
**BRADSHAW COLLECTION (TTM 37858)
SINGLE FAMILY RESIDENTIAL PROJECT
AIR QUALITY, GREENHOUSE GAS, AND ENERGY
IMPACT STUDY
City of Moreno Valley, California**

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1.0 Introduction

The purpose of this air quality, greenhouse gas (GHG), and energy impact study is to determine whether the estimated energy usage and criteria air pollutants and greenhouse gas emissions generated from the construction and operation of the TTM 37858 Single Family Residential Project (hereinafter referred to as “project”) would cause significant impacts to air resources.

This assessment was conducted within the context of the California Environmental Quality Act (CEQA, California Public Resources Code Sections 21000, et seq.). The methodology follows the California Air Resources Board (CARB), the South Coast Air Quality Management District (SCAQMD), and City of Moreno Valley recommendations for quantification of emissions and evaluation of potential impacts.

The study also evaluates the potential impact on energy conservation pursuant to CEQA Guidelines, Appendix F, Energy Conservation Analysis, and the use of renewable energy sources.

1.1 Site Location

The proposed project is located at the northeast corner of Cactus Avenue and Bradshaw Circle, in the City of Moreno Valley. The proposed project site is 4.81 gross acres and is currently vacant. The project site is bounded by residential land uses to the north, vacant land to the east, vacant land and Bradshaw Circle to the west, and Cactus Avenue to the south.

A project location map is provided in Exhibit A.

1.2 Project Description

The proposed project consists of constructing thirty-seven (37) single-family detached homes with a density of 7.90 dwelling units per acre. Access to the project is proposed via two (2) unsignalized driveways located along Bradshaw Circle.

Construction activities are expected to consist of site preparation, grading, building construction, paving, and architectural coating. No demolition is expected to be required during construction. The project will require the export of approximately 8,000 cubic yards of earthwork material for grading purposes.

The site plan used for this analysis, provided by RC HOBBS COMPANY, INC., is illustrated in Exhibit B. Table 1 summarizes the land use assumptions used for this analysis.

**Table 1
Project Land Use Summary**

Project Land Use	CalEEMod Land Use Category	Quantity	Metric¹
Single-Family Housing	Single Family Housing	37	DU
On-Site Paved Surfaces	Parking Lot	58.8	TSF

¹ DU = Dwelling Unit
TSF = Thousand Square Feet

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). There are several sensitive land uses adjacent to the project site, including the following:

Northern Receptors Existing residential land uses located along the northern boundary of the project site, approximately 663 feet north of the centerline of Cactus Avenue.

Eastern Receptors Existing residential land uses located approximately 661 feet (~202 meters) east of the project site’s eastern boundary, approximately 54 feet north of the centerline of Cactus Avenue.

Southern Receptors Existing residential land uses located approximately 90 feet (~27 meters) south of the project site’s southern boundary, approximately 58 feet south of the centerline of Cactus Avenue.

Western Receptors Existing residential land uses located approximately 50 feet (~16 meters) west of the project site’s western boundary, approximately 44 feet north of the centerline of Cactus Avenue.

For the purposes of this analysis, sensitive receptors are conservatively assumed to be less than 25 meters from the project site. A project site location map, including sensitive receptor locations, is provided in Exhibit A.

1.4 Summary of Analysis Results

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	

Table 4 provides a summary of the CEQA energy impact criteria analysis results.

**Table 4
CEQA Energy Impact Criteria**

Energy Impact Criteria	Potentially Significant	Potentially Significant Unless Mitigated	Less Than Significant Impact	No Impact
<i>Would the project:</i>				
a) Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy?			X	
b) Conflict with or obstruct a State and/or local plan for renewable energy or energy efficiency?			X	

1.5 Project Design Features (DF)

The following design features include several standard rules and requirements, best practices and building code requirements for reducing air quality and GHG emissions. Design features are assumed to be integrated into the project design and required as part of the conditions of approval of the project. Design features are not considered to be mitigation under CEQA.

Construction Design Features:

DF-1 The project will follow the SCAQMD rules and requirements for 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-2 Construction equipment shall be maintained in proper tune.

DF-3 All construction vehicles shall be prohibited from excessive idling. Excessive idling is defined as five (5) minutes or longer.

DF-4 Establish staging areas for the construction equipment that are as distant as possible from adjacent residential homes.

Operational Design Features:

DF-5 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, on-site storm water capture, 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-6

Participate in the local waste management recycling and composting programs.

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 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 Pollutants

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 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 a number of 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 5 shows the Federal and State Ambient Air Quality Standards.

**Table 5
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	8 Hour	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 5 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, then 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 6 lists the attainment status for the criteria pollutants in the South Coast Air Basin (SCAB).

**Table 6
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)
PM10	Nonattainment	Attainment (Maintenance)
PM2.5	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). SCAQMD is responsible for controlling emissions primarily from stationary sources. 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 basin 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 levels¹.

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 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,

¹ Source: 2022 Air Quality Management Plan, South Coast Air Quality Management District, Adopted December 2, 2022.

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 weather station closest to the project site is a National Weather Service Cooperative weather station located at Riverside Fire Station 3, California (047470). Climatological data from the National Weather Service at this station is summarized in Table 7.

**Table 7
Meteorological Summary¹**

Month	Temperature (°F)			Mean Precipitation (inches)
	Max.	Min.	Mean	
January	66.8	39.1	53.0	2.01
February	68.3	41.1	54.7	2.20
March	71.3	43.2	57.3	1.84
Total	75.6	46.7	61.2	0.77
May	80.0	51.1	65.6	0.23
June	87.0	54.8	70.9	0.05
July	94.2	59.5	76.9	0.04
August	94.4	59.6	77.0	0.13
September	90.9	56.2	73.6	0.19
October	82.9	50.0	66.5	0.44
November	74.5	42.8	58.7	0.84
December	67.8	39.2	53.5	1.46
Annual	79.5	48.6	64.1	10.21

¹ Source: Western Regional Climate Center. Averages derived from measurements recorded between 1893 and 2016 at Riverside Fire Sta. 3, CA (047470).

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 is located within the Hemet/Elsinore Area general forecasting area and Perris Valley air monitoring area (SRA-24). Table 8 summarizes the published air quality monitoring data for SRA-24 for the most recent 3-year period available. For pollutant data that is not available in SRA-24, air quality data is derived from the nearest adjacent stations available, including Lake Elsinore (SRA-25) and Metropolitan Riverside (SRA-23).

The data provided in the table below is used to comprise a "background" for the proposed project location and existing local air quality.

**Table 8
Local Air Quality**

Air Pollutant Location	Averaging Time	Item	2022	2023	2024
Carbon Monoxide -- Lake Elsinore	1 Hour	Max 1-Hour (ppm)	0.9	1.3	1.8
		Exceeded State Standard (20 ppm)	No	No	No
		Exceeded National Standard (35 ppm)	No	No	No
	8 Hour	Max 8 Hour (ppm)	0.6	0.7	1.0
		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)	0.121	0.120	0.117
		Days > State Standard (0.09 ppm)	17.0	10.0	21.0
	8 Hour	Max 8 Hour (ppm)	0.091	0.103	0.099
		Days > State Standard (0.070 ppm)	37	35	51
		Days > National Standard (0.070 ppm)	37	31	49
Nitrogen Dioxide -- Lake Elsinore	1 Hour	Max 1-Hour (ppm)	0.037	0.042	0.045
		Exceeded State Standard (0.18 ppm)	No	No	No
	Annual	Annual Average (ppm)	0.007	0.007	0.007
		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)	0.0067	0.0031	0.0020
		Exceeded State Standard (0.25 ppm)	No	No	No
		Exceeded National Standard (0.075 ppm)	No	No	No
	24 Hour	Max 24-Hour ($\mu\text{g}/\text{m}^3$)	91	186	81
		Days > State Standard ($50 \mu\text{g}/\text{m}^3$)	1	5	16
		Days > National Standard ($150 \mu\text{g}/\text{m}^3$)	0	1	0 (0%)
Annual	Annual Average ($\mu\text{g}/\text{m}^3$)	19.80	20.80	25.50	
	Exceeded State Standard ($20 \mu\text{g}/\text{m}^3$)	No	Yes	Yes	
Fine Particulates (PM2.5) -- Metropolitan Riverside County 1	24 Hour	Max 24-Hour ($\mu\text{g}/\text{m}^3$)	38.50	48.70	63.50
		Days > National Standard ($35 \mu\text{g}/\text{m}^3$)	1	1	5
	Annual	Annual Average ($\mu\text{g}/\text{m}^3$)	10.80	10.47	12.09
		Exceeded State Standard ($12 \mu\text{g}/\text{m}^3$)	No	No	Yes
		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

ppm = part per million

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 9 lists the 100-year GWP of GHGs from the Intergovernmental Panel on Climate Change (IPCC) fifth assessment report (AR5) and IPCC sixth (6th) assessment report (AR6).

