70	0.62	3.58	17.5	0.03	0.11	0.53	0.64	0.11	0.13	0.23	—	3,172	3,172	0.12	0.08	2.42	3,202
2027	0.68	0.67	3.51	17.3	0.03	0.10	0.53	0.64	0.10	0.13	0.23	—	3,158	3,158	0.11	0.08	2.19	3,186
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.98	0.89	6.44	36.9	0.07	0.20	7.89	7.99	0.19	3.99	4.09	—	8,226	8,226	0.31	0.28	0.10	8,317
2026	0.69	0.61	3.61	16.9	0.03	0.11	0.53	0.64	0.11	0.13	0.23	—	3,134	3,134	0.11	0.08	0.06	3,162
2027	0.67	28.4	3.54	16.8	0.03	0.10	0.53	0.64	0.10	0.13	0.23	—	3,121	3,121	0.11	0.08	0.06	3,148
2028	0.16	28.4	0.83	1.44	< 0.005	0.02	0.09	0.10	0.01	0.02	0.03	—	217	217	0.01	< 0.005	0.01	218
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.55	0.49	3.06	16.4	0.03	0.10	1.44	1.53	0.09	0.57	0.66	—	3,263	3,263	0.13	0.09	0.87	3,294
2026	0.49	0.43	2.59	12.1	0.02	0.08	0.38	0.46	0.08	0.09	0.17	—	2,243	2,243	0.08	0.06	0.75	2,263
2027	0.42	2.45	2.22	10.3	0.02	0.07	0.31	0.38	0.06	0.07	0.14	—	1,863	1,863	0.07	0.05	0.54	1,879
2028	0.01	1.17	0.03	0.06	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	8.94	8.94	< 0.005	< 0.005	< 0.005	9.01
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.10	0.09	0.56	2.99	< 0.005	0.02	0.26	0.28	0.02	0.10	0.12	—	540	540	0.02	0.02	0.14	545
2026	0.09	0.08	0.47	2.22	< 0.005	0.01	0.07	0.08	0.01	0.02	0.03	—	371	371	0.01	0.01	0.12	375
2027	0.08	0.45	0.40	1.88	< 0.005	0.01	0.06	0.07	0.01	0.01	0.03	—	308	308	0.01	0.01	0.09	311
2028	< 0.005	0.21	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.48	1.48	< 0.005	< 0.005	< 0.005	1.49

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.99	0.90	6.37	37.3	0.07	0.20	4.21	4.41	0.19	1.59	1.78	—	8,248	8,248	0.30	0.28	3.95	8,343
2026	0.70	0.62	3.58	17.5	0.03	0.11	0.53	0.64	0.11	0.13	0.23	—	3,172	3,172	0.12	0.08	2.42	3,202
2027	0.68	0.67	3.51	17.3	0.03	0.10	0.53	0.64	0.10	0.13	0.23	—	3,158	3,158	0.11	0.08	2.19	3,186
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.98	0.89	6.44	36.9	0.07	0.20	7.89	7.99	0.19	3.99	4.09	—	8,226	8,226	0.31	0.28	0.10	8,317
2026	0.69	0.61	3.61	16.9	0.03	0.11	0.53	0.64	0.11	0.13	0.23	—	3,134	3,134	0.11	0.08	0.06	3,162
2027	0.67	28.4	3.54	16.8	0.03	0.10	0.53	0.64	0.10	0.13	0.23	—	3,121	3,121	0.11	0.08	0.06	3,148
2028	0.16	28.4	0.83	1.44	< 0.005	0.02	0.09	0.10	0.01	0.02	0.03	—	217	217	0.01	< 0.005	0.01	218
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.55	0.49	3.06	16.4	0.03	0.10	1.44	1.53	0.09	0.57	0.66	—	3,263	3,263	0.13	0.09	0.87	3,294
2026	0.49	0.43	2.59	12.1	0.02	0.08	0.38	0.46	0.08	0.09	0.17	—	2,243	2,243	0.08	0.06	0.75	2,263
2027	0.42	2.45	2.22	10.3	0.02	0.07	0.31	0.38	0.06	0.07	0.14	—	1,863	1,863	0.07	0.05	0.54	1,879
2028	0.01	1.17	0.03	0.06	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	8.94	8.94	< 0.005	< 0.005	< 0.005	9.01
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.10	0.09	0.56	2.99	< 0.005	0.02	0.26	0.28	0.02	0.10	0.12	—	540	540	0.02	0.02	0.14	545
2026	0.09	0.08	0.47	2.22	< 0.005	0.01	0.07	0.08	0.01	0.02	0.03	—	371	371	0.01	0.01	0.12	375
2027	0.08	0.45	0.40	1.88	< 0.005	0.01	0.06	0.07	0.01	0.01	0.03	—	308	308	0.01	0.01	0.09	311
2028	< 0.005	0.21	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.48	1.48	< 0.005	< 0.005	< 0.005	1.49

2.4. Operations Emissions Compared Against Thresholds

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

Un/Mit.	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.	4.27	8.06	4.74	35.5	0.09	0.24	6.81	7.05	0.23	1.73	1.96	59.1	11,793	11,852	6.41	0.28	22.3	12,119
Mit.	4.27	8.06	4.74	35.5	0.09	0.24	6.81	7.05	0.23	1.73	1.96	59.1	11,793	11,852	6.41	0.28	22.3	12,119
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.61	7.42	4.88	25.6	0.08	0.23	6.81	7.04	0.23	1.73	1.96	59.1	11,296	11,355	6.42	0.29	1.84	11,605
Mit.	3.61	7.42	4.88	25.6	0.08	0.23	6.81	7.04	0.23	1.73	1.96	59.1	11,296	11,355	6.42	0.29	1.84	11,605
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.66	7.55	3.47	28.8	0.07	0.12	6.58	6.70	0.12	1.67	1.78	59.1	9,378	9,437	6.38	0.29	10.1	9,692
Mit.	3.66	7.55	3.47	28.8	0.07	0.12	6.58	6.70	0.12	1.67	1.78	59.1	9,378	9,437	6.38	0.29	10.1	9,692
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.67	1.38	0.63	5.25	0.01	0.02	1.20	1.22	0.02	0.30	0.33	9.78	1,553	1,562	1.06	0.05	1.67	1,605
Mit.	0.67	1.38	0.63	5.25	0.01	0.02	1.20	1.22	0.02	0.30	0.33	9.78	1,553	1,562	1.06	0.05	1.67	1,605
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2.5. Operations Emissions by Sector, Unmitigated

