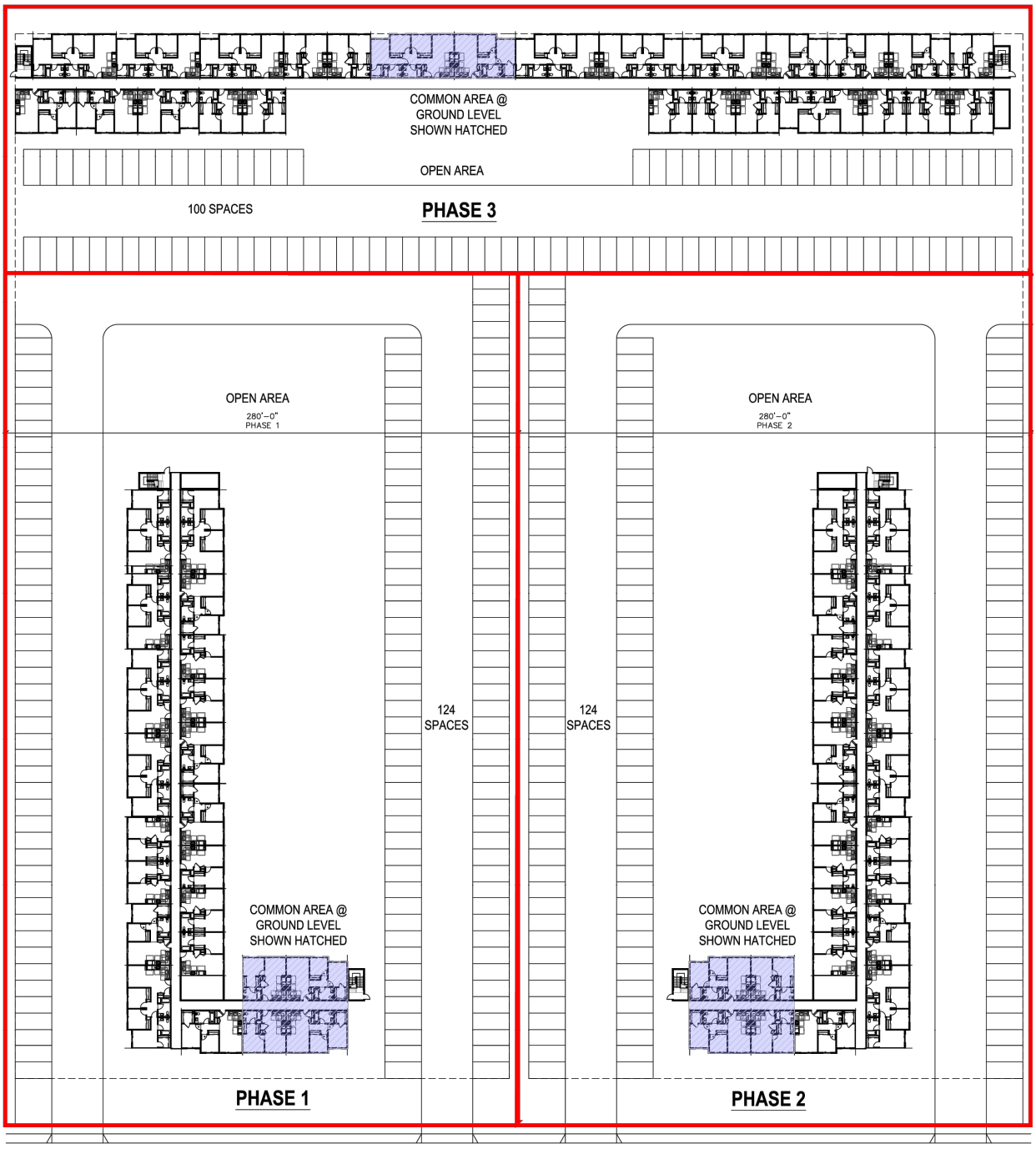
NEC Birch Street and Los Angeles Street Residential Project
AIR QUALITY AND GREENHOUSE GAS IMPACT STUDY
City of Shafter, CA



NEC BIRCH STREET AND LOS ANGELES STREET RESIDENTIAL PROJECT AIR QUALITY AND GREENHOUSE GAS IMPACT STUDY City of Shafter, California

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Table of Contents

Table of Contents (Cont.)

List of Attachments

Exhibits

Tables

List of Attachments (continued)

Tables

Appendices

1.0 Introduction

The purpose of this air quality and greenhouse gas (GHG) analysis is to determine whether the estimated criteria air pollutant emissions and greenhouse gas emissions generated from the construction and operation of the proposed NEC Birch Street and Los Angeles Street 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 San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD), and City of Shafter recommendations for quantification of emissions and evaluation of potential impacts.

1.1 Site Location

The project site is located on the northeast corner of Birch Street and Los Angeles Street in the City of Shafter, California. The project site is currently vacant and is bounded by residential land uses to the north, vacant land to the east, Los Angeles Street to the south, and residential land uses to the west.

The project site is located within the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) and the San Joaquin Valley Air Basin (SJVAB).

The project location map is provided in Exhibit A.

1.2 Project Description

The project proposes to construct and operate 50 two-story and 124 three-story affordable apartment dwelling units on approximately 7.85 acres. The project will include a total of 348 on-site parking spaces. The site plan used for this analysis, provided by Y&M ARCHITECTS, is illustrated in Exhibit B. Table 1 summarizes the proposed project land uses.

Table 1
Land Use Summary

Project Land Use	CalEEMod Land Use Type	Quantity	Metric[1]
2-Story Apartments	Apartments Low Rise	50	DU
3-Story Apartments	Apartments Mid Rise	124	DU
Parking Lots and Paved Surfaces	Parking Lot	348	Spaces

[1] DU – Dwelling Units

Construction of the project is estimated to begin in the year 2026. Construction activities are expected to consist of site preparation, grading, building construction, paving, and architectural coating. The project site is currently vacant, and no demolition will be required. The project is expected to import approximately 6,000 cubic yards of earthwork material during the grading phase of construction.

The project is expected to begin operating in the year 2027.

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 SJVUAPCD considers sensitive receptors to be schools, parks and playgrounds, day care centers, nursing homes, hospitals, and residential dwelling units.

The nearest sensitive receptors to the project site include the following:

Receptor 1 Existing residential dwelling units located a minimum of approximately 974 feet east-southeast of the southeastern corner of the project site, along both the northern and southern sides of Los Angeles Street.

Receptor 2 Existing residential land uses located to the west of the project site, a minimum of approximately 68 feet from the project site's western boundary, along the western side of Birch Street and both the northern and southern sides of Los Angeles Street.

Receptor 3 Existing single-family residential dwellings located approximately 732 feet west of the project site's western boundary, approximately 436 feet north of the centerline of Los Angeles Street.

Receptor 4 Existing Casa Amelia Cadena Apartments located approximately 58 feet north of the project site's northern boundary, approximately 698 feet north of the centerline of Los Angeles Street.

Receptor 5 Existing medical offices located approximately 1,038 feet east-northeast of the northeastern corner of the project site, approximately 550 feet north of the centerline of Los Angeles Street.

Receptor locations are graphically illustrated in the project location map 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
Would the project:				
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
Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?		X		
b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing emissions of greenhouse gases?		X		

1.5 Recommended Mitigation Measures

The following mitigation measure is recommended to ensure that project emissions remain within the SJVUAPCD guidelines.

GHG-1. The project will need to garner a minimum of 29 points using the SJVUAPCD GHG Emission Reduction BPS Measures for Development Projects. Refer to Section 7.3 of this report for a detailed discussion of the recommended BPS measures that will need to be implemented by the project.