Table 9
Global Warming Potential of Greenhouse Gases^{1,2}

Gas Name	Formula	Lifetime (years)	GWP
Carbon Dioxide	CO ₂		1
Methane	CH ₄ (Fossil Origin)	12	29.8
	CH ₄ (Non-Fossil Origin)		27.2
Nitrous Oxide	N ₂ O	114	273
Sulphur Hexafluoride	SF ₆	3200	23,500
Nitrogen Trifluoride	NF ₃	740	16,100
Chlorofluorocarbon (CFC-11)	CFC-11	52	8,321
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	5,301
Hydrofluorocarbon 125	HFC-125	29	3,170
Hydrofluorocarbon 134a	HFC-134a	14	1,526
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	771
Hydrofluorocarbon 365mfc	HFC-365mfc	9	804
Hydrofluorocarbon 43-10mee	HFC-43-10mee	16	1,650

¹Source: IPCC Sixth Assessment Report (AR6),
https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Full_Report.pdf &
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 and regulation 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.²
- **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.³
- **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 2045.⁴
- **California Building Standards Code – Title 24.** The California Building Standards Code Title 24 Part 6 (Energy Code) and Title 24 Part 11 (CALGreen) requires multiple building provisions to reduce energy usage and GHG emissions and is updated on a triennial basis.

3.3 GHG Emissions Inventory

Table 10 shows the latest GHG emission inventories at the national, state, regional and local levels.

² 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>

³ California Air Resources Board. Sustainable Communities and Climate Protection Program.

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

⁴ California Energy Commission. SB 100 Joint Agency Report. <https://www.energy.ca.gov/sb100>

Table 10
GHG Emissions Inventory¹

United States (2019)²	State of California (2019)³	SCAG (2020)⁴	City of Moreno Valley (2018)⁵
6,558 MMTCO ₂ e	418 MMTCO ₂ e	216.4 MMTCO ₂ e	0.866 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 SCAG - Regional GHG Inventory and Reference Case Projections, 1990-2035, dated May 30, 2012.

⁵ Source: City of Moreno Valley Climate Action Plan, dated 2021. https://www.moval.org/city_hall/general-plan2040/MV-CAP.pdf.

4.0 Modeling Parameters and Assumptions

The California Emissions Estimator Model Version 2022.1.1 (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 or 2026 and to consist of site preparation, grading, building construction, paving, and architectural coating. For the purposes of this analysis, construction phases are not expected to overlap.

No demolition is expected to be required during construction. The project will require the export of approximately 8,000 cubic yards of earthwork material for grading purposes.

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 11.

The project will 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 SCAQMD⁵:

- Water exposed area – 61% PM₁₀ and PM_{2.5} reduction.
- Water demolished area – 36% PM₁₀ and PM_{2.5} reduction.
- Water unpaved roads twice daily – 55% PM₁₀ and PM_{2.5} reduction.
- Limit vehicle speeds on unpaved roads to 25 mph – 44% PM₁₀ and PM_{2.5} reduction.
- Sweep paved roads once per month – 9% PM₁₀ and PM_{2.5} reduction.

⁵ SCAQMD. Fugitive Dust Mitigation Measures. <http://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook/mitigation-measures-and-control-efficiencies/fugitive-dust>

Table 11
Construction Equipment Assumptions¹

Phase	Equipment	Number	Hours Per Day	Soil Disturbance Rate (Acres/8hr-Day)	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	Graders	1	8	0.50	0.50	3.00
	Excavators	1	8	0.50	0.50	
	Tractors/Loaders/Backhoes	3	8	0.50	1.50	
	Rubber Tired Dozers	1	8	0.50	0.50	
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	
	Welders	1	8	0.00	0.00	
	Tractors/Loaders/Backhoes	3	7	0.50	1.31	
Paving	Tractors/Loaders/Backhoes	1	8	0.50	0.50	0.50
	Cement and Mortar Mixers	2	6	0.00	0.00	
	Pavers	1	8	0.00	0.00	
	Paving Equipment	2	6	0.00	0.00	
	Rollers	2	6	0.00	0.00	
Architectural Coating	Air Compressors	1	6	0.00	0.00	0.00

¹ CalEEMod Defaults

It should be noted that this air quality analysis was originally prepared in April 2024 and assumed that construction would start in the year 2024. Since then, the anticipated construction schedule has shifted, and project construction is now expected to begin in September 2026 with the project opening in 2027.

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.

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 used for this analysis are based on the *Cactus Avenue and Bradshaw Circle Residential Project Trip Generation and VMT Screening Analysis, City of Moreno Vally*, prepared by RK. For trip lengths, the CalEEMod defaults are used.

The Emission Factors 2021 (EMFAC2021) model and off-model adjustments factors to account for the SAFE Vehicle Rule are used to estimate the mobile source emissions embedded in the CalEEMod emissions model. No adjustments have been made to default emission factors.

The project’s total vehicle miles traveled is shown in Table 12.

Table 12
Operational Vehicle Miles Traveled¹

Land Use	Annual Home-Based Vehicle Miles Traveled (VMT)
Single Family Residential	1,136,007

¹ CalEEMod defaults.

To be conservative, this analysis has assumed that 2% of the total trips associated with the project will be heavy trucks with a gross vehicle weight rating (GVWR) of 10,000 pounds or greater. This includes LHD2, MHD, HHD, OBUS, UBUS, and SBUS vehicles. The adjusted vehicle mix is proportioned according to the default CalEEMod vehicle mix.

Table 13 summarizes adjusted vehicle mix used for the project.

Table 13
Operational Vehicle Mix¹

YUY	Vehicle Mix (%)
Light Duty Automobile (LDA)	51.11%
Light Duty Truck (LDT1)	4.02%
Light Duty Truck (LDT2)	20.72%
Medium Duty Truck (MDV)	16.44%
Light Heavy Truck (LHD1)	3.30%
Light Heavy Truck (LHD2)	0.38%
Medium Heavy Truck (MHD)	0.60%
Heavy Heavy Truck (HHD)	0.66%
Other Bus (OBUS)	0.03%
Urban Bus (UBUS)	0.02%
Motorcycle (MCY)	2.41%
School Bus (SBUS)	0.06%
Motor Home (MH)	0.27%
Total	100%

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 ROG's 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.

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 project’s estimated water usage and waste generation is reported in Table 14, and an analysis of the associated energy usage is provided in Section 8.0 of this report.

**Table 14
Operational Water Usage and Waste Generation¹**

Land Use	Water Usage (gallons/year)			Waste Generation (tons/year) ¹
	Indoor	Outdoor	Total	
Single Family Housing	1,504,929.68	443,531.80	1,948,461.48	34.02
Parking Lot	--	--	--	--
Total	1,504,929.68	443,531.80	1,948,461.48	34.02

¹ CalEEMod default estimates.