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

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	3.50	3.23	2.32	29.2	0.07	0.04	6.81	6.85	0.04	1.73	1.76	—	7,222	7,222	0.26	0.25	21.0	7,324
Area	0.67	4.78	1.58	5.97	0.01	0.13	—	0.13	0.13	—	0.13	0.00	1,951	1,951	0.04	< 0.005	—	1,954
Energy	0.10	0.05	0.85	0.37	0.01	0.07	—	0.07	0.07	—	0.07	—	2,571	2,571	0.19	0.01	—	2,580
Water	—	—	—	—	—	—	—	—	—	—	—	7.40	47.6	55.0	0.76	0.02	—	79.5
Waste	—	—	—	—	—	—	—	—	—	—	—	51.7	0.00	51.7	5.16	0.00	—	181
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.29	1.29
Total	4.27	8.06	4.74	35.5	0.09	0.24	6.81	7.05	0.23	1.73	1.96	59.1	11,793	11,852	6.41	0.28	22.3	12,119
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	3.33	3.06	2.50	24.6	0.07	0.04	6.81	6.85	0.04	1.73	1.76	—	6,740	6,740	0.27	0.26	0.55	6,825
Area	0.18	4.31	1.53	0.65	0.01	0.12	—	0.12	0.12	—	0.12	0.00	1,937	1,937	0.04	< 0.005	—	1,939
Energy	0.10	0.05	0.85	0.37	0.01	0.07	—	0.07	0.07	—	0.07	—	2,571	2,571	0.19	0.01	—	2,580
Water	—	—	—	—	—	—	—	—	—	—	—	7.40	47.6	55.0	0.76	0.02	—	79.5
Waste	—	—	—	—	—	—	—	—	—	—	—	51.7	0.00	51.7	5.16	0.00	—	181
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.29	1.29
Total	3.61	7.42	4.88	25.6	0.08	0.23	6.81	7.04	0.23	1.73	1.96	59.1	11,296	11,355	6.42	0.29	1.84	11,605
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	3.21	2.95	2.48	24.7	0.07	0.04	6.58	6.62	0.04	1.67	1.70	—	6,616	6,616	0.27	0.26	8.82	6,708
Area	0.35	4.55	0.14	3.69	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	142	142	< 0.005	< 0.005	—	143
Energy	0.10	0.05	0.85	0.37	0.01	0.07	—	0.07	0.07	—	0.07	—	2,571	2,571	0.19	0.01	—	2,580
Water	—	—	—	—	—	—	—	—	—	—	—	7.40	47.6	55.0	0.76	0.02	—	79.5

Waste	—	—	—	—	—	—	—	—	—	—	—	51.7	0.00	51.7	5.16	0.00	—	181
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.29	1.29
Total	3.66	7.55	3.47	28.8	0.07	0.12	6.58	6.70	0.12	1.67	1.78	59.1	9,378	9,437	6.38	0.29	10.1	9,692
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.59	0.54	0.45	4.51	0.01	0.01	1.20	1.21	0.01	0.30	0.31	—	1,095	1,095	0.04	0.04	1.46	1,111
Area	0.06	0.83	0.03	0.67	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	23.6	23.6	< 0.005	< 0.005	—	23.6
Energy	0.02	0.01	0.16	0.07	< 0.005	0.01	—	0.01	0.01	—	0.01	—	426	426	0.03	< 0.005	—	427
Water	—	—	—	—	—	—	—	—	—	—	—	1.23	7.88	9.11	0.13	< 0.005	—	13.2
Waste	—	—	—	—	—	—	—	—	—	—	—	8.55	0.00	8.55	0.85	0.00	—	29.9
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.21	0.21
Total	0.67	1.38	0.63	5.25	0.01	0.02	1.20	1.22	0.02	0.30	0.33	9.78	1,553	1,562	1.06	0.05	1.67	1,605

2.6. Operations Emissions by Sector, Mitigated

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

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	3.50	3.23	2.32	29.2	0.07	0.04	6.81	6.85	0.04	1.73	1.76	—	7,222	7,222	0.26	0.25	21.0	7,324
Area	0.67	4.78	1.58	5.97	0.01	0.13	—	0.13	0.13	—	0.13	0.00	1,951	1,951	0.04	< 0.005	—	1,954
Energy	0.10	0.05	0.85	0.37	0.01	0.07	—	0.07	0.07	—	0.07	—	2,571	2,571	0.19	0.01	—	2,580
Water	—	—	—	—	—	—	—	—	—	—	—	7.40	47.6	55.0	0.76	0.02	—	79.5
Waste	—	—	—	—	—	—	—	—	—	—	—	51.7	0.00	51.7	5.16	0.00	—	181
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.29	1.29
Total	4.27	8.06	4.74	35.5	0.09	0.24	6.81	7.05	0.23	1.73	1.96	59.1	11,793	11,852	6.41	0.28	22.3	12,119
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	3.33	3.06	2.50	24.6	0.07	0.04	6.81	6.85	0.04	1.73	1.76	—	6,740	6,740	0.27	0.26	0.55	6,825

Area	0.18	4.31	1.53	0.65	0.01	0.12	—	0.12	0.12	—	0.12	0.00	1,937	1,937	0.04	< 0.005	—	1,939
Energy	0.10	0.05	0.85	0.37	0.01	0.07	—	0.07	0.07	—	0.07	—	2,571	2,571	0.19	0.01	—	2,580
Water	—	—	—	—	—	—	—	—	—	—	—	7.40	47.6	55.0	0.76	0.02	—	79.5
Waste	—	—	—	—	—	—	—	—	—	—	—	51.7	0.00	51.7	5.16	0.00	—	181
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.29	1.29
Total	3.61	7.42	4.88	25.6	0.08	0.23	6.81	7.04	0.23	1.73	1.96	59.1	11,296	11,355	6.42	0.29	1.84	11,605
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	3.21	2.95	2.48	24.7	0.07	0.04	6.58	6.62	0.04	1.67	1.70	—	6,616	6,616	0.27	0.26	8.82	6,708
Area	0.35	4.55	0.14	3.69	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	142	142	< 0.005	< 0.005	—	143
Energy	0.10	0.05	0.85	0.37	0.01	0.07	—	0.07	0.07	—	0.07	—	2,571	2,571	0.19	0.01	—	2,580
Water	—	—	—	—	—	—	—	—	—	—	—	7.40	47.6	55.0	0.76	0.02	—	79.5
Waste	—	—	—	—	—	—	—	—	—	—	—	51.7	0.00	51.7	5.16	0.00	—	181
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.29	1.29
Total	3.66	7.55	3.47	28.8	0.07	0.12	6.58	6.70	0.12	1.67	1.78	59.1	9,378	9,437	6.38	0.29	10.1	9,692
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.59	0.54	0.45	4.51	0.01	0.01	1.20	1.21	0.01	0.30	0.31	—	1,095	1,095	0.04	0.04	1.46	1,111
Area	0.06	0.83	0.03	0.67	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	23.6	23.6	< 0.005	< 0.005	—	23.6
Energy	0.02	0.01	0.16	0.07	< 0.005	0.01	—	0.01	0.01	—	0.01	—	426	426	0.03	< 0.005	—	427
Water	—	—	—	—	—	—	—	—	—	—	—	1.23	7.88	9.11	0.13	< 0.005	—	13.2
Waste	—	—	—	—	—	—	—	—	—	—	—	8.55	0.00	8.55	0.85	0.00	—	29.9
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.21	0.21
Total	0.67	1.38	0.63	5.25	0.01	0.02	1.20	1.22	0.02	0.30	0.33	9.78	1,553	1,562	1.06	0.05	1.67	1,605