1.6 Project Design Features

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

Construction Design Features:

DF-1. Pursuant to SJVUAPD Regulation VIII, the project will demonstrate a receipt of a District-approved Dust Control Plan or Construction Notification form before issuance of the first grading permit.

DF-2. The project must follow the SJVUAPCD rules and requirements with regard to fugitive dust control, which include, but are not limited to the following:

- Apply water to unpaved surfaces and areas.
- Use non-toxic chemical or organic dust suppressants on unpaved roads and traffic areas.
- Limit or reduce vehicle speed on unpaved roads and traffic areas.
- Maintain areas in a stabilized condition by restricting vehicle access.
- Install wind barriers.
- During high winds, cease outdoor activities that disturb the soil.
- Keep bulk materials sufficiently wet when handling.
- Store and handle materials in a three-sided structure.
- When storing bulk materials, apply water to the surface or cover the storage pile with a tarp.
- Don't overload haul trucks. Overloaded trucks are likely to spill bulk materials.
- Cover haul trucks with a tarp or other suitable cover. Or, wet the top of the load enough to limit visible dust emissions.
- Clean the interior of cargo compartments on emptied haul trucks prior to leaving a site.
- Prevent trackout by installing trackout control devices at all project access points.
- Clean up trackout at least once a day. If along a busy road or highway, clean up trackout immediately.
- Monitor dust-generating activities and implement appropriate measures for maximum dust control.

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 extent feasible.

DF-6. Establish an electricity supply to the construction site and use electric-powered equipment instead of diesel-powered equipment or generators, to the extent feasible.

DF-7. Establish staging areas for the construction equipment that are as distant as possible from adjacent sensitive receptors (residential land uses).

DF-8. Use haul trucks with on-road engines instead of off-road engines for on-site hauling.

Operational Design Features:

DF-9. 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:

a. Install low flow fixtures and toilets, water efficient irrigation systems, drought tolerant/native landscaping, and reduce the amount of turf.

b. Provide the necessary infrastructure to support electric vehicle charging.

c. Provide solar installations (or other sources of on-site renewable energy) per the prescribed Energy Design Ratings.

DF-10. 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.[1]

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.

- **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.

[1] Federal Clean Air Act. 42 U.S.C. §7401 et seq. (1970)

- **Nitrogen Dioxide (NO_2)** 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 NO_2, creating the mixture of NO and NO_2 commonly called NO_x. NO_2 acts as an acute irritant and, in equal concentrations, is more injurious than NO. At atmospheric concentrations, however, NO_2 is only potentially irritating. There is some indication of a relationship between NO_2 and chronic pulmonary fibrosis. Some increase in bronchitis in young children has also been observed at concentrations below 0.3 parts per million (ppm). NO_2 absorbs blue light which results in a brownish red cast to the atmosphere and reduced visibility. Although NO_2 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 O_3 and particulate matter.

- **Ozone (O_3)** 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. O_3 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 O_3. 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 O_3 effects. Short-term exposures (lasting for a few hours) to O_3 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 O_3 levels and increases in daily hospital admission rates, as well as mortality, has also been reported.

- **Fine Particulate Matter (PM_{10})** consists of extremely small suspended particles or droplets 10 microns or smaller in diameter that can lodge in the lungs, contributing to respiratory problems. PM_{10} 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 SO_2 reactions with ammonia. PM_{10} 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.

- **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 PM_{10}. $PM_{2.5}$ consists mostly of products from the reaction of NO_x and SO_2 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.

- **Sulfur dioxide (SO_2)** 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 SO_2. SO_2 is a precursor to sulfate and PM_{10}.

- **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 Mojave Desert 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),** are transformed into organic aerosols in the atmosphere, contributing to higher PM_{10} and lower visibility levels. Sources of VOCs include combustion engines, and evaporative emissions associated with fuel, paints and solvents, asphalt paving, and the use of household consumer products such as aerosols. Although health-based standards have not been established for VOCs, health effects can occur from exposures to high concentrations of VOC. Some hydrocarbon components classified as VOC emissions are hazardous air pollutants. Benzene, for example, is a hydrocarbon component of VOC emissions that are known to be a human carcinogen. The term reactive organic gases (ROG) are often used interchangeably with VOC.

- **Toxic Air Contaminants (TACs)** are defined as air pollutants which may cause or contribute to an increase in mortality or serious illness, or which may pose a hazard to human health, and for which there is no concentration that does not present some risk. This contrasts with the criteria pollutants, in that there is no threshold level for TAC exposure below which adverse health impacts are not expected to occur. The majority of the estimated health risk from TACs can be attributed to a relatively few compounds, the most common being diesel particulate matter (DPM) from diesel engine exhaust. In addition to DPM, benzene and 1,3-butadiene are also significant contributors to overall ambient public health risk in California.

2.2 Federal and State Ambient Air Quality Standards

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

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

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

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

Air Pollutant	Averaging Time [2]	Federal Standard (NAAQS)[2]	California Standard (CAAQS)[2]
Ozone	1 Hour	--	0.09 ppm
	8 Hour	0.070 ppm	0.070 ppm
Carbon Monoxide (CO)	1 Hour	35 ppm	20 ppm
	8 Hour	9 ppm	9 ppm
Nitrogen Dioxide (NO_2)	1 Hour	0.100 ppm	0.18 ppm
	Annual	0.053 ppm	0.030 ppm
Sulfur Dioxide (SO_2)	1 Hour	0.075 ppm	0.25 ppm
	3 Hour	0.5 ppm[3]	--
	24 Hour	--	0.04 ppm
Particulate Matter (PM_{10})	24 Hour	150 $\mu g/m^3$	50 $\mu g/m^3$
	Mean	--	20 $\mu g/m^3$
Particulate Matter (PM2.5)	24 Hour	35 $\mu g/m^3$	--
	Annual	12 $\mu g/m^3$	12 $\mu g/m^3$
Lead	30-day	--	1.5 $\mu g/m$
	Quarter	1.5 $\mu g/m$	--
	3-month average	0.15 $\mu g/m$	--
Visibility reducing particles	8 Hour	--	0.23/km extinction coefficient. (10-mile visibility standard)
Sulfates	24 Hour	--	25 $\mu g/m$
Vinyl chloride	24 Hour	--	0.01 ppm
Hydrogen sulfide	24 Hour	--	0.03 ppm

[1] Source: USEPA: https://www.epa.gov/criteria-air-pollutants/naaqs-table and
CARB: https://ww2.arb.ca.gov/resources/california-ambient-air-quality-standards

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

[3] Secondary standards

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

2.3 Attainment Status

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

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

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

Table 5 lists the attainment status for the criteria pollutants in the SJVUAPCD.

Table 5
SJVUAPCD Attainment Designation[1]

Pollutant	SJVUAPCD Designation/Classification	
	Federal Standards	State Standards
Ozone – One hour	Revoked in 2005	Nonattainment/Severe
Ozone – Eight hour	Nonattainment/Extreme	Nonattainment
PM10	Attainment	Nonattainment
PM2.5	Nonattainment	Nonattainment
Carbon Monoxide	Attainment/Unclassified	Attainment/Unclassified
Nitrogen Dioxide	Attainment/Unclassified	Attainment
Sulfur Dioxide	Attainment/Unclassified	Attainment
Lead (Particulate)	No Designation/Classification	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility Reducing Particles	No Federal Standard	Unclassified
Vinyl Chloride	No Federal Standard	Attainment

[1] Source: San Joaquin Valley Air Pollution Control District Ambient Air Quality Standards & Valley Attainment Status webpage, https://www.valleyair.org/aqinfo/attainment.htm, Accessed August 2023.