5.0 Significance Thresholds

5.1 Air Quality Regional 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 15 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 15
SCAQMD Regional Significance Thresholds

Pollutant	Construction (lbs/day)	Operation (lbs/day)
NO _x	100	55
VOC	75	55
PM ₁₀	150	150
PM _{2.5}	55	55
SO _x	150	150
CO	550	550

¹Source: <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 16 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 northern boundary of 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 3.5 acres, hence the LSTs for 5-acre sites are used.

Table 16
SCAQMD Localized Significance Thresholds¹ (LST)

Pollutant	Construction (lbs/day)	Operational (lbs/day)
NO _x	216.8	216.8
CO	1,221.4	1,221.4
PM ₁₀	9.8	2.9
PM _{2.5}	6.1	1.6

¹ Source: SCAQMD Mass Rate Localized Significance Thresholds for 3.5 acres/day in SRA-24 at 25 meters.

5.3 GHG Significance Thresholds

5.3.1 SCAQMD GHG Interim Significance Thresholds

The SCAQMD has published the *Interim CEQA Greenhouse Gas (GHG) Significance Thresholds, December 2008*, to assist local agencies with determining the impact of a project’s GHG emissions. SCAQMD’s objective in providing the GHG guidelines is to establish a performance standard that will ultimately contribute to reducing GHG emissions below 1990 levels, and thus achieve the requirements of the California Global Warming Solutions Act (AB 32).

In the absence of a formal threshold established by the State, SCAQMD’s interim GHG threshold has been established for use by lead agencies in determining significance of GHG emissions in CEQA. SCAQMD guidance describes a five-tiered approach for determining significance. Tier 3 is the primary method used for development projects of this size and is the approach used in this analysis. The Tier 3 approach limits the amount of GHG emissions from residential and commercial development projects to 3,000 metric tons of CO₂ equivalents per year (MTCO₂e/yr).

The City of Moreno Valley utilizes the SCAQMD GHG Interim Significance Threshold for CEQA purposes. Therefore, if the project exceeds 3,000 MTCO₂e/yr, then the impact is considered significant, and mitigation measures would be required to reduce emissions below the threshold.

6.0 Air Quality Impact Analysis

6.1 Short-Term Air Quality Impacts – Construction

6.1.1 Regional Emissions – Construction

Regional air quality emissions include both on-site and off-site emissions associated with construction of the project. As shown in Table 17, regional daily emissions of criteria pollutants are expected to be below the allowable thresholds of significance.

CalEEMod emissions outputs are provided in Appendix A.

Table 17
Regional Construction Emissions

Maximum Daily Emissions (lbs/day) ¹						
Activity	VOC	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Site Preparation	3.73	36.05	34.03	0.05	9.49	5.47
Grading	2.10	28.64	22.20	0.09	6.25	2.96
Building Construction	1.27	11.44	14.11	0.02	0.71	0.51
Paving	1.00	6.61	10.39	0.01	0.55	0.32
Architectural Coating	26.14	0.90	1.30	0.00	0.06	0.03
Maximum¹	26.14	36.05	34.03	0.09	9.49	5.47
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 17 shows that the project's daily construction emissions will 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.

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 will be less than significant.

6.1.2 Localized Emissions – Construction

Table 18 illustrates the construction-related localized emissions and compares the results to SCAQMD LST thresholds. 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.

**Table 18
Localized Construction Emissions**

Maximum Daily Emissions (lbs/day) ¹				
Activity	NOx	CO	PM ₁₀	PM _{2.5}
On-site Emissions	35.95	32.93	9.27	5.41
SCAQMD Construction Threshold ²	216.8	1,221.4	9.8	6.1
Exceeds Threshold (?)	No	No	No	No

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

² Source: SCAQMD Mass Rate Localized Significance Thresholds for 3.5 acres/day in SRA-24 at 25 meters.

As shown in Table 18, the emissions will be below the SCAQMD thresholds of significance for localized construction emissions. **Therefore, the project’s localized construction emissions impact is considered less than significant.**

6.1.3 Fugitive Dust – Construction

The Project is required to comply with standard SCAQMD 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 fugitive dust control measures and to reduce potential exposure of sensitive receptors to substantial pollution concentrations, the following design feature will be implemented during construction:

DF-1 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 will 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) and regulated through the National Emissions Standards for Hazardous Air Pollutants (NESHAP). 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.

SCAQMD is the local enforcement authority for asbestos. SCAQMD Rule 1403 establishes the survey requirements, notification, and work practices to prevent asbestos emissions from emanating during building renovation and demolition activities. Since the project does not require the demolition of any existing structures, the impact from asbestos contained in building products is considered less than significant.

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. However, in the event NOA is found on the site, the project will be required to comply with SCAQMD and NESHAP standards.

By following the required asbestos abatement protocols, **the project impact will 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.⁶

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 factors have not been developed. Due to the significantly reduced risk from short-term exposure, 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.

The following design features will reduce diesel exhaust emissions and are recommended to be included as part of the conditions of approval. With the recommended project design features, the potential DPM exposure to adjacent sensitive receptors is considered less than significant.

- DF-2** Require all construction equipment to 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-3** Construction equipment shall be maintained in proper tune.

- DF-4** All construction vehicles shall be prohibited from excessive idling. Excessive idling is defined as five (5) minutes or longer).

- DF-5** Minimize the simultaneous operation of multiple construction equipment units, to the maximum extent feasible.

- DF-6** The use of heavy construction equipment and earthmoving activity shall be suspended during Air Alerts when the Air Quality Index reaches the "Unhealthy" level.

- DF-7** Establish an electricity supply to the construction site and use electric-powered equipment instead of diesel-powered equipment or generators, where feasible.

⁶ OEHHA. Air Toxics Hot Spots Program. Risk Assessment Guidelines. Guidance for Preparation of Health Risk Assessments. February 2015.

DF-8 Establish staging areas for the construction equipment that are as distant as possible from adjacent residential homes.

6.2 Long-Term Air Quality Impacts – Operation

6.2.1 Regional Emissions – Operation

Long-term operational air pollutant impacts from the project are shown in Table 19. CalEEMod emissions outputs are provided in Appendix A.

The project’s daily operational emissions will be below the applicable SCAQMD regional air quality standards and 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 regional air quality impacts will be less than significant.

**Table 19
Regional Operational Emissions**

Maximum Daily Emissions (lbs/day) ^{1,2}						
Activity	VOC	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Mobile Sources	1.24	0.90	10.15	0.02	2.21	0.57
Area Sources	1.86	0.02	2.10	0.00	0.00	0.00
Energy Sources	0.02	0.33	0.14	0.00	0.03	0.03
Total	3.12	1.25	12.39	0.02	2.24	0.60
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.

6.2.2 Localized Emissions – Operations

Table 20 shows the localized operational emissions and compares the results to SCAQMD LST thresholds of significance. As shown in Table 20, the emissions will be below the SCAQMD

thresholds of significance for localized operational emissions. Therefore, **the project will result in less than significant localized operational emissions impacts.**

**Table 20
Localized Operational Emissions**

Maximum Daily Emissions (lbs/day) ¹				
LST Pollutants	NOx (lbs/day)	CO (lbs/day)	PM ₁₀ (lbs/day)	PM _{2.5} (lbs/day)
On-site Emissions ²	0.40	2.75	0.14	0.06
SCAQMD Operation Threshold ³	216.8	1,221.4	2.9	1.6
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 Source: SCAQMD Mass Rate Localized Significance Thresholds for 5 acres/day in SRA-24 at 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 will 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 proposed project consists of residential land use and does not include major sources of toxic air contaminants (TAC) emissions that would result in significant exposure of sensitive receptors to substantial pollutant concentrations. Examples of land uses that are major sources of TACs include

distribution centers with heavy truck traffic, rail yards, ports, refineries, chrome plating facilities, dry cleaners, and gasoline dispensing stations. The project does not include any of these uses, hence **the project impact is considered 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 21 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 GHG output calculations are provided in Appendix A.