3. Construction Emissions Details

3.1. Site Preparation (2025) - Unmitigated

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

Location	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	0.50	0.50	2.59	28.3	0.05	0.10	—	0.10	0.10	—	0.10	—	5,295	5,295	0.21	0.04	—	5,314
Dust From Material Movement:	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
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	0.03	0.03	0.15	1.63	< 0.005	0.01	—	0.01	0.01	—	0.01	—	305	305	0.01	< 0.005	—	306
Dust From Material Movement:	—	—	—	—	—	—	0.44	0.44	—	0.23	0.23	—	—	—	—	—	—	—
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	0.01	0.01	0.03	0.30	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	50.4	50.4	< 0.005	< 0.005	—	50.6
Dust From Material Movement:	—	—	—	—	—	—	0.08	0.08	—	0.04	0.04	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.08	1.02	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	227	227	0.01	0.01	0.02	230	
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	< 0.005	< 0.005	0.01	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.2	13.2	< 0.005	< 0.005	0.02	13.4	
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	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.19	2.19	< 0.005	< 0.005	< 0.005	2.22	
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. Site Preparation (2025) - 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	0.50	0.50	2.59	28.3	0.05	0.10	—	0.10	0.10	—	0.10	—	5,295	5,295	0.21	0.04	—	5,314
Dust From Material Movement:	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
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	0.03	0.03	0.15	1.63	< 0.005	0.01	—	0.01	0.01	—	0.01	—	305	305	0.01	< 0.005	—	306
Dust From Material Movement:	—	—	—	—	—	—	0.44	0.44	—	0.23	0.23	—	—	—	—	—	—	—
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	0.01	0.01	0.03	0.30	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	50.4	50.4	< 0.005	< 0.005	—	50.6
Dust From Material Movement:	—	—	—	—	—	—	0.08	0.08	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.08	1.02	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	227	227	0.01	0.01	0.02	230
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	< 0.005	< 0.005	0.01	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.2	13.2	< 0.005	< 0.005	0.02	13.4
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	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.19	2.19	< 0.005	< 0.005	< 0.005	2.22
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. Grading (2025) - 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	0.83	0.79	4.76	35.4	0.06	0.17	—	0.17	0.17	—	0.17	—	6,599	6,599	0.27	0.05	—	6,622
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.43	1.43	—	—	—	—	—	—	—
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	0.83	0.79	4.76	35.4	0.06	0.17	—	0.17	0.17	—	0.17	—	6,599	6,599	0.27	0.05	—	6,622
Dust From Material Movement:	—	—	—	—	—	—	3.59	3.59	—	1.43	1.43	—	—	—	—	—	—	—
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	0.14	0.14	0.82	6.11	0.01	0.03	—	0.03	0.03	—	0.03	—	1,139	1,139	0.05	0.01	—	1,143
Dust From Material Movement:	—	—	—	—	—	—	0.62	0.62	—	0.25	0.25	—	—	—	—	—	—	—
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	0.03	0.02	0.15	1.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	189	189	0.01	< 0.005	—	189
Dust From Material Movement:	—	—	—	—	—	—	0.11	0.11	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.09	0.09	1.54	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	282	282	0.01	0.01	1.04	286

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	0.00
Hauling	0.06	0.02	1.52	0.37	0.01	0.03	0.36	0.39	0.03	0.10	0.13	—	1,367	1,367	0.03	0.22	2.91	1,435	
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.10	1.17	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	259	259	0.01	0.01	0.03	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	0.00
Hauling	0.06	0.02	1.58	0.38	0.01	0.03	0.36	0.39	0.03	0.10	0.13	—	1,368	1,368	0.03	0.22	0.08	1,433	
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.02	0.21	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	45.3	45.3	< 0.005	< 0.005	0.08	45.9	
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	0.00
Hauling	0.01	< 0.005	0.28	0.06	< 0.005	< 0.005	0.06	0.07	< 0.005	0.02	0.02	—	236	236	< 0.005	0.04	0.22	247	
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.50	7.50	< 0.005	< 0.005	0.01	7.61	
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	0.00
Hauling	< 0.005	< 0.005	0.05	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	39.1	39.1	< 0.005	0.01	0.04	41.0	

3.4. Grading (2025) - 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	0.83	0.79	4.76	35.4	0.06	0.17	—	0.17	0.17	—	0.17	—	6,599	6,599	0.27	0.05	—	6,622

Dust From Material Movement:	—	—	—	—	—	—	3.59	3.59	—	1.43	1.43	—	—	—	—	—	—	—
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	0.83	0.79	4.76	35.4	0.06	0.17	—	0.17	0.17	—	0.17	—	6,599	6,599	0.27	0.05	—	6,622
Dust From Material Movement:	—	—	—	—	—	—	3.59	3.59	—	1.43	1.43	—	—	—	—	—	—	—
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	0.14	0.14	0.82	6.11	0.01	0.03	—	0.03	0.03	—	0.03	—	1,139	1,139	0.05	0.01	—	1,143
Dust From Material Movement:	—	—	—	—	—	—	0.62	0.62	—	0.25	0.25	—	—	—	—	—	—	—
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	0.03	0.02	0.15	1.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	189	189	0.01	< 0.005	—	189
Dust From Material Movement:	—	—	—	—	—	—	0.11	0.11	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.09	0.09	1.54	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	282	282	0.01	0.01	1.04	286
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	0.06	0.02	1.52	0.37	0.01	0.03	0.36	0.39	0.03	0.10	0.13	—	1,367	1,367	0.03	0.22	2.91	1,435
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.10	1.17	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	259	259	0.01	0.01	0.03	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	0.06	0.02	1.58	0.38	0.01	0.03	0.36	0.39	0.03	0.10	0.13	—	1,368	1,368	0.03	0.22	0.08	1,433
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.02	0.21	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	45.3	45.3	< 0.005	< 0.005	0.08	45.9
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	0.01	< 0.005	0.28	0.06	< 0.005	< 0.005	0.06	0.07	< 0.005	0.02	0.02	—	236	236	< 0.005	0.04	0.22	247
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.50	7.50	< 0.005	< 0.005	0.01	7.61
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	< 0.005	< 0.005	0.05	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	39.1	39.1	< 0.005	0.01	0.04	41.0

3.5. Building Construction (2025) - 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	0.54	0.48	3.16	15.0	0.02	0.11	—	0.11	0.11	—	0.11	—	2,398	2,398	0.10	0.02	—	2,406
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	0.54	0.48	3.16	15.0	0.02	0.11	—	0.11	0.11	—	0.11	—	2,398	2,398	0.10	0.02	—	2,406
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	0.26	0.23	1.53	7.24	0.01	0.05	—	0.05	0.05	—	0.05	—	1,159	1,159	0.05	0.01	—	1,163
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	0.05	0.04	0.28	1.32	< 0.005	0.01	—	0.01	0.01	—	0.01	—	192	192	0.01	< 0.005	—	193
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	0.18	0.15	0.15	2.62	0.00	0.00	0.44	0.44	0.00	0.10	0.10	—	479	479	0.02	0.02	1.76	486
Vendor	0.01	0.01	0.34	0.11	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	311	311	0.01	0.05	0.88	326
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	0.16	0.14	0.16	1.98	0.00	0.00	0.44	0.44	0.00	0.10	0.10	—	440	440	0.02	0.02	0.05	446