2.4 San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD)

Air districts have the primary responsibility to control air pollution from all sources other than those directly emitted from motor vehicles, which are the responsibility of the CARB and the EPA. Air districts adopt and enforce rules and regulations to achieve State and Federal ambient air quality standards and enforce applicable State and Federal law.

The SJVUAPCD is made up of eight counties in California's Central Valley: San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare, and the San Joaquin Valley Air Basin portion of Kern.

The SJVUAPCD has prepared the Guidance for Assessing and Mitigating Air Quality Impacts (March 2015) to provide uniform procedures for assessing potential air quality impacts of proposed projects and for preparing the air quality section of environmental documents. The guidelines characterize the topography and climate of the Basin, define cumulative impacts, and provide emission thresholds for construction and operation.

Consistent with the Clean Air Act, the SJVUAPCD has adopted attainment plans that demonstrate how the District will attain and maintain the NAAQS described in Section 2.3

of this report. Each attainment plan includes an exhaustive list of regulatory and incentive-based measures to reduce pollutant emissions throughout the valley. In conjunction with the measures outlined in the attainment plans, the District Governing Board adopted regulatory measures that, in the majority of cases, exceed the plan commitment for a given source category. These include, but are not limited to, the following[2]:

District Regulation II – Permits. District Regulation II (Permits) applies to permitted emission sources. Many Industrial projects and some commercial projects require District permits in order to ensure that stationary source emissions will be reduced or mitigated to below the District's significance thresholds.

District Regulation IV – Prohibitions. District Regulation IV (Prohibitions) consists of prohibitory rules with the purpose of reducing emissions. The rules include retrofit requirements, which are applicable to existing sources, as well as requirements for new sources. Severable of the rules that may be applicable to this project include, but are not limited to, the following:

- **District Rule 4102** protects the health and safety of the public by restricting quantities of air contaminants or other materials which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public or which cause or have a natural tendency to cause injury or damage to business or property. This rule is applicable to any source operation which emits or may emit contaminants or other materials.

- **District Rule 4601** regulates VOC emissions from architectural coatings by regulating architectural coating storage, cleanup, and labeling requirements. This rule is applicable to any person who supplies, markets, sells, offers for sale, applies, or solicits the application of any architectural coating, or who manufactures, blends, or repackages any architectural coating for use within the District. Hence, all paints and solvents used during construction and operation of the project must comply with Rule 4601.

- **District Rule 4901** regulates CO and PM emissions by prohibiting the installation of any new wood-burning fireplaces, low mass fireplaces, masonry heaters, or wood-burning heaters at elevations below 3,000 feet in areas with natural gas service.

[2] Sources: Guidance for Assessing and Mitigating Air Quality Impacts, SJVUAPCD, March 2015; SJVUAPCD Current District Rules and Regulations webpage, https://www.valleyair.org/rules/1ruleslist.htm#reg2.

- **District Rule 4905** regulates NOx emissions from natural gas-fired, fan-type central furnaces. This rule is applicable to any person who supplies, sells, offers for sale, installs, or solicits the installation of natural gas-fired, fan-type central furnaces for use within the San Joaquin Valley Air Basin. Hence, any natural gas-fired, fan-type central furnaces used during the operation of the project must comply with Rule 4905.

District Regulation VIII – Fugitive PM10 Prohibition. District Regulation VIII (Fugitive PM10 Prohibition) regulates concentrations of PM10 by requiring actions to prevent, reduce, or mitigate anthropogenic fugitive dust emissions. The specific measures for controlling fugitive dust listed in Regulation VIII are listed below. In addition to the below measures, projects in which construction-related activities would disturb equal to or greater than 1 acre of surface area, the District recommends that demonstration of receipt of a District-approved Dust Control Plan or Construction Notification form, before issuance of the first grading permit, be made a condition of project approval.

- Apply water to unpaved surfaces and areas.
- Use non-toxic chemical or organic dust suppressants on unpaved roads and traffic areas.
- Limit or reduce vehicle speed on unpaved roads and traffic areas.
- Maintain areas in a stabilized condition by restricting vehicle access.
- Install wind barriers.
- During high winds, cease outdoor activities that disturb the soil.
- Keep bulk materials sufficiently wet when handling.
- Store and handle materials in a three-sided structure.
- When storing bulk materials, apply water to the surface or cover the storage pile with a tarp.
- Don't overload haul trucks. Overloaded trucks are likely to spill bulk materials.
- Cover haul trucks with a tarp or other suitable cover. Or, wet the top of the load enough to limit visible dust emissions.
- Clean the interior of cargo compartments on emptied haul trucks prior to leaving a site.
- Prevent trackout by installing a trackout control device.
- Clean up trackout at least once a day. If along a busy road or highway, clean up trackout immediately.
- Monitor dust-generating activities and implement appropriate measures for maximum dust control.

District Rule 9510 (Indirect Source Review) is intended to reduce a project's NOx and PM10 emissions through project design elements or mitigation by payments of applicable off-site mitigation fees. Individual residential development projects would be subject to Indirect Source Review requirements if upon full build-out the project would include or exceed 50 dwelling units. Hence, the project will be required to comply with the requirements outlined in Rule 9510. It should be noted that for projects subject to Rule 9510, the District recommends demonstration of compliance, including payment of all applicable fees before issuance of the first building permit, be made a condition of project approval.

2.5 Local Climate and Meteorology

The project site is located within the San Joaquin Valley Air Basin (SJVAB), which includes eight counties in California's Central Valley: San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare, and the San Joaquing Valley Air Basin portion of Kern. The SJVAB is classified as a warm, semi-arid climate, with sparse rainfall occurring mainly in the winter. Prevailing winds in the SJVAB typically flow in a south-southeasterly direction through the valley into the Mojave Desert.

The weather station closest to the project site is a National Weather Service Cooperative weather station located at Wasco, California (049452). Climatological data from the National Weather Service at this station is summarized in Table 6.

Table 6
Meteorological Summary[1]

Month	Average Temperature (˚F)			Mean Precipitation (inches)
	Max.	Min.	Mean	
January	56.8	34.8	45.8	1.20
February	63.2	38.2	50.7	1.76
March	69.1	42.1	55.6	1.22
Total	76.6	46.6	61.6	0.68
May	85.1	53.2	69.2	0.27
June	93.6	59.4	76.5	0.08
July	100.0	64.9	82.5	0.01
August	98.6	63.1	80.9	0.02
September	92.0	58.0	75.0	0.12
October	81.8	49.1	65.5	0.33
November	68.0	39.6	53.8	0.60
December	57.7	34.6	46.2	0.92
Annual	**78.5**	**48.6**	**63.6**	**7.21**

[1] Source: Western Regional Climate Center. Averages derived from measurements recorded between 1901 and 2016 at Wasco, CA (049452).

2.6 Local Air Quality

CARB sets State air quality standards and monitors ambient air quality at approximately 250 air monitoring stations across the State. Air quality monitoring stations usually measure pollutant concentrations 10 feet above ground level; therefore, air quality is often referred to in terms of ground-level concentrations. Ambient air pollutant concentrations in the Basin are measured at ten air quality-monitoring stations operated by the CARB and SJVUAQCD.

The project is located near the Shafter and Bakersfield monitoring areas. Table 7 summarizes the published air quality monitoring data from 2019 through 2021. These pollutant levels were used to comprise a "background" for the project location and existing local air quality.