Table 21
Construction Greenhouse Gas Emissions

Activity	Emissions (MTCO ₂ e) ¹		
	On-site	Off-site	Total
Site Preparation	12.05	0.54	12.59
Grading	10.77	34.08	44.86
Building Construction	251.00	31.85	282.85
Paving	11.06	2.17	13.24
Architectural Coating	1.09	0.29	1.38
Total	285.97	68.93	354.92
Amortized over 30 years²	9.53	2.30	11.83

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

² GHG 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 period of time, they contribute a relatively small portion of the overall lifetime project GHG emissions. However, 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 – Operations

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 22. CalEEMod GHG output calculations are provided in Appendix A.

Table 22
Operational Greenhouse Gas Emissions

Emission Source	GHG Emissions (MTCO ₂ e) ¹
Mobile Source	377.25
Area Source	0.64
Energy Source	114.91
Water	4.65
Waste	10.62
Refrigerant	0.09
Construction (30-year amortization)	11.83
Total Annual Emissions	519.99
SCAQMD Tier 3 Significance Threshold	3,000 MTCO ₂ e/year
Exceeds Threshold?	No

¹ MTCO₂e = metric tons of carbon dioxide equivalents.

As shown in Table 22, the proposed project’s GHG emissions are not expected to exceed the SCAQMD GHG emissions threshold of 3,000 MTCO₂e. Therefore, **the proposed project’s impact from GHG emissions will be 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 23.

Table 23
Utility Providers

Utility	Provider
Electricity	Moreno Valley Utility
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 A.

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

**Table 24
Project Electricity Consumption¹**

Land Use/Activity	Electricity Consumption	
	(kWh/yr) ²	(MBTU/yr) ³
Single Family Housing	165,912.64	566.09
Parking Lot	51,508.80	175.75
Water Supply and Treatment	13,263.18	45.25
Total	230,684.62	787.09

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

Table 25
Project Natural Gas Consumption¹

Land Use/Activity	Natural Gas Consumption (MBTU/yr)²
Single Family Housing	1,315.88
Parking Lot	-
Total	1,315.88

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 26 and 27 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.

**Table 26
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	5	Rubber Tired Dozers	3	8	367	0.40	17,616.0	18.5	952.2	1,221.02	167.74
		Tractors/Loaders/Backhoes	4	8	84	0.37	4,972.8		268.8		
Grading	8	Graders	1	8	148	0.41	3,883.5		209.9	1,087.65	149.42
		Excavators	1	8	36	0.38	875.5		47.3		
		Tractors/Loaders/Backhoes	3	8	84	0.37	5,967.4		322.6		
		Rubber Tired Dozers	1	8	367	0.40	9,395.2		507.8		
Building Construction	230	Cranes	1	7	367	0.29	171,352.3		9,262.3	25,359.30	3,483.89
		Forklifts	3	8	82	0.20	90,528.0		4,893.4		
		Generator Sets	1	8	14	0.74	19,062.4		1,030.4		
		Welders	1	8	46	0.45	38,088.0		2,058.8		
		Tractors/Loaders/Backhoes	3	7	84	0.37	150,116.4		8,114.4		
Paving	18	Tractors/Loaders/Backhoes	1	8	84	0.37	4,475.5		241.9	1,105.92	151.93
		Cement and Mortar Mixers	2	6	10	0.56	1,209.6	65.4			
		Pavers	1	8	81	0.42	4,898.9	264.8			
		Paving Equipment	2	6	89	0.36	6,920.6	374.1			
		Rollers	2	6	36	0.38	2,954.9	159.7			
Architectural Coating	18	Air Compressors	1	6	37	0.48	1,918.1	103.7	103.68	14.24	
Total Energy Requirements									28,877.57	3,967.22	

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 27
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	26.25	0.9987	0.00		0.0013	0.00		0.00
					LDT1	0.25	22.26	0.9998	0.00	0.00	0.0002	0.00	0.00	
					LDT2	0.25	22.37	0.9987	0.00		0.0013	0.00		
Site Preparation	5	18	18.5	1,665	LDA	0.50	26.25	0.9987	31.67		0.0013	0.04		
					LDT1	0.25	22.26	0.9998	18.69	68.95	0.0002	0.00	0.07	8.31
					LDT2	0.25	22.37	0.9987	18.58		0.0013	0.02		
Grading	8	15	18.5	2,220	LDA	0.50	26.25	0.9987	42.23		0.0013	0.05		
					LDT1	0.25	22.26	0.9998	24.93	91.93	0.0002	0.00	0.09	11.08
					LDT2	0.25	22.37	0.9987	24.77		0.0013	0.03		
Building Construction	230	14	18.5	59,570	LDA	0.50	26.25	0.9987	1,133.23		0.0013	1.46		
					LDT1	0.25	22.26	0.9998	668.83	2,466.85	0.0002	0.11	2.42	297.41
					LDT2	0.25	22.37	0.9987	664.79		0.0013	0.86		
Paving	18	20	18.5	6,660	LDA	0.50	26.25	0.9987	126.70		0.0013	0.16		
					LDT1	0.25	22.26	0.9998	74.78	275.80	0.0002	0.01	0.27	33.25
					LDT2	0.25	22.37	0.9987	74.32		0.0013	0.10		
Architectural Coating	18	3	18.5	999	LDA	0.50	26.25	0.9987	19.00		0.0013	0.02		
					LDT1	0.25	22.26	0.9998	11.22	41.37	0.0002	0.00	0.04	4.99
					LDT2	0.25	22.37	0.9987	11.15		0.0013	0.01		
Sub-Total Worker Trips Energy Consumption								Gasoline (gal.)		2,944.90	Diesel (gal.)		2.89	355.04
Vendor Trips														
Building Construction	230	4	10.2	9,384	MHDT	0.50	7.62	0.3562	219.81		0.6438	396.48		
					HHDT	0.50	6.39	0.0006	0.41	219.81	0.9994	733.91	1,130.39	181.77
Sub-Total Vendor Trips Energy Consumption								Gasoline (gal.)		219.81	Diesel (gal.)		1,130.39	181.77
Hauling Trips														
Grading	8	125	20.0	20000	HHDT	1.00	6.39	0.0006	1.76	1.76	0.9994	3,128.35	3,128.35	429.99
Sub-Total Hauling Trips Energy Consumption								Gasoline (gal.)		1.76	Diesel (gal.)		3,128.35	429.99
Total On-Road Construction Trips Energy Consumption								Gasoline (gal.)		3,166.47	Diesel (gal.)		4,261.63	966.80

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

**Table 28
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	51.11%	26.25	1,136,007	0.9987	22,089.75	0.0013	28.36	2,664.14
LDT1	4.02%	22.26		0.9998	2,052.02	0.0002	0.33	247.17
LDT2	20.72%	22.37		0.9987	10,507.08	0.0013	13.57	1,267.22
MDV	16.44%	18.35		0.9749	9,923.99	0.0251	255.69	1,230.26
LHD1	3.30%	15.69		0.7513	1,794.71	0.2487	594.11	297.75
LHD2	0.38%	16.25		0.3741	99.10	0.6259	165.78	34.71
MHD	0.60%	7.62		0.3562	319.22	0.6438	576.88	117.70
HHD	0.66%	6.39		0.0006	0.66	0.9994	1,168.22	160.57
OBUS	0.03%	6.14		0.5406	26.89	0.4294	20.24	6.02
UBUS	0.02%	5.11		0.9847	35.58	0.0153	0.55	4.36
MCY	2.41%	39.10		1.0000	700.99	0.0000	0.00	84.42
SBUS	0.06%	8.50		0.6224	46.45	0.3776	28.19	9.47
MH	0.27%	5.72		0.8345	439.50	0.1655	87.19	64.91
Total Operational Trips Energy Usage				Gasoline Consumption (gal.)	48,035.94	Diesel Consumption (gal.)	2,939.11	6,188.70

8.4 Summary of Project Energy Consumption

Table 29 provides a summary of the project’s annual operational energy consumption.

Table 29
Annual Energy Consumption

Activity	Energy Consumption (MBTU/yr) ¹
Electricity	787.09
Natural Gas	1,315.88
Petroleum	6,134.89
Total	8,237.86

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 project⁷. 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, 2045⁸.