Vendor	0.01	0.01	0.36	0.11	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	311	311	0.01	0.05	0.02	326
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	0.08	0.07	0.09	1.01	0.00	0.00	0.21	0.21	0.00	0.05	0.05	—	216	216	0.01	0.01	0.37	219
Vendor	0.01	< 0.005	0.17	0.05	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	150	150	< 0.005	0.02	0.18	158
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	0.02	0.18	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	35.7	35.7	< 0.005	< 0.005	0.06	36.2
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	24.9	24.9	< 0.005	< 0.005	0.03	26.1
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

3.6. Building Construction (2025) - 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	0.54	0.48	3.16	15.0	0.02	0.11	—	0.11	0.11	—	0.11	—	2,398	2,398	0.10	0.02	—	2,406
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	0.54	0.48	3.16	15.0	0.02	0.11	—	0.11	0.11	—	0.11	—	2,398	2,398	0.10	0.02	—	2,406
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	0.26	0.23	1.53	7.24	0.01	0.05	—	0.05	0.05	—	0.05	—	1,159	1,159	0.05	0.01	—	1,163
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	0.05	0.04	0.28	1.32	< 0.005	0.01	—	0.01	0.01	—	0.01	—	192	192	0.01	< 0.005	—	193
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	0.18	0.15	0.15	2.62	0.00	0.00	0.44	0.44	0.00	0.10	0.10	—	479	479	0.02	0.02	1.76	486
Vendor	0.01	0.01	0.34	0.11	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	311	311	0.01	0.05	0.88	326
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	0.16	0.14	0.16	1.98	0.00	0.00	0.44	0.44	0.00	0.10	0.10	—	440	440	0.02	0.02	0.05	446
Vendor	0.01	0.01	0.36	0.11	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	311	311	0.01	0.05	0.02	326
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	0.08	0.07	0.09	1.01	0.00	0.00	0.21	0.21	0.00	0.05	0.05	—	216	216	0.01	0.01	0.37	219
Vendor	0.01	< 0.005	0.17	0.05	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	150	150	< 0.005	0.02	0.18	158
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	0.02	0.18	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	35.7	35.7	< 0.005	< 0.005	0.06	36.2

Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	24.9	24.9	< 0.005	< 0.005	0.03	26.1
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

3.7. Building Construction (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	0.52	0.47	3.12	15.0	0.02	0.11	—	0.11	0.10	—	0.10	—	2,397	2,397	0.10	0.02	—	2,405
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	0.52	0.47	3.12	15.0	0.02	0.11	—	0.11	0.10	—	0.10	—	2,397	2,397	0.10	0.02	—	2,405
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	0.37	0.33	2.23	10.7	0.02	0.08	—	0.08	0.07	—	0.07	—	1,712	1,712	0.07	0.01	—	1,718
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	0.41	1.95	< 0.005	0.01	—	0.01	0.01	—	0.01	—	283	283	0.01	< 0.005	—	284
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	0.16	0.14	0.13	2.44	0.00	0.00	0.44	0.44	0.00	0.10	0.10	—	469	469	0.02	0.02	1.59	475
Vendor	0.01	0.01	0.33	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	306	306	0.01	0.05	0.84	321
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	0.15	0.14	0.15	1.85	0.00	0.00	0.44	0.44	0.00	0.10	0.10	—	431	431	0.01	0.02	0.04	436
Vendor	0.01	0.01	0.34	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	306	306	0.01	0.05	0.02	321
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	0.11	0.10	0.12	1.38	0.00	0.00	0.32	0.32	0.00	0.07	0.07	—	312	312	< 0.005	0.01	0.49	316
Vendor	0.01	< 0.005	0.24	0.07	< 0.005	< 0.005	0.06	0.07	< 0.005	0.02	0.02	—	219	219	< 0.005	0.03	0.26	229
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	0.02	0.02	0.02	0.25	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	51.6	51.6	< 0.005	< 0.005	0.08	52.3
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	36.2	36.2	< 0.005	0.01	0.04	37.9
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. Building Construction (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	0.52	0.47	3.12	15.0	0.02	0.11	—	0.11	0.10	—	0.10	—	2,397	2,397	0.10	0.02	—	2,405
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	0.52	0.47	3.12	15.0	0.02	0.11	—	0.11	0.10	—	0.10	—	2,397	2,397	0.10	0.02	—	2,405
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	0.37	0.33	2.23	10.7	0.02	0.08	—	0.08	0.07	—	0.07	—	1,712	1,712	0.07	0.01	—	1,718
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	0.41	1.95	< 0.005	0.01	—	0.01	0.01	—	0.01	—	283	283	0.01	< 0.005	—	284
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	0.16	0.14	0.13	2.44	0.00	0.00	0.44	0.44	0.00	0.10	0.10	—	469	469	0.02	0.02	1.59	475
Vendor	0.01	0.01	0.33	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	306	306	0.01	0.05	0.84	321
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	0.15	0.14	0.15	1.85	0.00	0.00	0.44	0.44	0.00	0.10	0.10	—	431	431	0.01	0.02	0.04	436

Vendor	0.01	0.01	0.34	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	306	306	0.01	0.05	0.02	321
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	0.11	0.10	0.12	1.38	0.00	0.00	0.32	0.32	0.00	0.07	0.07	—	312	312	< 0.005	0.01	0.49	316
Vendor	0.01	< 0.005	0.24	0.07	< 0.005	< 0.005	0.06	0.07	< 0.005	0.02	0.02	—	219	219	< 0.005	0.03	0.26	229
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	0.02	0.02	0.02	0.25	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	51.6	51.6	< 0.005	< 0.005	0.08	52.3
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	36.2	36.2	< 0.005	0.01	0.04	37.9
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. Building Construction (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	0.51	0.45	3.08	15.0	0.02	0.10	—	0.10	0.09	—	0.09	—	2,397	2,397	0.10	0.02	—	2,405
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	0.51	0.45	3.08	15.0	0.02	0.10	—	0.10	0.09	—	0.09	—	2,397	2,397	0.10	0.02	—	2,405
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	0.27	0.24	1.63	7.90	0.01	0.05	—	0.05	0.05	—	0.05	—	1,267	1,267	0.05	0.01	—	1,271
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	0.05	0.04	0.30	1.44	< 0.005	0.01	—	0.01	0.01	—	0.01	—	210	210	0.01	< 0.005	—	210
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	0.15	0.14	0.12	2.26	0.00	0.00	0.44	0.44	0.00	0.10	0.10	—	460	460	0.01	0.02	1.43	466
Vendor	0.01	0.01	0.31	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	301	301	0.01	0.05	0.77	315
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	0.15	0.13	0.13	1.71	0.00	0.00	0.44	0.44	0.00	0.10	0.10	—	423	423	0.01	0.02	0.04	428
Vendor	0.01	0.01	0.33	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	301	301	0.01	0.05	0.02	314
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	0.08	0.07	0.08	0.95	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	226	226	< 0.005	0.01	0.33	229
Vendor	0.01	< 0.005	0.17	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	159	159	< 0.005	0.02	0.17	166
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	0.17	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	37.5	37.5	< 0.005	< 0.005	0.05	38.0

Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.3	26.3	< 0.005	< 0.005	0.03	27.5
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. Building Construction (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	0.51	0.45	3.08	15.0	0.02	0.10	—	0.10	0.09	—	0.09	—	2,397	2,397	0.10	0.02	—	2,405
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	0.51	0.45	3.08	15.0	0.02	0.10	—	0.10	0.09	—	0.09	—	2,397	2,397	0.10	0.02	—	2,405
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	0.27	0.24	1.63	7.90	0.01	0.05	—	0.05	0.05	—	0.05	—	1,267	1,267	0.05	0.01	—	1,271
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	0.05	0.04	0.30	1.44	< 0.005	0.01	—	0.01	0.01	—	0.01	—	210	210	0.01	< 0.005	—	210
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	0.15	0.14	0.12	2.26	0.00	0.00	0.44	0.44	0.00	0.10	0.10	—	460	460	0.01	0.02	1.43	466
Vendor	0.01	0.01	0.31	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	301	301	0.01	0.05	0.77	315
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	0.15	0.13	0.13	1.71	0.00	0.00	0.44	0.44	0.00	0.10	0.10	—	423	423	0.01	0.02	0.04	428
Vendor	0.01	0.01	0.33	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	301	301	0.01	0.05	0.02	314
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	0.08	0.07	0.08	0.95	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	226	226	< 0.005	0.01	0.33	229
Vendor	0.01	< 0.005	0.17	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	159	159	< 0.005	0.02	0.17	166
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	0.17	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	37.5	37.5	< 0.005	< 0.005	0.05	38.0
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.3	26.3	< 0.005	< 0.005	0.03	27.5
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. 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.42	0.37	2.33	10.6	0.01	0.09	—	0.09	0.09	—	0.09	—	1,511	1,511	0.06	0.01	—	1,516
Paving	—	0.24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.42	0.37	2.33	10.6	0.01	0.09	—	0.09	0.09	—	0.09	—	1,511	1,511	0.06	0.01	—	1,516
Paving	—	0.24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.05	0.04	0.27	1.22	< 0.005	0.01	—	0.01	0.01	—	0.01	—	174	174	0.01	< 0.005	—	174
Paving	—	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.05	0.22	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	28.8	28.8	< 0.005	< 0.005	—	28.9
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.05	1.00	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	203	203	< 0.005	0.01	0.63	206
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	0.06	0.06	0.06	0.75	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	187	187	< 0.005	0.01	0.02	189
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	0.09	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	21.8	21.8	< 0.005	< 0.005	0.03	22.0
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	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.60	3.60	< 0.005	< 0.005	0.01	3.65
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. 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.42	0.37	2.33	10.6	0.01	0.09	—	0.09	0.09	—	0.09	—	1,511	1,511	0.06	0.01	—	1,516
Paving	—	0.24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.42	0.37	2.33	10.6	0.01	0.09	—	0.09	0.09	—	0.09	—	1,511	1,511	0.06	0.01	—	1,516
Paving	—	0.24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.05	0.04	0.27	1.22	< 0.005	0.01	—	0.01	0.01	—	0.01	—	174	174	0.01	< 0.005	—	174
Paving	—	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.05	0.22	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	28.8	28.8	< 0.005	< 0.005	—	28.9
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.05	1.00	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	203	203	< 0.005	0.01	0.63	206
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	0.06	0.06	0.06	0.75	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	187	187	< 0.005	0.01	0.02	189

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	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	21.8	21.8	< 0.005	< 0.005	0.03	22.0	
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	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.60	3.60	< 0.005	< 0.005	0.01	3.65	
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	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	0.00

3.13. Architectural Coating (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	0.14	0.11	0.83	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	28.3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.01	0.01	0.06	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.67	9.67	< 0.005	< 0.005	—	9.70
Architectural Coatings	—	2.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.60	1.60	< 0.005	< 0.005	—	1.61
Architectural Coatings	—	0.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.03	0.03	0.03	0.34	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	84.6	84.6	< 0.005	< 0.005	0.01	85.6
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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.20	6.20	< 0.005	< 0.005	0.01	6.28
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	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.03	1.03	< 0.005	< 0.005	< 0.005	1.04

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	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	0.00

3.14. Architectural Coating (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	0.14	0.11	0.83	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architect ural Coatings	—	28.3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.01	0.01	0.06	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.67	9.67	< 0.005	< 0.005	—	9.70
Architect ural Coatings	—	2.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.60	1.60	< 0.005	< 0.005	—	1.61

Architect Coatings	—	0.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.03	0.03	0.03	0.34	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	84.6	84.6	< 0.005	< 0.005	0.01	85.6
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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.20	6.20	< 0.005	< 0.005	0.01	6.28
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	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.03	1.03	< 0.005	< 0.005	< 0.005	1.04
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

3.15. Architectural Coating (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	0.13	0.11	0.81	1.12	< 0.005	0.02	—	0.02	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	28.3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.01	< 0.005	0.03	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.49	5.49	< 0.005	< 0.005	—	5.51
Architectural Coatings	—	1.16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.91	0.91	< 0.005	< 0.005	—	0.91
Architectural Coatings	—	0.21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.03	0.02	0.03	0.32	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	83.0	83.0	< 0.005	< 0.005	0.01	84.0
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	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.46	3.46	< 0.005	< 0.005	< 0.005	3.50
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	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.57	0.57	< 0.005	< 0.005	< 0.005	0.58
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

3.16. Architectural Coating (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	0.13	0.11	0.81	1.12	< 0.005	0.02	—	0.02	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architect ural Coatings	—	28.3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	< 0.005	0.03	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.49	5.49	< 0.005	< 0.005	—	5.51	
Architectural Coatings	—	1.16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.91	0.91	< 0.005	< 0.005	—	0.91	
Architectural Coatings	—	0.21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.03	0.32	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	83.0	83.0	< 0.005	< 0.005	0.01	84.0	
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	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.46	3.46	< 0.005	< 0.005	< 0.005	3.50	
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	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.57	0.57	< 0.005	< 0.005	< 0.005	0.58	
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

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	3.21	2.98	2.09	26.2	0.06	0.04	6.08	6.11	0.03	1.54	1.57	—	6,449	6,449	0.24	0.22	18.8	6,541
Health Club	0.28	0.26	0.23	2.98	0.01	< 0.005	0.73	0.74	< 0.005	0.19	0.19	—	773	773	0.02	0.02	2.27	783
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	3.50	3.23	2.32	29.2	0.07	0.04	6.81	6.85	0.04	1.73	1.76	—	7,222	7,222	0.26	0.25	21.0	7,324
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	3.06	2.82	2.26	22.1	0.06	0.04	6.08	6.11	0.03	1.54	1.57	—	6,019	6,019	0.25	0.23	0.49	6,096

Health Club	0.27	0.24	0.25	2.45	0.01	< 0.005	0.73	0.74	< 0.005	0.19	0.19	—	721	721	0.02	0.03	0.06	729
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	3.33	3.06	2.50	24.6	0.07	0.04	6.81	6.85	0.04	1.73	1.76	—	6,740	6,740	0.27	0.26	0.55	6,825
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.54	0.50	0.41	4.09	0.01	0.01	1.08	1.08	0.01	0.27	0.28	—	984	984	0.04	0.04	1.31	998
Health Club	0.05	0.04	0.04	0.43	< 0.005	< 0.005	0.12	0.12	< 0.005	0.03	0.03	—	111	111	< 0.005	< 0.005	0.15	112
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.59	0.54	0.45	4.51	0.01	0.01	1.20	1.21	0.01	0.30	0.31	—	1,095	1,095	0.04	0.04	1.46	1,111