Table 7
Local Air Quality

Air Pollutant Location	Averaging Time	Item	2019	2020	2021
Carbon Monoxide -- Bakersfield - Muni	1 Hour	Max 1-Hour (ppm)	1.25	1.75	2.89
		Exceeded State Standard (20 ppm)	No	No	No
		Exceeded National Standard (35 ppm)	No	No	No
	8 Hour	Max 8 Hour (ppm)	1.00	1.60	1.30
		Exceeded State Standard (9 ppm)	No	No	No
		Exceeded National Standard (9 ppm)	No	No	No
Ozone -- Shafter – Walker Street	1 Hour	Max 1-Hour (ppm)	0.087	0.116	0.104
		Days > State Standard (0.10 ppm)	0	6	1
	8 Hour	Max 8 Hour (ppm)	0.077	0.098	0.086
		Days > State Standard (0.07 ppm)	15	34	16
		Days >National Standard (0.070 ppm)	14	34	15
Nitrogen Dioxide -- Bakersfield - Muni	1 Hour	Max 1-Hour (ppm)	0.063	0.066	0.068
		Exceeded State Standard (0.05 ppm)	Yes	Yes	Yes
	Annual	Annual Average (ppm)	--	--	0.008
		Exceeded >State Standard (0.030 ppm)	--	--	No
		Exceeded >National Standard (0.053 ppm)	--	--	No
Sulfur Dioxide -- Bakersfield - Muni	1 Hour	Max 1 Hour (ppm)	--	--	--
		Exceed State Standard (0.25 ppm)	--	--	--
		Exceed National Standard (0.075 ppm)	--	--	--
Coarse Particles (PM10) -- Bakersfield – 5558 California Avenue	24 Hour	Max 24-Hour ($\mu g/m^3$)	125.9	196.8	439.3
		Days > State Standard (50 $\mu g/m^3$)	108.1	--	--
		Days >National Standard (150 $\mu g/m^3$)	0	--	--
	Annual	Annual Average ($\mu g/m^3$)	39.0	--	--
		Exceeded State Standard (20 $\mu g/m^3$)	Yes	--	--
Fine Particulates (PM2.5) -- Bakersfield – 5558 California Avenue	24 Hour	Max 24-Hour ($\mu g/m^3$)	59.1	159.7	72.3
		Days >National Standard (35 $\mu g/m^3$)	12	46	43
	Annual	Annual Average ($\mu g/m^3$)	11.4	19.7	16.6
		Exceeded State Standard (12 $\mu g/m^3$)	No	Yes	Yes
		Exceeded National Standard (15 $\mu g/m^3$)	No	Yes	Yes

Source: EPA and ARB websites www.epa.gov/air/data.index.html and www.arb.ca.gov/adam/trends/trends1.php
$\mu g/m^3$ = micrograms per cubic meter
ARB = California Air Resource Board
EPA= Environmental Protection Agency
ppm = part per million
(- -) = Data not provided

3.0 Global Climate Change Setting

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

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

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

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

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

3.1 Greenhouse Gases

Most scientists agree the main cause of the current global warming trend is anthropogenic (human-induced) augmentation of the greenhouse effect. The greenhouse effect refers to the way gases in the earth's atmosphere trap and re-emits long wave infrared radiation, acting like a blanket insulating the earth. Activities such as fossil fuel combustion, industrial processes, agriculture, and waste decomposition have elevated the concentration of greenhouse gases in the atmosphere beyond the level of naturally occurring concentrations.

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 (CO_2), methane (CH_4), water vapor (H_2O), and nitrous oxide (N_2O), while others are synthetic. Man-made GHGs include the chlorofluorocarbons (CFCs), hydrofluorocarbons (HFCs) and Perfluorocarbons (PFCs), as well as sulfur hexafluoride (SF_6). 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 CO_2. The larger the GWP, the more that a given gas warms the Earth compared to CO_2 over that time period. The time period usually used for GWPs is 100 years. GWPs provide a common unit of measure, which allows analysts to add up emissions estimates of different gases and allows policymakers to compare emissions reduction opportunities across sectors and gases.

Table 8 lists the 100-year GWP of GHGs from the Intergovernmental Panel on Climate Change (IPCC) fourth assessment report (AR4).

Table 8
Global Warming Potential of Greenhouse Gases[1, 2]

Gas Name	Formula	Lifetime (years)	GWP
Carbon Dioxide	CO_2		1
Methane	CH_4	12	25
Nitrous Oxide	N_2O	114	298
Sulphur Hexafluoride	SF_6	3200	22,800
Nitrogen Trifluoride	NF_3	740	17,200
Hexafluoroethane (PFC-116)	C_2F_6	10,000	12,200
Octafluoropropane (PFC-218)	C_3F_8	2,600	8,830
Octafluorocyclobutane (PFC-318)	C_4F_8	3,200	10,300
Tetrafluoromethane (PFC-14)	CF_4	50,000	7,390
Hydrofluorocarbon 125	HFC-125	29	3,500
Hydrofluorocarbon 134a	HFC-134a	14	1,430
Hydrofluorocarbon 143a	HFC-143a	52	4,470
Hydrofluorocarbon 152a	HFC-152a	1	124
Hydrofluorocarbon 227ea	HFC-227ea	34	3,220
Hydrofluorocarbon 23	HFC-23	270	14,800
Hydrofluorocarbon 236fa	HFC-236fa	240	9,810
Hydrofluorocarbon 245fa	HFC-245fa	8	1,030
Hydrofluorocarbon 32	HFC-32	5	675
Hydrofluorocarbon 365mfc	HFC-365mfc	9	794
Hydrofluorocarbon 43-10mee	HFC-43-10mee	16	1,640

[1] Source: IPCC Fourth Assessment Report (AR4)

[2] GWPs are used to convert GHG emission values to "carbon dioxide equivalent" (CO_2e) units

3.2 GHG Regulatory Setting - International

Intergovernmental Panel on Climate Change. In 1988, the United Nations and the World Meteorological Organization established the Intergovernmental Panel on Climate Change to assess the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation.

United Nations. The United States participates in the United Nations Framework Convention on Climate Change (UNFCCC) (signed on March 21, 1994). Under the Convention, governments gather and share information on greenhouse gas emissions, national policies, and best practices; launch national strategies for addressing greenhouse gas emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change. The 2014 UN Climate Change Conference in Lima Peru provided a unique opportunity to engage all countries to assess how developed countries are implementing actions to reduce emissions.

Kyoto Protocol. The Kyoto Protocol is a treaty made under the UNFCCC and was the first international agreement to regulate GHG emissions. It has been estimated that if the commitments outlined in the Kyoto Protocol are met, global GHG emissions could be reduced by an estimated 5 percent from 1990 levels during the first commitment period of 2008 – 2012 (UNFCCC 1997). On December 8, 2012, the Doha Amendment to the Kyoto Protocol was adopted. The amendment includes: New commitments for Annex I Parties to the Kyoto Protocol who agreed to take on commitments in a second commitment period from 2013 – 2020, a revised list of greenhouse gases (GHG) to be reported on by Parties in the second commitment period, and Amendments to several articles of the Kyoto Protocol, which specifically referenced issues pertaining to the first commitment period and which needed to be updated for the second commitment period.