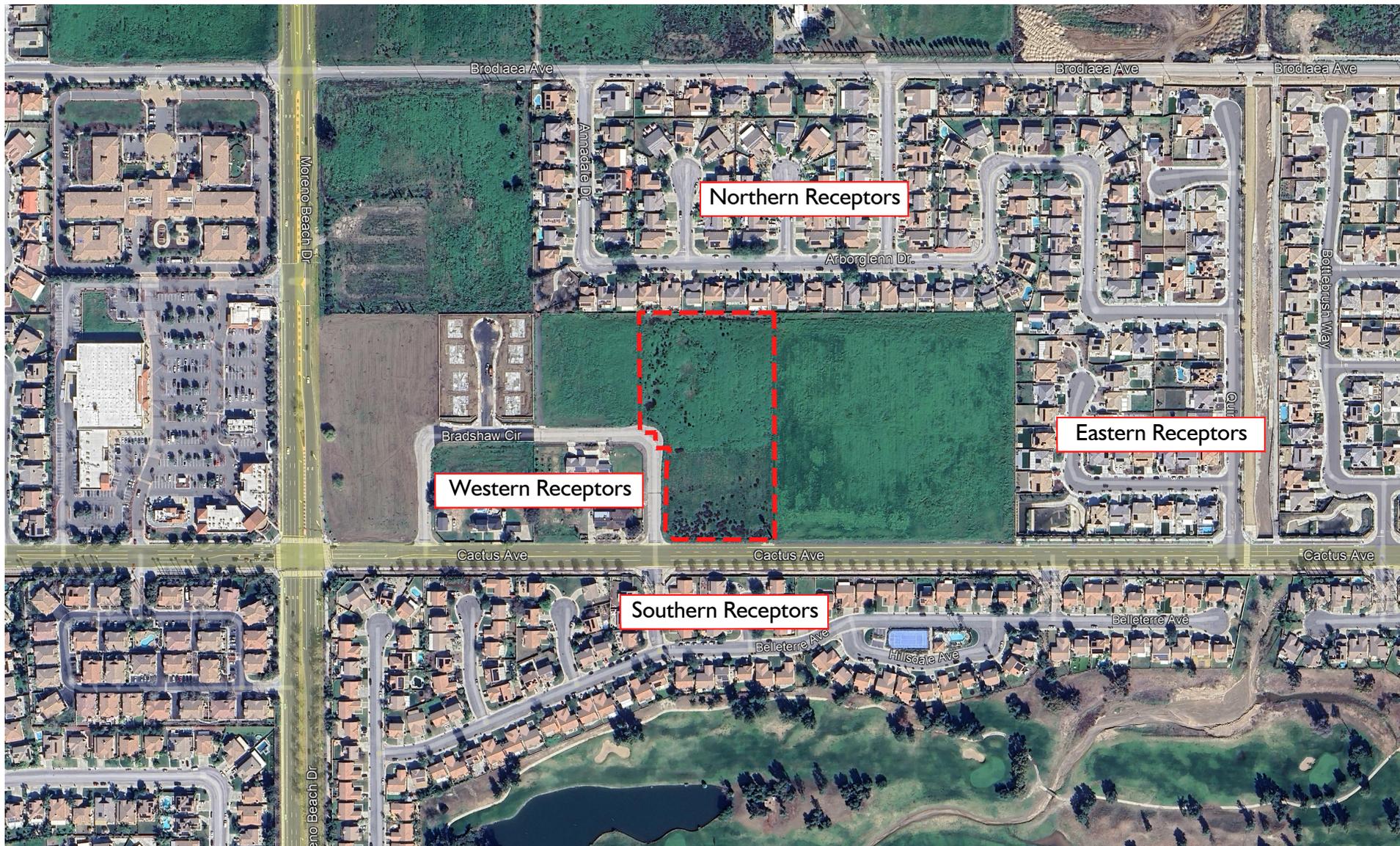
The project will also comply with the mandatory requirements of California's Green Building and Building Energy Efficiency standards that promote renewable energy and energy efficiency. Hence, **the project impact is considered less than significant under Criterion B.**

⁷ *League to Save Lake Tahoe Mountain Area Preservation Foundation, et al. v. County of Placer, et al.*

⁸ SB-100 California Renewables Portfolio Standard Program.

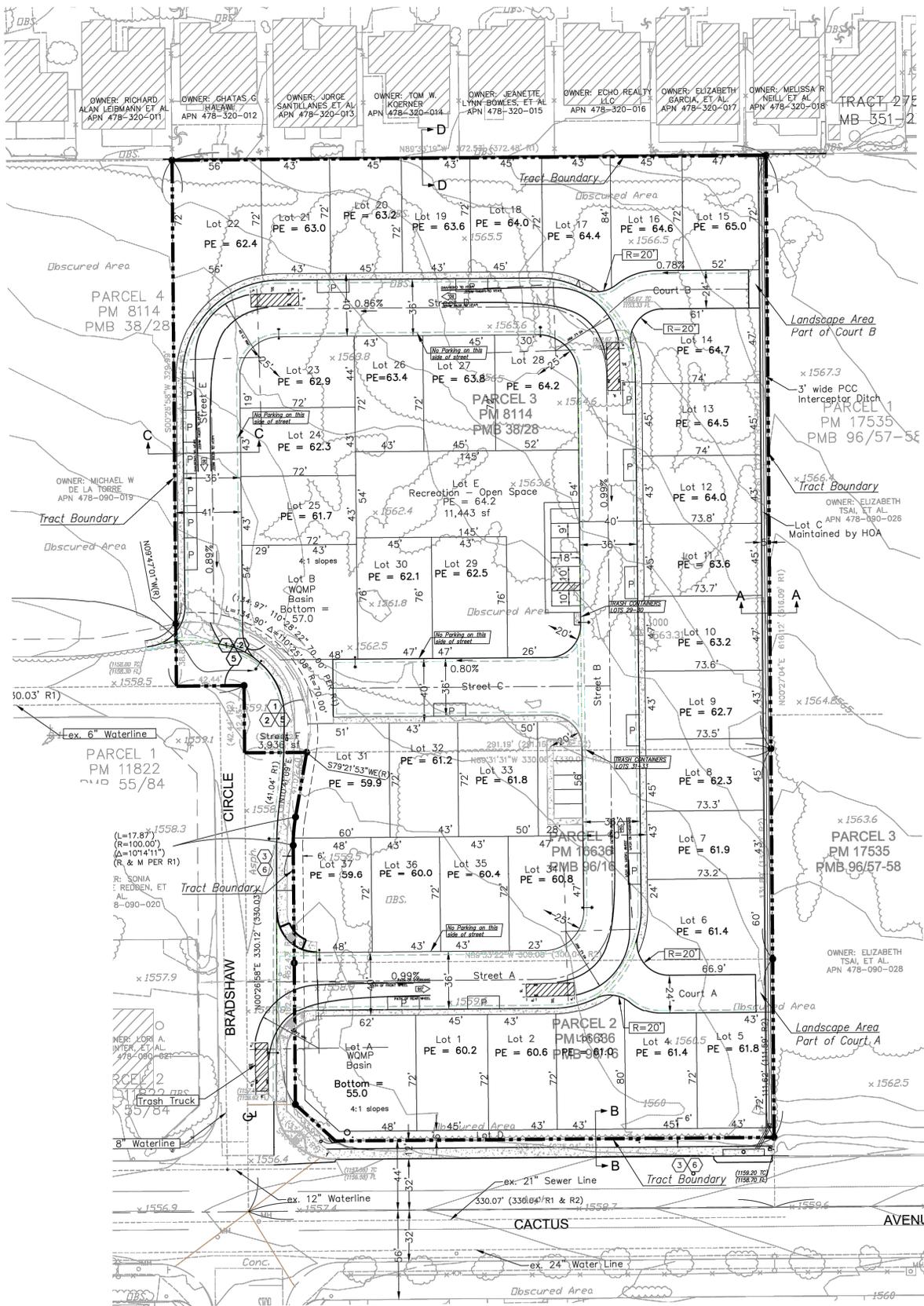
http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201720180SB100