4.1.2. 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	3.21	2.98	2.09	26.2	0.06	0.04	6.08	6.11	0.03	1.54	1.57	—	6,449	6,449	0.24	0.22	18.8	6,541
Health Club	0.28	0.26	0.23	2.98	0.01	< 0.005	0.73	0.74	< 0.005	0.19	0.19	—	773	773	0.02	0.02	2.27	783
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	3.50	3.23	2.32	29.2	0.07	0.04	6.81	6.85	0.04	1.73	1.76	—	7,222	7,222	0.26	0.25	21.0	7,324
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	3.06	2.82	2.26	22.1	0.06	0.04	6.08	6.11	0.03	1.54	1.57	—	6,019	6,019	0.25	0.23	0.49	6,096
Health Club	0.27	0.24	0.25	2.45	0.01	< 0.005	0.73	0.74	< 0.005	0.19	0.19	—	721	721	0.02	0.03	0.06	729
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	3.33	3.06	2.50	24.6	0.07	0.04	6.81	6.85	0.04	1.73	1.76	—	6,740	6,740	0.27	0.26	0.55	6,825
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.54	0.50	0.41	4.09	0.01	0.01	1.08	1.08	0.01	0.27	0.28	—	984	984	0.04	0.04	1.31	998
Health Club	0.05	0.04	0.04	0.43	< 0.005	< 0.005	0.12	0.12	< 0.005	0.03	0.03	—	111	111	< 0.005	< 0.005	0.15	112
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.59	0.54	0.45	4.51	0.01	0.01	1.20	1.21	0.01	0.30	0.31	—	1,095	1,095	0.04	0.04	1.46	1,111

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	1,252	1,252	0.08	0.01	—	1,257
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	28.5	28.5	< 0.005	< 0.005	—	28.6

Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	214	214	0.01	< 0.005	—	214
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,494	1,494	0.09	0.01	—	1,500
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	1,252	1,252	0.08	0.01	—	1,257
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	28.5	28.5	< 0.005	< 0.005	—	28.6
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	214	214	0.01	< 0.005	—	214
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,494	1,494	0.09	0.01	—	1,500
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	207	207	0.01	< 0.005	—	208
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	4.72	4.72	< 0.005	< 0.005	—	4.74
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	35.4	35.4	< 0.005	< 0.005	—	35.5
Total	—	—	—	—	—	—	—	—	—	—	—	—	247	247	0.02	< 0.005	—	248

4.2.2. Electricity Emissions By Land Use - 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	1,252	1,252	0.08	0.01	—	1,257
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	28.5	28.5	< 0.005	< 0.005	—	28.6
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	214	214	0.01	< 0.005	—	214
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,494	1,494	0.09	0.01	—	1,500
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	1,252	1,252	0.08	0.01	—	1,257
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	28.5	28.5	< 0.005	< 0.005	—	28.6
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	214	214	0.01	< 0.005	—	214
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,494	1,494	0.09	0.01	—	1,500
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	207	207	0.01	< 0.005	—	208
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	4.72	4.72	< 0.005	< 0.005	—	4.74
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	35.4	35.4	< 0.005	< 0.005	—	35.5
Total	—	—	—	—	—	—	—	—	—	—	—	—	247	247	0.02	< 0.005	—	248

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
----------	-----	-----	-----	----	-----	-------	-------	-------	--------	--------	--------	------	-------	------	-----	-----	---	------

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.10	0.05	0.83	0.35	0.01	0.07	—	0.07	0.07	—	0.07	—	1,049	1,049	0.09	< 0.005	—	1,052
Health Club	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	28.1	28.1	< 0.005	< 0.005	—	28.2
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.10	0.05	0.85	0.37	0.01	0.07	—	0.07	0.07	—	0.07	—	1,077	1,077	0.10	< 0.005	—	1,080
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.10	0.05	0.83	0.35	0.01	0.07	—	0.07	0.07	—	0.07	—	1,049	1,049	0.09	< 0.005	—	1,052
Health Club	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	28.1	28.1	< 0.005	< 0.005	—	28.2
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.10	0.05	0.85	0.37	0.01	0.07	—	0.07	0.07	—	0.07	—	1,077	1,077	0.10	< 0.005	—	1,080
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.02	0.01	0.15	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	174	174	0.02	< 0.005	—	174
Health Club	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.66	4.66	< 0.005	< 0.005	—	4.67
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.02	0.01	0.16	0.07	< 0.005	0.01	—	0.01	0.01	—	0.01	—	178	178	0.02	< 0.005	—	179

4.2.4. Natural Gas Emissions By Land Use - 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.10	0.05	0.83	0.35	0.01	0.07	—	0.07	0.07	—	0.07	—	1,049	1,049	0.09	< 0.005	—	1,052
Health Club	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	28.1	28.1	< 0.005	< 0.005	—	28.2
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.10	0.05	0.85	0.37	0.01	0.07	—	0.07	0.07	—	0.07	—	1,077	1,077	0.10	< 0.005	—	1,080
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.10	0.05	0.83	0.35	0.01	0.07	—	0.07	0.07	—	0.07	—	1,049	1,049	0.09	< 0.005	—	1,052
Health Club	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	28.1	28.1	< 0.005	< 0.005	—	28.2
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.10	0.05	0.85	0.37	0.01	0.07	—	0.07	0.07	—	0.07	—	1,077	1,077	0.10	< 0.005	—	1,080
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.02	0.01	0.15	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	174	174	0.02	< 0.005	—	174
Health Club	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.66	4.66	< 0.005	< 0.005	—	4.67
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.02	0.01	0.16	0.07	< 0.005	0.01	—	0.01	0.01	—	0.01	—	178	178	0.02	< 0.005	—	179

4.3. Area Emissions by Source

4.3.1. Unmitigated

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

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.18	0.09	1.53	0.65	0.01	0.12	—	0.12	0.12	—	0.12	0.00	1,937	1,937	0.04	< 0.005	—	1,939
Consumer Products	—	3.90	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.33	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.50	0.47	0.05	5.32	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	14.3	14.3	< 0.005	< 0.005	—	14.4
Total	0.67	4.78	1.58	5.97	0.01	0.13	—	0.13	0.13	—	0.13	0.00	1,951	1,951	0.04	< 0.005	—	1,954
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.18	0.09	1.53	0.65	0.01	0.12	—	0.12	0.12	—	0.12	0.00	1,937	1,937	0.04	< 0.005	—	1,939
Consumer Products	—	3.90	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.33	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.18	4.31	1.53	0.65	0.01	0.12	—	0.12	0.12	—	0.12	0.00	1,937	1,937	0.04	< 0.005	—	1,939
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	22.0	22.0	< 0.005	< 0.005	—	22.0

Consum Products	—	0.71	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architect ural Coatings	—	0.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscap e Equipme nt	0.06	0.06	0.01	0.66	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.62	1.62	< 0.005	< 0.005	—	1.63
Total	0.06	0.83	0.03	0.67	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	23.6	23.6	< 0.005	< 0.005	—	23.6