The Paris Agreement. The Paris agreement is the first comprehensive global climate agreement to be ratified by the United States, United Nations, China, and India; the largest producers of greenhouse gas emissions in the world. The agreement was negotiated by a total of 195 nations and entered into force on November 4, 2016. The central aim is to strengthen the global response to the threat of climate change by keeping the global temperature rise this century well below 2 degrees Celsius compared to pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius. Additionally, the agreement aims to strengthen the ability of countries to deal with the impacts of climate change. Currently, 122 parties have ratified the agreement. The Trump

administration has recently indicated the United States federal government will no longer participate in the Paris agreement.

3.3 GHG Regulatory Setting – National

Greenhouse Gas Endangerment. On December 2, 2009, the EPA announced that GHGs threaten the public health and welfare of the American people. The EPA also states that GHG emissions from on-road vehicles contribute to that threat. The decision was based on *Massachusetts v. EPA* (Supreme Court Case 05-1120) which argued that GHGs are air pollutants covered by the Clean Air Act and that the EPA has authority to regulate those emissions.

Clean Vehicles. Congress first passed the Corporate Average Fuel Economy (CAFE) law in 1975 to increase the fuel economy of cars and light duty trucks. The law has become more stringent over time. On May 19, 2009, President Obama put in motion a new national policy to increase fuel economy for all new cars and trucks sold in the United States. On April 1, 2010, the EPA and the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) announced a joint final rule establishing a national program that would reduce greenhouse gas emissions and improve fuel economy for new cars and trucks sold in the United States.

The first phase of the national program applied to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. They required these vehicles to meet an estimated combined average emissions level of 250 grams of carbon dioxide per mile, equivalent to 35.5 miles per gallon if the automobile industry were to meet this carbon dioxide level solely through fuel economy improvements. Together, these standards were estimated to cut carbon dioxide emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016).

The second phase of the national program for passenger cars, light-duty trucks, and medium-duty passenger vehicles covers model years 2017 through 2025. The final standards were established in 2012 and were projected to result in an average industry fleetwide level of 163 grams/mile of carbon dioxide (CO2) in model year 2025, which is equivalent to 54.5 miles per gallon (mpg) if achieved exclusively through fuel economy improvements.

The EPA and the U.S. Department of Transportation also implemented the first national standards to reduce greenhouse gas emissions and improve the fuel efficiency of medium-

and heavy-duty engines and vehicles trucks and buses in 2010. The standards applied to all on-road vehicles rated at a gross vehicle weight at or above 8,500 pounds, and the engines that power them, except those covered by the current GHG emissions and CAFE standards for light duty vehicles, for model year 2014 to 2018. In 2016, the EPA and NHTSA finalized phase 2 of the standards which applied to model years 2018 through 2027.

Under the direction of the current Trump administration, the NHTSA and EPA propose to amend the Corporate Average Fuel Economy (CAFE) and greenhouse gas emissions standards for passenger cars and light trucks and establish new standards, covering model years 2021 through 2026.

Mandatory Reporting of Greenhouse Gases. On January 1, 2010, the EPA started requiring large emitters of heat-trapping emissions to begin collecting GHG data under a new reporting system. Under the rule, suppliers of fossil fuels or industrial greenhouse gases, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of greenhouse gas emissions are required to submit annual reports to the EPA.

Climate Adaptation Planning. The EPA's Climate Change Adaptation Plan identifies priority actions the EPA will take to incorporate considerations of climate change into its programs, policies, rules and operations to ensure they are effective under future climatic conditions. Under the Trump administration, the EPA has said it would continue to advance climate adaptation efforts and that the agency recognizes the challenges that communities face in adapting to a changing climate. The EPA currently runs the Climate Change Adaptation Resource Center (ARC-X) to help local governments prepare for climate change.

3.4 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.

Key California legislation includes the landmark Assembly Bill (AB) 32, California Global Warming Solutions Act of 2006. This bill requires the Air Resources Board (ARB) to adopt a statewide greenhouse gas emissions limit equivalent to the statewide greenhouse gas emissions levels in 1990 to be achieved by 2020.

Also, Senate Bill (SB) 375, Sustainable Communities & Climate Protection Act of 2008 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.

3.5 GHG Emissions Inventory

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

Table 9
GHG Emissions Inventory[1]

United States (2016)[2]	State of California (2016)[3]
6,511 $MMTCO_2e$	429 $MMTCO_2e$

[1] $MMTCO_2e$ = Million Metric Tons of Carbon Dioxide Equivalent
[2] https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks
[3] https://www.arb.ca.gov/cc/inventory/data/data.htm

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 mitigation measures 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 assumed to begin in the year 2026 and consist of site preparation, grading, building construction, paving and architectural coating. The project site is currently vacant, and no demolition will be required. The project is expected to import approximately 6,000 cubic yards of earthwork material during the grading phase of construction.

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. For the purposes of this analysis, construction phases are assumed not to overlap. The construction equipment list is shown in Table 10.

The project will be required to comply with several standard fugitive dust control measures, per SJVUAPCD District Regulation VIII – Fugitive PM10 Prohibition. The following construction control strategies have been utilized in CalEEMod based on District Regulation VIII:

- Water exposed area – 61% PM_{10} and $PM_{2.5}$ reduction.
- Apply dust suppressants to unpaved roads – 84% PM_{10} and $PM_{2.5}$ reduction.
- Limit vehicle speeds on unpaved roads to 25 mph – 44% PM_{10} and $PM_{2.5}$ reduction.
- Sweep paved roads once per month – 9% PM_{10} and $PM_{2.5}$ reduction.

Table 10
Construction Equipment Assumptions[1]

Phase	Equipment	Number	Hrs. 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	0.5	1.50	3.5
	Tractors/Loaders/Backhoes	4	8	0.5	2.00	
Grading	Excavators	1	8	0.5	0.50	3.0
	Graders	1	8	0.5	0.50	
	Rubber Tired Dozers	1	8	0.5	0.50	
	Tractors/Loaders/Backhoes	3	8	0.5	1.50	
Building Construction	Cranes	1	7	0.0	0.00	1.3
	Forklifts	3	8	0.0	0.00	
	Generator Sets	1	8	0.0	0.00	
	Tractors/Loaders/Backhoes	3	7	0.5	1.31	
	Welders	1	8	0.0	0.00	
Paving	Pavers	2	8	0.0	0.00	1.0
	Paving Equipment	2	8	0.5	1.00	
	Rollers	2	8	0.0	0.00	
Architectural Coating	Air Compressors	1	6	0.0	0.00	0.0

[1] CalEEMod Defaults

As shown in the table above, the proposed project will have a maximum disturbance area of 3.5 acres per day during the site preparation phase. Per SJVUAPCD Regulation VIII – Fugitive PM10 Prohibition, for projects in which construction-related activities would disturb equal or greater than 1 acre of surface area, it should be made a condition of project approval to demonstrate a receipt of a District-approved Dust Control Plan or Construction Notification form prior to issuance of the first grading permit.

4.2 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.

4.2.1 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 study are based on the NEC Birch Street and Los Angeles Avenue Residential Project Traffic Impact Study Scoping Agreement and the ITE Trip Generation Manual, 11th Edition.

The Emission Factors (EMFAC) 2021 model is used to estimate the mobile source emissions and is 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 11.

Table 11
Operational Vehicle Miles Traveled

Land Use	Annual Vehicle Miles Traveled (VMT)
Apartments – Low and Medium Rise	4,683,573

The operational vehicle fleet mix has been adjusted to reflect typical residential developments which are not expected to generate a significant amount of truck trips. However, to be conservative, this analysis has assumed a 2% truck mix for all vehicles over 10,000 pounds gross vehicle weight rating (GVWR), which includes LHD2, MHD, HHD, OBUS, UBUS, and SBUS vehicles.

Table 12 summarizes vehicle mix used for this project.