Exhibits



Legend:

-  = Project Site Boundary
-  = Project Site



Appendices

Appendix A

Emissions Calculations Outputs
(CalEEMod)

TTM 37858 Single Family Residential Project Custom Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	TTM 37858 Single Family Residential Project
Construction Start Date	9/1/2026
Operational Year	2027
Lead Agency	City of Moreno Valley
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.50
Precipitation (days)	24.0
Location	33.91120365283811, -117.1704668389395
County	Riverside-South Coast
City	Moreno Valley
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5583
EDFZ	11
Electric Utility	Moreno Valley Utility
Gas Utility	Southern California Gas
App Version	2022.1.1.30

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
Single Family Housing	37.0	Dwelling Unit	3.46	72,150	22,887	0.00	120	—

Parking Lot	58.8	1000sqft	1.35	0.00	0.00	0.00	—	—
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1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	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.	1.42	1.19	10.6	14.1	0.02	0.43	0.26	0.64	0.40	0.06	0.45	—	2,706	2,706	0.11	0.04	1.04	2,723
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	26.2	26.1	36.1	34.0	0.09	1.60	7.89	9.49	1.47	3.99	5.47	—	11,916	11,916	0.29	1.44	0.50	12,354
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.03	1.91	5.52	7.28	0.01	0.23	0.25	0.37	0.21	0.11	0.23	—	1,390	1,390	0.06	0.04	0.26	1,398
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.37	0.35	1.01	1.33	< 0.005	0.04	0.05	0.07	0.04	0.02	0.04	—	230	230	0.01	0.01	0.04	231

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	1.42	1.19	10.6	14.1	0.02	0.43	0.26	0.64	0.40	0.06	0.45	—	2,706	2,706	0.11	0.04	1.04	2,723
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	4.43	3.73	36.1	34.0	0.09	1.60	7.89	9.49	1.47	3.99	5.47	—	11,916	11,916	0.29	1.44	0.50	12,354
2025	26.2	26.1	10.6	13.9	0.02	0.43	0.21	0.64	0.40	0.05	0.45	—	2,691	2,691	0.11	0.04	0.03	2,707
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.34	0.28	2.80	3.02	0.01	0.12	0.25	0.37	0.11	0.11	0.21	—	733	733	0.03	0.04	0.26	746
2025	2.03	1.91	5.52	7.28	0.01	0.23	0.11	0.34	0.21	0.03	0.23	—	1,390	1,390	0.06	0.02	0.24	1,398
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.06	0.05	0.51	0.55	< 0.005	0.02	0.05	0.07	0.02	0.02	0.04	—	121	121	< 0.005	0.01	0.04	123
2025	0.37	0.35	1.01	1.33	< 0.005	0.04	0.02	0.06	0.04	< 0.005	0.04	—	230	230	0.01	< 0.005	0.04	231

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.	3.24	3.12	1.19	12.4	0.03	0.04	2.19	2.23	0.04	0.56	0.60	21.2	3,094	3,115	2.28	0.10	8.18	3,209
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.98	2.87	1.24	8.76	0.02	0.04	2.19	2.23	0.04	0.56	0.60	21.2	2,930	2,951	2.29	0.10	0.72	3,039
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.10	2.98	1.27	10.5	0.02	0.04	2.16	2.20	0.04	0.55	0.59	21.2	2,957	2,978	2.29	0.10	3.83	3,069
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.57	0.54	0.23	1.92	< 0.005	0.01	0.39	0.40	0.01	0.10	0.11	3.51	490	493	0.38	0.02	0.63	508

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	1.33	1.24	0.84	10.1	0.02	0.01	2.19	2.21	0.01	0.56	0.57	—	2,381	2,381	0.09	0.09	7.66	2,417
Area	1.87	1.86	0.02	2.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	5.61	5.61	< 0.005	< 0.005	—	5.63
Energy	0.04	0.02	0.33	0.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	692	692	0.06	< 0.005	—	694
Water	—	—	—	—	—	—	—	—	—	—	—	2.88	15.6	18.5	0.30	0.01	—	28.1
Waste	—	—	—	—	—	—	—	—	—	—	—	18.3	0.00	18.3	1.83	0.00	—	64.1
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.52	0.52
Total	3.24	3.12	1.19	12.4	0.03	0.04	2.19	2.23	0.04	0.56	0.60	21.2	3,094	3,115	2.28	0.10	8.18	3,209
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.26	1.17	0.90	8.62	0.02	0.01	2.19	2.21	0.01	0.56	0.57	—	2,223	2,223	0.10	0.09	0.20	2,252
Area	1.68	1.68	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Energy	0.04	0.02	0.33	0.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	692	692	0.06	< 0.005	—	694
Water	—	—	—	—	—	—	—	—	—	—	—	2.88	15.6	18.5	0.30	0.01	—	28.1
Waste	—	—	—	—	—	—	—	—	—	—	—	18.3	0.00	18.3	1.83	0.00	—	64.1
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.52	0.52
Total	2.98	2.87	1.24	8.76	0.02	0.04	2.19	2.23	0.04	0.56	0.60	21.2	2,930	2,951	2.29	0.10	0.72	3,039
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.25	1.16	0.92	8.92	0.02	0.01	2.16	2.17	0.01	0.55	0.56	—	2,246	2,246	0.10	0.09	3.31	2,279
Area	1.81	1.80	0.01	1.44	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	3.84	3.84	< 0.005	< 0.005	—	3.86
Energy	0.04	0.02	0.33	0.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	692	692	0.06	< 0.005	—	694
Water	—	—	—	—	—	—	—	—	—	—	—	2.88	15.6	18.5	0.30	0.01	—	28.1
Waste	—	—	—	—	—	—	—	—	—	—	—	18.3	0.00	18.3	1.83	0.00	—	64.1

Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.52	0.52
Total	3.10	2.98	1.27	10.5	0.02	0.04	2.16	2.20	0.04	0.55	0.59	21.2	2,957	2,978	2.29	0.10	3.83	3,069
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.23	0.21	0.17	1.63	< 0.005	< 0.005	0.39	0.40	< 0.005	0.10	0.10	—	372	372	0.02	0.02	0.55	377
Area	0.33	0.33	< 0.005	0.26	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	0.64	0.64	< 0.005	< 0.005	—	0.64
Energy	0.01	< 0.005	0.06	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	115	115	0.01	< 0.005	—	115
Water	—	—	—	—	—	—	—	—	—	—	—	0.48	2.59	3.07	0.05	< 0.005	—	4.65
Waste	—	—	—	—	—	—	—	—	—	—	—	3.04	0.00	3.04	0.30	0.00	—	10.6
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.09	0.09
Total	0.57	0.54	0.23	1.92	< 0.005	0.01	0.39	0.40	0.01	0.10	0.11	3.51	490	493	0.38	0.02	0.63	508