4.3.2. Mitigated

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

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.18	0.09	1.53	0.65	0.01	0.12	—	0.12	0.12	—	0.12	0.00	1,937	1,937	0.04	< 0.005	—	1,939
Consum er Products	—	3.90	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architect ural Coatings	—	0.33	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscap e Equipme nt	0.50	0.47	0.05	5.32	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	14.3	14.3	< 0.005	< 0.005	—	14.4
Total	0.67	4.78	1.58	5.97	0.01	0.13	—	0.13	0.13	—	0.13	0.00	1,951	1,951	0.04	< 0.005	—	1,954
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.18	0.09	1.53	0.65	0.01	0.12	—	0.12	0.12	—	0.12	0.00	1,937	1,937	0.04	< 0.005	—	1,939

Consumer	—	3.90	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.33	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total Annual	0.18	4.31	1.53	0.65	0.01	0.12	—	0.12	0.12	—	0.12	0.00	1,937	1,937	0.04	< 0.005	—	1,939
Hearths	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	22.0	22.0	< 0.005	< 0.005	—	22.0
Consumer Products	—	0.71	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.06	0.06	0.01	0.66	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.62	1.62	< 0.005	< 0.005	—	1.63
Total	0.06	0.83	0.03	0.67	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	23.6	23.6	< 0.005	< 0.005	—	23.6

4.4. Water Emissions by Land Use

4.4.1. 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	7.17	46.4	53.6	0.74	0.02	—	77.3

Health Club	—	—	—	—	—	—	—	—	—	—	—	0.23	1.20	1.43	0.02	< 0.005	—	2.20
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	7.40	47.6	55.0	0.76	0.02	—	79.5
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	7.17	46.4	53.6	0.74	0.02	—	77.3
Health Club	—	—	—	—	—	—	—	—	—	—	—	0.23	1.20	1.43	0.02	< 0.005	—	2.20
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	7.40	47.6	55.0	0.76	0.02	—	79.5
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	1.19	7.68	8.87	0.12	< 0.005	—	12.8
Health Club	—	—	—	—	—	—	—	—	—	—	—	0.04	0.20	0.24	< 0.005	< 0.005	—	0.36
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	1.23	7.88	9.11	0.13	< 0.005	—	13.2

4.4.2. 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	7.17	46.4	53.6	0.74	0.02	—	77.3
Health Club	—	—	—	—	—	—	—	—	—	—	—	0.23	1.20	1.43	0.02	< 0.005	—	2.20
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	7.40	47.6	55.0	0.76	0.02	—	79.5
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	7.17	46.4	53.6	0.74	0.02	—	77.3
Health Club	—	—	—	—	—	—	—	—	—	—	—	0.23	1.20	1.43	0.02	< 0.005	—	2.20
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	7.40	47.6	55.0	0.76	0.02	—	79.5
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	1.19	7.68	8.87	0.12	< 0.005	—	12.8
Health Club	—	—	—	—	—	—	—	—	—	—	—	0.04	0.20	0.24	< 0.005	< 0.005	—	0.36
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	1.23	7.88	9.11	0.13	< 0.005	—	13.2

4.5. Waste Emissions by Land Use

4.5.1. 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	45.4	0.00	45.4	4.53	0.00	—	159
Health Club	—	—	—	—	—	—	—	—	—	—	—	6.28	0.00	6.28	0.63	0.00	—	22.0
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	51.7	0.00	51.7	5.16	0.00	—	181
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	45.4	0.00	45.4	4.53	0.00	—	159
Health Club	—	—	—	—	—	—	—	—	—	—	—	6.28	0.00	6.28	0.63	0.00	—	22.0
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	51.7	0.00	51.7	5.16	0.00	—	181
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	7.51	0.00	7.51	0.75	0.00	—	26.3
Health Club	—	—	—	—	—	—	—	—	—	—	—	1.04	0.00	1.04	0.10	0.00	—	3.64
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	8.55	0.00	8.55	0.85	0.00	—	29.9

4.5.2. 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	45.4	0.00	45.4	4.53	0.00	—	159
Health Club	—	—	—	—	—	—	—	—	—	—	—	6.28	0.00	6.28	0.63	0.00	—	22.0
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	51.7	0.00	51.7	5.16	0.00	—	181
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	45.4	0.00	45.4	4.53	0.00	—	159
Health Club	—	—	—	—	—	—	—	—	—	—	—	6.28	0.00	6.28	0.63	0.00	—	22.0
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	51.7	0.00	51.7	5.16	0.00	—	181
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	7.51	0.00	7.51	0.75	0.00	—	26.3
Health Club	—	—	—	—	—	—	—	—	—	—	—	1.04	0.00	1.04	0.10	0.00	—	3.64

Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	8.55	0.00	8.55	0.85	0.00	—	29.9

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.28	1.28
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.29	1.29
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.28	1.28
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.29	1.29
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.21	0.21

Health Club	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	< 0.005	< 0.005
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.21	0.21

4.6.2. 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.28	1.28
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.29	1.29
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.28	1.28
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.29	1.29
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.21	0.21
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	< 0.005	< 0.005
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.21	0.21

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

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

Equipment Type	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

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

Equipment Type	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

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

Equipment Type	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

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

Equipment Type	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

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

Equipment Type	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

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

Equipment Type	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. 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Remove	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	1/1/2025	1/29/2025	5.00	21.0	—
Grading	Grading	1/30/2025	4/28/2025	5.00	63.0	—
Building Construction	Building Construction	4/29/2025	9/27/2027	5.00	630	—
Paving	Paving	9/28/2027	11/24/2027	5.00	42.0	—
Architectural Coating	Architectural Coating	11/25/2027	1/21/2028	5.00	42.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Tier 4 Final	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	4.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Graders	Diesel	Tier 4 Final	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	8.00	367	0.40
Grading	Scrapers	Diesel	Tier 4 Final	2.00	8.00	423	0.48
Grading	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	2.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Tier 4 Final	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Tier 4 Final	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Tier 4 Final	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Tier 4 Final	2.00	8.00	89.0	0.36

Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Tier 4 Final	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	4.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Graders	Diesel	Tier 4 Final	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	8.00	367	0.40
Grading	Scrapers	Diesel	Tier 4 Final	2.00	8.00	423	0.48
Grading	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	2.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Tier 4 Final	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Tier 4 Final	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Tier 4 Final	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Tier 4 Final	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	19.8	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	34.0	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	10.2	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	6.80	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	19.8	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	34.0	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	10.2	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	6.80	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

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

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	363,285	121,095	3,068	1,023	10,036

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)
Site Preparation	0.00	0.00	31.5	0.00	—
Grading	10,000	0.00	189	0.00	—
Paving	0.00	0.00	0.00	0.00	4.85

5.6.2. Construction Earthmoving Control Strategies

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

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Single Family Housing	1.01	0%
Health Club	0.00	0%
Parking Lot	3.84	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	532	0.03	< 0.005
2026	0.00	532	0.03	< 0.005
2027	0.00	532	0.03	< 0.005
2028	0.00	532	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Single Family Housing	868	878	787	313,205	8,541	8,631	7,735	3,080,030
Health Club	67.3	42.7	54.7	22,633	1,043	661	846	350,447
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Single Family Housing	868	878	787	313,205	8,541	8,631	7,735	3,080,030
Health Club	67.3	42.7	54.7	22,633	1,043	661	846	350,447

Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Single Family Housing	—
Wood Fireplaces	0
Gas Fireplaces	92
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	0
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.1.2. Mitigated

Hearth Type	Unmitigated (number)
Single Family Housing	—
Wood Fireplaces	0
Gas Fireplaces	92
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	0

Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
363285	121,095	3,068	1,023	10,036

5.10.3. Landscape Equipment

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

5.10.4. Landscape Equipment - Mitigated

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

5.11. Operational Energy Consumption

5.11.1. Unmitigated

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

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBtu/yr)
Single Family Housing	859,210	532	0.0330	0.0040	3,271,917
Health Club	19,569	532	0.0330	0.0040	87,833

Parking Lot	146,529	532	0.0330	0.0040	0.00
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5.11.2. Mitigated

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

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Single Family Housing	859,210	532	0.0330	0.0040	3,271,917
Health Club	19,569	532	0.0330	0.0040	87,833
Parking Lot	146,529	532	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Single Family Housing	3,741,987	1,198,945
Health Club	120,948	0.00
Parking Lot	0.00	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Single Family Housing	3,741,987	1,198,945
Health Club	120,948	0.00
Parking Lot	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
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Single Family Housing	84.2	—
Health Club	11.7	—
Parking Lot	0.00	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Single Family Housing	84.2	—
Health Club	11.7	—
Parking Lot	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Health Club	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Health Club	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
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Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Health Club	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Health Club	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
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5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
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5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor
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5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)
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5.17. User Defined

Equipment Type	Fuel Type
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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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8. User Changes to Default Data

Screen	Justification
Land Use	Project consists of 92 single family residential homes, approximately 3.84 acres of onsite street improvements, and amenities including a recreational building, swimming pool/jacuzzi, and outdoor play/dog park areas. Any landscaped area associated with recreational uses is included in the landscaped area attributed to the Single Family Housing land use.
Construction: Construction Phases	The project site is currently vacant, and no demolition will be required. Construction phase lengths are adjusted based on CalEEMod default proportions to reflect a total of approximately 36 months.
Construction: Off-Road Equipment	The project will use construction equipment with Tier 4 "clean diesel" engines.
Operations: Fleet Mix	Fleet mix has been adjusted to reflect a total of 2% heavy trucks (GVWR > 10,000).
Operations: Hearths	Per SCAQMD Rule 445, no wood-burning devices shall be allowed.

Appendix C

EMFAC2021 Vehicle Fuel Consumption Data

Source: EMFAC2021 (v1.0.2) Emissions Inventory

Region Type: Air District

Region: South Coast AQMD

Calendar Year: 2028

Season: Annual

Vehicle Classification: EMFAC2007 Categories

Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	Total VMT	Fuel Consumption	Fuel Split (Gas:Diesel)	MPG, by Fuel Type	MPG, Average
South Coast AQMD	2028	HHDT	Aggregate	Aggregate	Gasoline	38.33236739	3479.295309	0.791310633	0.000356936	4.39687673	6.425952
South Coast AQMD	2028	HHDT	Aggregate	Aggregate	Diesel	111566.832	14242567.28	2216.163738	0.999643064	6.42667644	
South Coast AQMD	2028	LDA	Aggregate	Aggregate	Gasoline	5249823.993	207681291.8	6544.717006	0.998919497	31.7326619	31.74547
South Coast AQMD	2028	LDA	Aggregate	Aggregate	Diesel	10048.28212	308527.154	7.079238386	0.001080503	43.5819699	
South Coast AQMD	2028	LDT1	Aggregate	Aggregate	Gasoline	477660.5036	17238052.65	655.9675085	0.999946777	26.2788209	26.27877
South Coast AQMD	2028	LDT1	Aggregate	Aggregate	Diesel	46.14254464	882.8255568	0.034914402	5.3223E-05	25.2854267	
South Coast AQMD	2028	LDT2	Aggregate	Aggregate	Gasoline	2760690.179	112523081.7	4289.974166	0.997246342	26.2293145	26.25185
South Coast AQMD	2028	LDT2	Aggregate	Aggregate	Diesel	9758.541735	407660.5594	11.84574153	0.002753658	34.4141022	
South Coast AQMD	2028	LHDT1	Aggregate	Aggregate	Gasoline	203280.7628	8002492.229	541.6445615	0.696898563	14.7744347	16.63575
South Coast AQMD	2028	LHDT1	Aggregate	Aggregate	Diesel	119636.4385	4927169.653	235.57696	0.303101437	20.9153291	
South Coast AQMD	2028	LHDT2	Aggregate	Aggregate	Gasoline	30988.62363	1135286.163	88.50670445	0.41504521	12.8271205	15.69465
South Coast AQMD	2028	LHDT2	Aggregate	Aggregate	Diesel	54804.54657	2211533.675	124.7392318	0.58495479	17.7292552	
South Coast AQMD	2028	MCY	Aggregate	Aggregate	Gasoline	264895.5273	1668143.777	39.71479623	1	42.0030803	42.00308
South Coast AQMD	2028	MDV	Aggregate	Aggregate	Gasoline	1677351.385	64513241.85	3025.039416	0.989827476	21.3264136	21.36865
South Coast AQMD	2028	MDV	Aggregate	Aggregate	Diesel	20717.25616	792094.9055	31.08853562	0.010172524	25.4786818	
South Coast AQMD	2028	MH	Aggregate	Aggregate	Gasoline	26488.05422	261288.2956	53.79415941	0.813825057	4.85718707	5.830425
South Coast AQMD	2028	MH	Aggregate	Aggregate	Diesel	12768.09272	124105.1107	12.30623766	0.186174943	10.0847322	
South Coast AQMD	2028	MHDT	Aggregate	Aggregate	Gasoline	23185.17453	1211431.828	226.1416433	0.288294581	5.3569604	8.00812
South Coast AQMD	2028	MHDT	Aggregate	Aggregate	Diesel	124533.8062	5070231.455	558.2700604	0.711705419	9.08204078	
South Coast AQMD	2028	OBUS	Aggregate	Aggregate	Gasoline	4805.013198	179919.327	34.06581948	0.509096286	5.28152059	6.27145
South Coast AQMD	2028	OBUS	Aggregate	Aggregate	Diesel	3335.212682	239730.3173	32.84847633	0.490903714	7.29806506	
South Coast AQMD	2028	SBUS	Aggregate	Aggregate	Gasoline	3031.470038	135247.8017	14.93374941	0.653328538	9.0565201	8.493486
South Coast AQMD	2028	SBUS	Aggregate	Aggregate	Diesel	2946.201309	58895.86193	7.924198084	0.346671462	7.43240657	
South Coast AQMD	2028	UBUS	Aggregate	Aggregate	Gasoline	876.8125442	95066.02329	13.01735266	0.996453347	7.3030228	7.313124
South Coast AQMD	2028	UBUS	Aggregate	Aggregate	Diesel	4.747176175	470.3286996	0.046332356	0.003546653	10.1511933	