Table 12
Vehicle Mix for Trips[1]

YUY	Vehicle Mix (%)
Light Duty Automobile (LDA)	45.82%
Light Duty Truck (LDTI)	3.88%
Light Duty Truck (LDT2)	22.39%
Medium Duty Truck (MDV)	20.02%
Light Heavy Truck (LHD1)	3.73%
Light Heavy Truck (LHD2)	0.32%
Medium Heavy Truck (MHD)	0.44%
Heavy Heavy Truck (HHD)	1.06%
Other Bus (OBUS)	0.02%
Urban Bus (UBUS)	0.01%
Motorcycle (MCY)	2.17%
School Bus (SBUS)	0.05%
Motor Home (MH)	0.11%
Total	**100.0%**

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

4.2.2 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 a 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.

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 project will include on-site renewable energy (photovoltaic) installations per the latest 2022 CA Energy Code requirements. The Energy Code requires all new residential construction to provide net-zero electricity demand through on-site renewable sources.

Table 13 shows the total annual expected electricity and natural gas usage for the proposed project.

Table 13
Electricity and Natural Gas Usage

Land Use	Electricity Usage[1] (KWhr/yr)[2]	Natural Gas Usage[1] (KBTU/yr)[2]
Apartments Low Rise	245,745	1,382,474
Apartments Mid Rise	609,931	3,119,433
Parking Lot	119,513	-
Total	**975,188**	**4,501,907**

[1] CalEEMod unmitigated default estimates.
[2] KWhy/yr = Kilowatt Hours per Year
KBTU/yr = Thousand British Thermal Units per Year

4.2.3 Area Source Emissions

Area source emissions are direct sources of emissions that fall under four categories: hearths, consumer products, architectural coatings, and landscaping equipment.

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

It was assumed that any paints used would meet the current SJVUAPCD District Rule 4601 VOC limit of 50 grams per liter (g/L) for flats, 50 g/L for non-flat, and those used for traffic coating would meet the 100 g/L VOC limit.

Per SJVUAPCD District Rule 4901, no wood-burning fireplaces, low mass fireplaces, masonry heaters, or wood-burning heaters will be included as part of the project.

4.2.4 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.

Table 14
Operational Water Usage and Waste Generation[1]

Land Use	Water Usage (gallons/year)			Waste Generation (tons/year)
	Indoor	Outdoor	Total	
Apartments Low Rise	2,027,392.50	1,709,841.79	3,737,234.29	36.97
Apartments Mid Rise	5,027,933.40	-	5,027,933.40	91.63
Parking Lot	-	-	-	-
Total	**7,055,325.90**	**1,709,841.79**	**8,765,167.69**	**128.60**

[1] CalEEMod default estimates.

5.0 Significance Thresholds

The San Joaquin Valley Air Pollution Control District's Guidance for Assessing and Mitigating Air Quality Impacts, March 2015, (SJVUAPCD Guidelines) establishes air quality and greenhouse gas emissions thresholds for purposes of determining whether a project may have a significant effect on the environment per Section 15002(g) of the Guidelines for implementing CEQA.

5.1 Air Quality Thresholds of Significance

The SJVUAPCD 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 according to CEQA. By complying with the thresholds of significance, the project would be in compliance with the SJVUAPCD Guidelines 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.

Table 15
SJVUAPCD Air Quality Thresholds of Significance[1]

Pollutant/Precursor	Construction Emissions (tons/year)[2]	Operational Emissions[3]	
		Permitted Equipment and Activities (tons/year)	Non-Permitted Equipment and Activities (tons/year)
Carbon Monoxide (CO)	100	100	100
Oxides of Nitrogen (NO_x)	10	10	10
Volatile Organic Compounds (VOC)	10	10	10
Oxides of Sulfur (SO_x)	27	27	27
Particulate Matter (PM_{10})	15	15	15
Particulate Matter ($PM_{2.5}$)	15	15	15

[1] Source: SJVUAPCD Guidance for Assessing and Mitigating Air Quality Impacts (March 19, 2015).
[2] Construction emissions thresholds are based on a rolling 12-month period.
[3] Operational emissions are based on a calendar year basis.

5.1.1 Screening Tools: Small Project Analysis Level (SPAL)

In order to streamline the process of assessing the significance of criteria pollutant emissions from commonly encountered projects, the District has developed the Small Project Analysis Level (SPAL) screening tool. The District developed the SPAL tool by pre-quantifying emissions of common projects and determining a size below which it is reasonable to conclude that a project would not exceed the applicable construction and operation thresholds of significance for criteria pollutants.

Table 16 provides the residential projects that are deemed to have a less than significant impact on air quality under the SPAL screening tool based on project type, size, and number of vehicle trips.

Table 16
Residential SPAL Screening Tool Criteria

Land Use Type	Size (DU)		Average daily one-way trips for all fleet types (except HHDT)	Average daily one-way for HHDT trips only (50-mile trip length)
Single Family	155			
Apartment, Low Rise	224	**AND**		
Apartment, Mid Rise	225	**LESS**		
Apartment, High Rise	340	**THAN**		
Condominiums/Townhouse	256		800	15
Condominiums, High Rise	352			
Mobile Home Park	292			
Retirement Community	580			
Congregate Care Assisted Living	536			

5.1.2 Ambient Air Quality Thresholds

The SJVUAPCD's Guidance for Assessing and Mitigating Air Quality Impacts document provides guidance in determining whether an ambient air quality analysis should be conducted for development projects. For a typical development project, the need to perform an ambient air quality analysis is determined on a case-by-case basis, depending on project size. The District has predetermined that development projects below a specific size are not required to conduct an ambient air quality analysis, as they are not anticipated to exceed the significance thresholds for criteria pollutants.

Table 17 provides the ambient air quality applicability thresholds. Developments that are smaller than the sizes listed below can be screened out from ambient air quality analyses.

Table 17
Ambient Air Quality Analysis Screening Levels for Development Projects[1]

Development Project Type	Space/Size
Residential	50 dwelling units
Commercial	2,000 square feet
Light Industrial	25,000 square feet
Heavy Industrial	100,000 square feet
Medical Office	20,000 square feet
General Office	39,000 square feet
Educational	9,000 square feet
Governmental	10,000 square feet
Recreational	20,000 square feet
Transportation/Transit	Construction exhaust emissions equal to or exceed two (2.0) tons NOx or two (2.0) tons of PM^{10}.

[1] Source: SJVUAPCD Guidance for Assessing and Mitigating Air Quality Impacts, Table 4: AAQA Analysis Screening Levels for Development Projects.

For development projects to equal to or above the applicability thresholds listed in Table 17, emissions from the project should be quantified to determine if an ambient air quality analysis is needed. The District recommends that an ambient air quality analysis be performed when emissions of any criteria pollutant related to construction or operational activities exceed 100 pounds per day, after compliance with District requirements and implementation of all enforceable mitigation measures.

5.1.3 Toxic Air Contaminants (TAC) Thresholds

Table 18 shows the current SJVUAPCD thresholds of significance for project-related TAC emissions. Carcinogenic (cancer) risk is expressed as cancer cases per one million. Non-carcinogenic (acute and chronic) hazard indices (HI) are expressed as a ratio of expected exposure levels to acceptable exposure levels.

Table 18
Toxic Air Contaminants Thresholds of Significance[1]

Pollutant	Threshold
Carcinogens	Maximally Exposed Individual risk equals or exceeds 10 in one million
Non-Carcinogens	Acute: Hazard Index equals or exceeds 1 for the Maximally Exposed Individual
	Chronic: Hazard Index equals or exceeds 1 for the Maximally Exposed Individual

[1] Source: SJVUAPCD Guidance for Assessing and Mitigating Air Quality Impacts, Table 5: Air Quality Thresholds of Significance – Toxic Air Contaminants.