3. Construction Emissions Details

3.1. Site Preparation (2024) - 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	4.34	3.65	36.0	32.9	0.05	1.60	—	1.60	1.47	—	1.47	—	5,296	5,296	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	0.06	0.05	0.49	0.45	< 0.005	0.02	—	0.02	0.02	—	0.02	—	72.5	72.5	< 0.005	< 0.005	—	72.8
Dust From Material Movement	—	—	—	—	—	—	0.11	0.11	—	0.05	0.05	—	—	—	—	—	—	—
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	0.01	0.01	0.09	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	12.0	12.0	< 0.005	< 0.005	—	12.1
Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	0.01	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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.10	1.10	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	231	231	0.01	0.01	0.03	234
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	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.21	3.21	< 0.005	< 0.005	0.01	3.26
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	—	0.53	0.53	< 0.005	< 0.005	< 0.005	0.54
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 (2024) - 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	2.26	1.90	18.2	18.8	0.03	0.84	—	0.84	0.77	—	0.77	—	2,958	2,958	0.12	0.02	—	2,969
Dust From Material Movement	—	—	—	—	—	—	2.78	2.78	—	1.34	1.34	—	—	—	—	—	—	—
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	0.05	0.04	0.40	0.41	< 0.005	0.02	—	0.02	0.02	—	0.02	—	64.8	64.8	< 0.005	< 0.005	—	65.1
Dust From Material Movement	—	—	—	—	—	—	0.06	0.06	—	0.03	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	0.07	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	10.7	10.7	< 0.005	< 0.005	—	10.8
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	0.01	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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.09	0.95	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	198	198	0.01	0.01	0.02	201
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	0.35	0.13	10.3	2.43	0.06	0.17	2.26	2.43	0.17	0.63	0.80	—	8,759	8,759	0.16	1.41	0.48	9,184
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.40	4.40	< 0.005	< 0.005	0.01	4.47
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	0.23	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	192	192	< 0.005	0.03	0.17	201
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.73	0.73	< 0.005	< 0.005	< 0.005	0.74
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	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	31.8	31.8	< 0.005	0.01	0.03	33.3

3.5. Building Construction (2024) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.44	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	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	0.21	0.18	1.65	1.92	< 0.005	0.07	—	0.07	0.07	—	0.07	—	352	352	0.01	< 0.005	—	353
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.30	0.35	< 0.005	0.01	—	0.01	0.01	—	0.01	—	58.3	58.3	< 0.005	< 0.005	—	58.5

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.08	0.84	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	176	176	0.01	0.01	0.02	178
Vendor	0.01	< 0.005	0.15	0.04	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	123	123	< 0.005	0.02	0.01	128
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	0.13	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.2	26.2	< 0.005	< 0.005	0.05	26.6
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	18.0	18.0	< 0.005	< 0.005	0.02	18.9
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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.34	4.34	< 0.005	< 0.005	0.01	4.40
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.98	2.98	< 0.005	< 0.005	< 0.005	3.12
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 (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	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	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	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	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	0.65	0.54	5.05	6.30	0.01	0.21	—	0.21	0.19	—	0.19	—	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	0.12	0.10	0.92	1.15	< 0.005	0.04	—	0.04	0.04	—	0.04	—	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	0.07	0.06	0.06	1.03	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	188	188	0.01	0.01	0.69	191
Vendor	0.01	< 0.005	0.13	0.04	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	121	121	< 0.005	0.02	0.34	127

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	0.78	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	173	173	0.01	0.01	0.02	175
Vendor	0.01	< 0.005	0.14	0.04	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	121	121	< 0.005	0.02	0.01	127
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.40	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	84.5	84.5	< 0.005	< 0.005	0.14	85.7
Vendor	< 0.005	< 0.005	0.07	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	58.5	58.5	< 0.005	0.01	0.07	61.3
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	< 0.005	0.01	0.07	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	14.0	14.0	< 0.005	< 0.005	0.02	14.2
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	9.69	9.69	< 0.005	< 0.005	0.01	10.1
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

3.9. Paving (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	0.85	0.71	6.52	8.84	0.01	0.29	—	0.29	0.26	—	0.26	—	1,351	1,351	0.05	0.01	—	1,355
Paving	0.20	0.20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.04	0.32	0.44	< 0.005	0.01	—	0.01	0.01	—	0.01	—	66.6	66.6	< 0.005	< 0.005	—	66.8
Paving	0.01	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.0	11.0	< 0.005	< 0.005	—	11.1
Paving	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.9	12.9	< 0.005	< 0.005	0.02	13.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.14	2.14	< 0.005	< 0.005	< 0.005	2.17
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Architectural Coating (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	0.15	0.13	0.88	1.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	26.0	26.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.04	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.58	6.58	< 0.005	< 0.005	—	6.61

Architectural Coating	1.28	1.28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
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	—	1.09	1.09	< 0.005	< 0.005	—	1.09	
Architectural Coatings	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.16	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	34.5	34.5	< 0.005	< 0.005	< 0.005	35.0	
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	—	1.72	1.72	< 0.005	< 0.005	< 0.005	1.75	
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	—	0.29	0.29	< 0.005	< 0.005	< 0.005	0.29	
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
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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	1.33	1.24	0.84	10.1	0.02	0.01	2.19	2.21	0.01	0.56	0.57	—	2,381	2,381	0.09	0.09	7.66	2,417	
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	0.00
Total	1.33	1.24	0.84	10.1	0.02	0.01	2.19	2.21	0.01	0.56	0.57	—	2,381	2,381	0.09	0.09	7.66	2,417	
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	1.26	1.17	0.90	8.62	0.02	0.01	2.19	2.21	0.01	0.56	0.57	—	2,223	2,223	0.10	0.09	0.20	2,252	
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	0.00
Total	1.26	1.17	0.90	8.62	0.02	0.01	2.19	2.21	0.01	0.56	0.57	—	2,223	2,223	0.10	0.09	0.20	2,252	
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.23	0.21	0.17	1.63	< 0.005	< 0.005	0.39	0.40	< 0.005	0.10	0.10	—	372	372	0.02	0.02	0.55	377	
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	0.00

Total	0.23	0.21	0.17	1.63	< 0.005	< 0.005	0.39	0.40	< 0.005	0.10	0.10	—	372	372	0.02	0.02	0.55	377
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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	—	—	—	—	—	—	—	—	—	—	—	—	206	206	0.02	< 0.005	—	207
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	64.0	64.0	< 0.005	< 0.005	—	64.2
Total	—	—	—	—	—	—	—	—	—	—	—	—	270	270	0.02	< 0.005	—	271
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	206	206	0.02	< 0.005	—	207
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	64.0	64.0	< 0.005	< 0.005	—	64.2
Total	—	—	—	—	—	—	—	—	—	—	—	—	270	270	0.02	< 0.005	—	271
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	34.1	34.1	< 0.005	< 0.005	—	34.3
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	10.6	10.6	< 0.005	< 0.005	—	10.6
Total	—	—	—	—	—	—	—	—	—	—	—	—	44.7	44.7	< 0.005	< 0.005	—	44.9

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	0.04	0.02	0.33	0.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	422	422	0.04	< 0.005	—	423
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	0.04	0.02	0.33	0.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	422	422	0.04	< 0.005	—	423
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.04	0.02	0.33	0.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	422	422	0.04	< 0.005	—	423
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	0.04	0.02	0.33	0.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	422	422	0.04	< 0.005	—	423
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.01	< 0.005	0.06	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	69.8	69.8	0.01	< 0.005	—	70.0
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	0.01	< 0.005	0.06	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	69.8	69.8	0.01	< 0.005	—	70.0

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	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	1.55	1.55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.13	0.13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.19	0.18	0.02	2.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.61	5.61	< 0.005	< 0.005	—	5.63
Total	1.87	1.86	0.02	2.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	5.61	5.61	< 0.005	< 0.005	—	5.63
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	1.55	1.55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.13	0.13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	1.68	1.68	0.00	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00

Consumer Product	0.28	0.28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.02	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.02	0.02	< 0.005	0.26	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.64	0.64	< 0.005	< 0.005	—	0.64
Total	0.33	0.33	< 0.005	0.26	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	0.64	0.64	< 0.005	< 0.005	—	0.64

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	—	—	—	—	—	—	—	—	—	—	—	2.88	15.6	18.5	0.30	0.01	—	28.1
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	2.88	15.6	18.5	0.30	0.01	—	28.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	2.88	15.6	18.5	0.30	0.01	—	28.1

Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	2.88	15.6	18.5	0.30	0.01	—	28.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	0.48	2.59	3.07	0.05	< 0.005	—	4.65
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.48	2.59	3.07	0.05	< 0.005	—	4.65

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	—	—	—	—	—	—	—	—	—	—	—	18.3	0.00	18.3	1.83	0.00	—	—	64.1
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	18.3	0.00	18.3	1.83	0.00	—	—	64.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	18.3	0.00	18.3	1.83	0.00	—	—	64.1
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	—	0.00