The SJVUAPCD recommends various tools to perform a health risk assessment screening for proposed projects. For projects such as residential, commercial, and institutional developments, the SJVUAPCD utilizes a screening table published in the ARB Handbook: *Air Quality and Land Use Handbook: A Community Health Perspective*. If a proposed project is located within one of the following established buffer distances to any of the listed sources, a health risk screening and/or assessment should be performed.

Table 19
Toxic Air Contaminants Screening Table[1]

Source Category	Advisory Recommendations
Freeways and high-traffic roads	• Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day.
Distribution centers	• Avoid siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week). • Take into account the configuration of existing distribution centers and avoid locating residences and other new sensitive land uses near entry and exit points.
Rail yards	• Avoid siting new sensitive land uses within 1,000 feet of a major service and maintenance rail yard. • Within one mile of a rail yard, consider possible siting limitations and mitigation approaches.
Ports	• Avoid siting of new sensitive land uses immediately downwind of ports in the most heavily impacted zones. Consult local air districts or the ARB on the status of pending analyses of health risks.
Refineries	• Avoid siting new sensitive land uses immediately downwind of petroleum refineries. Consult with local air districts and other local agencies to determine an appropriate separation.
Chrome platers	• Avoid siting new sensitive land uses within 1,000 feet of a chrome plater.
Dry cleaners using perchloroethylene	• Avoid siting new sensitive land uses within 300 feet of any dry cleaning operation. For operations with two or more machines, provide 500 feet. For operations with 3 or more machines, consult with the local air district. • Do not site new sensitive land uses in the same building with perc dry cleaning operations.
Gasoline dispensing facilities	• Avoid siting new sensitive land uses within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50 foot separation is recommended for typical gas dispensing facilities.

[1] Source: ARB *Air Quality and Land Use Handbook: A Community Health Perspective,* Table 1-1: Recommendations on Siting New Sensitive Land Uses Such As Residences, Schools, Daycare Centers, Playgrounds, or Medical Facilities.

5.1.4 Cumulative Impacts

The SJVUAPCD requires that projects are assessed for potential cumulative impacts. Per the SJVUAPCD Guidance for Assessing and Mitigating Air Quality Impacts, a project is considered cumulatively considerable when its incremental effects are significant when viewed in connection with the effects of past projects, other current projects, and probably future projects. The SJVUAPCD cumulative impacts guidelines state that any proposed

development project that would individually have a significant air quality impact would also be considered to have a significant cumulative air quality impact.

Additionally, CEQA Guidelines §15064(h)(3) states that a Lead Agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program, including, but not limited to an air quality attainment or maintenance plan that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area in which the project is located.

5.2 Greenhouse Gas Thresholds of Significance

The SJVUAPCD describes its methodology for assessing a project's significance for GHGs in their *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA* (December 2009). The purpose of the document is to assist lead agencies in addressing the impacts of GHGs for CEQA purposes.

The criteria used to assess a project's GHG emissions are based on established on Best Performance Standards (BPS). Best Performance Standards (BPS) are defined as the most effective achieved-in-practice means of reducing or limiting GHG emissions from a given source. For development projects, BPS focuses on measures that improve energy efficiency and those that reduce vehicle miles travelled. Emission reductions achieved through the implementation of BPS would be pre-quantified, and project specific quantification of GHG emissions would not be required.

The following criteria are provided in the document to determine whether a project will have a significant impact as a result of GHG emissions:

- Projects determined to be exempt from the requirements of CEQA would be determined to have a less than significant individual and cumulative impact for GHG emissions and would not require further environmental review, including analysis of project specific GHG emissions. Projects exempt under CEQA would be evaluated consistent with established rules and regulations governing project approval and would not be required to implement Best Performance Standards (BPS).

- Projects complying with an approved GHG emission reduction plan or GHG mitigation program which avoids or substantially reduces GHG emissions within the geographic area in which the project is located would be determined to have a less

than significant individual and cumulative impact for GHG emissions. Such plans or programs must be specified in law or approved by the lead agency with jurisdiction over the affected resource and supported by a CEQA compliant environmental review document adopted by the lead agency. Projects complying with an approved GHG emission reduction plan or GHG mitigation program would not be required to implement BPS.

- Projects implementing Best Performance Standards would not require quantification of project specific GHG emissions. Consistent with CEQA Guidelines, such projects would be determined to have a less than significant individual and cumulative impact for GHG emissions.

- Projects not implementing Best Performance Standards would require quantification of project specific GHG emissions and demonstration that project specific GHG emissions would be reduced or mitigated by at least 29%, compared to Business-as-Usual (BAU), including GHG emission reductions achieved since the 2002-2004 baseline period. Projects achieving at least a 29% GHG reduction compared to BAU would be determined to have a less than significant individual and cumulative impact for GHG.

- Notwithstanding any of the above provisions, projects requiring preparation of an Environmental Impact Report for any other reason would require quantification of project specific GHG emissions. Projects implementing BPS or achieving at least a 29% GHG emission reduction compared to BAU would be determined to have a less than significant individual and cumulative impact for GHG.

6.0 Air Quality Impact Analysis

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

a. Conflict with or obstruct implementation of the applicable air quality plan.

b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable Federal or State ambient air quality standard.

c. Expose sensitive receptors to substantial pollutant concentrations.

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

6.1 Short-Term Air Quality Impacts - Construction

6.1.1 Regional Construction Emissions

Air quality emissions include both on-site and off-site emissions associated with the construction of the project. Annual construction emissions are compared with SJVUAPCD criteria pollutant thresholds of significance. Daily construction emissions are compared with the District's Ambient Air Quality Analysis Screening Levels.

Table 20 shows the project's annual construction emissions in tons per year. Table 21 shows the project's daily construction emissions in pounds per day. Per the SJVUAPCD Guidelines, a project should perform an ambient air quality analysis if the on-site emissions from construction activities exceeds 100 pounds per day of any criteria pollutant, after implementation of all enforceable mitigation measures.

CalEEMod emissions outputs are provided in Appendix A.

Table 20
Annual Construction Air Quality Emissions

Maximum Annual Emissions (tons/year)						
Year	**VOC**	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
2026	0.22	1.60	2.60	0.00	0.33	0.14
2027	0.57	0.08	0.13	0.00	0.01	0.00
Maximum[1]	**0.57**	**1.60**	**2.60**	**0.00**	**0.33**	**0.14**
SJVUAPCD Threshold	10	10	100	27	15	15
Exceeds Threshold (?)	**No**	**No**	**No**	**No**	**No**	**No**

[1] Maximum annual emissions include both on-site and off-site emissions.

Table 21
Construction Emissions Ambient Air Quality Screening[1]

Maximum Daily Emissions (lbs/day)						
Year	**VOC**	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Site Preparation	3.21	29.24	29.64	0.05	9.12	5.13
Grading	1.75	18.20	18.81	0.04	4.34	2.21
Building Construction	1.63	11.14	21.87	0.03	2.08	0.76
Paving	1.23	7.19	10.65	0.01	0.50	0.34
Architectural Coating	55.94	0.94	2.22	0.00	0.33	0.09
Maximum[2]	**55.94**	**29.24**	**29.64**	**0.05**	**9.12**	**5.13**
SJVUAPCD Screening Threshold	100	100	100	100	100	100
Exceeds Threshold (?)	**No**	**No**	**No**	**No**	**No**	**No**

[1]Per the SJVUAPCD Guidelines, the District recommends that an ambient air quality analysis be performed when the increase in on-site emissions from construction activities exceeds the 100 lbs/day screening level of any criteria pollutant, after implementation of all enforceable mitigation measures.
[2] Maximum daily emissions during summer or winter; includes both on-site and off-site emissions.