Total	—	—	—	—	—	—	—	—	—	—	—	18.3	0.00	18.3	1.83	0.00	—	64.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	3.04	0.00	3.04	0.30	0.00	—	10.6
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	3.04	0.00	3.04	0.30	0.00	—	10.6

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.52	0.52
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.52	0.52
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.52	0.52
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.52	0.52
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.09	0.09
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.09	0.09

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)

Equipm ent 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)

Equipm ent 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)

Equipm ent 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)

Vegetati on	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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	10/1/2024	10/7/2024	5.00	5.00	—
Grading	Grading	10/8/2024	10/17/2024	5.00	8.00	—
Building Construction	Building Construction	10/18/2024	9/4/2025	5.00	230	—
Paving	Paving	9/5/2025	9/30/2025	5.00	18.0	—
Architectural Coating	Architectural Coating	10/1/2025	10/24/2025	5.00	18.0	—

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	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Back hoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Back hoes	Diesel	Average	3.00	8.00	84.0	0.37
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Building Construction	Tractors/Loaders/Back hoes	Diesel	Average	3.00	7.00	84.0	0.37
Paving	Tractors/Loaders/Back hoes	Diesel	Average	1.00	8.00	84.0	0.37

Paving	Cement and Mortar Mixers	Diesel	Average	2.00	6.00	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	6.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	6.00	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	15.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	125	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	13.3	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	3.96	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	20.0	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	2.66	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	146,104	48,701	0.00	0.00	3,528

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	7.50	0.00	—
Grading	0.00	8,000	8.00	0.00	—

Paving	0.00	0.00	0.00	0.00	1.76
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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	0.41	0%
Parking Lot	1.35	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	453	0.03	< 0.005
2025	0.00	453	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	349	349	349	127,352	3,112	3,112	3,112	1,136,007
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	37
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)
146103.75	48,701	0.00	0.00	3,528

5.10.3. Landscape Equipment

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

5.11. Operational Energy Consumption

5.11.1. Unmitigated

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

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Single Family Housing	165,913	453	0.0330	0.0040	1,315,880
Parking Lot	51,509	453	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	1,504,930	443,532
Parking Lot	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Single Family Housing	34.0	—
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

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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5.16. 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. Biomass Cover Type

5.18.1.1. Unmitigated

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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8. User Changes to Default Data

Screen	Justification
Land Use	Project consists of 37 single-family detached homes and approximately 58.8 TSF of paved surfaces on a total site of approximately 4.81 acres.
Construction: Construction Phases	The project site is currently vacant, and no demolition will be required.
Operations: Vehicle Data	Trip generation rates are adjusted to reflect 349 daily trips, based on the Cactus Avenue and Bradshaw Circle Residential Project Trip Generation and VMT Screening Analysis, City of Moreno Valley, prepared by RK.
Operations: Fleet Mix	Fleet mix is adjusted to reflect a total of 2% heavy trucks (GVWR > 10,000 lbs.).
Operations: Hearths	Per SCAQMD Rule 445, no wood-burning devices shall be allowed. The project will not include any gas fireplaces.
Operations: Energy Use	Energy usage is adjusted to account for electricity generated by onsite solar panels.
Construction: Off-Road Equipment	Project will utilize Tier 4 low emission engines (OEM or retrofit) that include diesel oxidation catalysts and diesel particulate filters that meet the latest CARB best available control technology.

Appendix B

EMFAC2021 Vehicle Fuel Consumption Data

Source: EMFAC2025 (v2.0.0) Emissions Inventory

Region Type: Air District

Region: South Coast AQMD

Calendar Year: 2027

Season: Annual

Vehicle Classification: EMFAC2007 Categories

Units: miles/day for Combustion VMT and Electric VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption, kWh/day for Energy Consumption, kg/day for Hydrogen 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	2027	HHDT	Aggregate	Aggregate	Gasoline	119.9786149	5039.865379	1.292650238	0.000563395	3.898862376	6.389554723
South Coast AQMD	2027	HHDT	Aggregate	Aggregate	Diesel	104694.0021	1465511.19	2293.100573	0.999436605	6.390958758	
South Coast AQMD	2027	LDA	Aggregate	Aggregate	Gasoline	4365511.132	122279941.4	4660.5255	0.998717608	26.23737203	26.24952527
South Coast AQMD	2027	LDA	Aggregate	Aggregate	Diesel	9374.916105	213725.4271	5.984296501	0.001282392	35.71437796	
South Coast AQMD	2027	LDT1	Aggregate	Aggregate	Gasoline	459882.6443	13188498.87	592.399392	0.999836848	22.2628501	22.2628013
South Coast AQMD	2027	LDT1	Aggregate	Aggregate	Diesel	100.2449672	2123.159791	0.096666669	0.000163152	21.96372153	
South Coast AQMD	2027	LDT2	Aggregate	Aggregate	Gasoline	2600590.744	87049580.58	3892.623714	0.998710425	22.36270109	22.37298592
South Coast AQMD	2027	LDT2	Aggregate	Aggregate	Diesel	4676.709905	152488.5502	5.026311659	0.001289575	30.33806111	
South Coast AQMD	2027	LHDT1	Aggregate	Aggregate	Gasoline	191914.015	6082376.492	432.8421995	0.751295699	14.05217999	15.68707413
South Coast AQMD	2027	LHDT1	Aggregate	Aggregate	Diesel	90403.37187	2955380.11	143.2854155	0.248704301	20.62582643	
South Coast AQMD	2027	LHDT2	Aggregate	Aggregate	Gasoline	39728.80291	1417530.56	108.3207185	0.374131726	13.08642133	16.2498921
South Coast AQMD	2027	LHDT2	Aggregate	Aggregate	Diesel	78414.06531	3287229.466	181.2048979	0.625868274	18.14095261	
South Coast AQMD	2027	MCV	Aggregate	Aggregate	Gasoline	254728.5887	1430122.847	36.57939924	1	39.09640062	39.09640062
South Coast AQMD	2027	MDV	Aggregate	Aggregate	Gasoline	1618820.697	53179824.35	2922.694912	0.974882352	18.19547574	18.34514026
South Coast AQMD	2027	MDV	Aggregate	Aggregate	Diesel	47020.27838	1818861.373	75.30264779	0.025117648	24.15401618	
South Coast AQMD	2027	MH	Aggregate	Aggregate	Gasoline	33466.17076	288683.0254	59.46696905	0.834461628	4.854510495	5.719692219
South Coast AQMD	2027	MH	Aggregate	Aggregate	Diesel	13701.47309	118924.4054	11.79690586	0.165538372	10.08098283	
South Coast AQMD	2027	MHDT	Aggregate	Aggregate	Gasoline	32148.25779	1407853.777	264.8952811	0.356230844	5.314755971	7.61846648
South Coast AQMD	2027	MHDT	Aggregate	Aggregate	Diesel	116061.9004	4257281.212	478.7104043	0.643769156	8.893228919	
South Coast AQMD	2027	OBUS	Aggregate	Aggregate	Gasoline	5068.871427	139612.4062	27.61773216	0.570608264	5.05517272	6.138127489
South Coast AQMD	2027	OBUS	Aggregate	Aggregate	Diesel	2755.436213	157476.1075	20.78277992	0.429391736	7.577239816	
South Coast AQMD	2027	SBUS	Aggregate	Aggregate	Gasoline	2717.237286	100365.3766	10.92072148	0.622377463	9.190361344	8.495522141
South Coast AQMD	2027	SBUS	Aggregate	Aggregate	Diesel	2489.694284	48703.69586	6.626060217	0.377622537	7.35032497	
South Coast AQMD	2027	UBUS	Aggregate	Aggregate	Gasoline	822.035363	51797.79747	10.18350243	0.984652985	5.086442293	5.106599397
South Coast AQMD	2027	UBUS	Aggregate	Aggregate	Diesel	13.70031546	1015.80099	0.158722274	0.015347015	6.399864133	