Table 20 shows that the project's annual construction emissions will be below the applicable SJVUAPCD criteria air pollutant thresholds of significance. Table 21 shows that the project's daily construction emissions will be below the applicable ambient air quality analysis screening thresholds. As a result, the project would not contribute substantially to

an existing or projected air quality violation, and no further ambient air quality assessment is required.

The project must follow mandatory SJVUAPCD rules and regulations with regard to fugitive dust control, as described in Section 2.4 of this report. Compliance with the standard dust control measures is considered to be part of the conditions of approval for the project and is reflected in the emissions in Tables 20 and 21.

By complying with SJVUAPCD 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 that exceed quantitative thresholds for ozone precursors).

Therefore, the project's short-term construction impact on regional air resources will be less than significant.

6.1.2 Fugitive Dust - Construction

The project is required to comply with regional rules that assist in reducing short-term air pollutant emissions associated with suspended particulate matter, also known as fugitive dust. Fugitive dust emissions are commonly associated with land clearing activities, cut-and-fill grading operations, and exposure of soils to the air and wind. SJVUAPCD Regulation III requires that fugitive dust is controlled with best-available control measures.

To ensure full compliance with the applicable dust control standards, the following project design features will be incorporated as conditions of approval:

DF-2. The project must follow the SJVUAPCD rules and requirements with regard to fugitive dust control, which include, but are not limited to the following:

- Apply water to unpaved surfaces and areas.
- Use non-toxic chemical or organic dust suppressants on unpaved roads and traffic areas.
- Limit or reduce vehicle speed on unpaved roads and traffic areas.
- Maintain areas in a stabilized condition by restricting vehicle access.
- Install wind barriers.
- During high winds, cease outdoor activities that disturb the soil.
- Keep bulk materials sufficiently wet when handling.

- Store and handle materials in a three-sided structure.
- When storing bulk materials, apply water to the surface or cover the storage pile with a tarp.
- Don't overload haul trucks. Overloaded trucks are likely to spill bulk materials.
- Cover haul trucks with a tarp or other suitable cover. Or, wet the top of the load enough to limit visible dust emissions.
- Clean the interior of cargo compartments on emptied haul trucks prior to leaving a site.
- Prevent trackout by installing trackout control devices at all project access points.
- Clean up trackout at least once a day. If along a busy road or highway, clean up trackout immediately.
- Monitor dust-generating activities and implement appropriate measures for maximum dust control.

By complying with the above construction design features, the project impact from fugitive dust emissions will be less than significant.

6.1.3 Odors - Construction

Heavy-duty equipment in the project area during construction will emit odors. However, the construction activity would cease to occur after project construction is completed. The project is required to comply with District Rule 4102 during construction, which states that a person shall not discharge from any source whatsoever such quantities of air contaminants or other materials 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 person or the public or which cause or have a natural tendency to cause injury or damage to business or property.

Therefore, the project impact from construction-related odor emissions will be less than significant.

6.1.4 Asbestos - Construction

Asbestos is a carcinogen and is categorized as a hazardous air pollutant by the Environmental Protection Agency (EPA). Asbestos fibers embedded within construction

materials become a health hazard once they are disturbed and rendered airborne, such as through physical contact during building renovation and demolition activities. Asbestos is regulated through the National Emissions Standards for Hazardous Air Pollutants (NESHAP) and SJVUAPCD is the local enforcement authority for asbestos.
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 the vicinity of the project site. Therefore, the potential risk for naturally occurring asbestos (NOA) during project construction is small.

In the event asbestos is found on the site, the project will be required to comply with SJVUAPCD and NESHAP standards and protocols. **By following the required asbestos abatement protocols, the project impact from asbestos would be less than significant.**

6.1.5 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.[3]

The HRA Guidelines provide risk factors based on exposure to toxic substances over a 30-year life 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, SJVUAPCD does not typically require the evaluation of long-term cancer risk or chronic health impacts for construction operations from a project such as the one being proposed.

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

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

To help further reduce the potential health risks associated with DPM exposure during construction, it is recommended the following project design features be imposed as conditions of approval:

DF-3. Construction equipment should be maintained in proper tune.

DF-4. All construction vehicles should 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. Establish an electricity supply to the construction site and use electric-powered equipment instead of diesel-powered equipment or generators, where feasible.

DF-7. Establish staging areas for the construction equipment that are as far from adjacent residential homes, as feasible.

DF-8. Use haul trucks with on-road engines instead of off-road engines for on-site hauling.

6.2 Long-Term Air Quality Impacts - Operations

6.2.1 Regional Operational Emissions

Air quality emissions include both on-site and off-site emissions associated with the operation of the project. Annual operational emissions are compared with SJVUAPCD criteria pollutant thresholds of significance. Daily operational emissions are compared with the District's Ambient Air Quality Analysis Screening Levels.

Tables 22 and 23 show the project's annual and daily long-term operational emissions, respectively. CalEEMod emissions outputs are provided in Appendix A.

Table 22
Annual Operational Air Quality Emissions (tons/year)[1]

Source	VOC	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Mobile Sources	0.59	0.74	6.31	0.02	1.64	0.43
Energy Sources	0.01	0.21	0.09	0.00	0.02	0.02
Area Sources	0.99	0.09	2.52	0.01	0.24	0.23
Total	**1.59**	**1.04**	**8.92**	**0.03**	**1.90**	**0.68**
SVJUAPCD Threshold	10	10	100	27	15	15
Exceeds Threshold (?)	**No**	**No**	**No**	**No**	**No**	**No**

[1] Total annual emission includes both on-site and off-site sources.

Per the SJVUAPCD Guidelines, stationary source projects should perform an ambient air quality analysis when the increase in on-site operational emissions from permitted or non-permitted equipment and activities exceed 100 pounds per day. Stationary source projects are defined by the SJVUAPCD as facilities that are subject to District air quality permitting or that include equipment or activities that are subject to District air quality permitting.

The proposed project is not subject to District air quality permitting, nor does it include equipment or activities that are subject to District air quality permitting. However, to be conservative, the following operational emissions ambient air quality screening analysis has been prepared in order to demonstrate that the project will not exceed the 100 pounds per day emissions threshold.

Table 23
Operational Emissions Ambient Air Quality[1,2]

Source	VOC	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Mobile Sources	3.52	4.33	43.13	0.10	9.10	2.35
Energy Sources	0.07	1.14	0.48	0.01	0.09	0.09
Area Sources	9.28	2.18	49.75	0.14	5.73	5.52
Total	**12.87**	**7.65**	**93.36**	**0.25**	**14.92**	**7.96**
SJVUAPCD Screening Threshold	100	100	100	100	100	100
Exceeds Threshold (?)	**No**	**No**	**No**	**No**	**No**	**No**

[1] Per the SJVUAPCD Guidelines, the District recommends that an ambient air quality analysis be performed when the increase in on-site emissions from operational activities exceeds the 100 lbs/day screening level of any criteria pollutant, after implementation of all enforceable mitigation measures.
[2] Maximum daily emission during summer or winter; includes both on-site and off-site project emissions.

As shown in Tables 22 and 23, the project's annual and daily operational emissions will be below the applicable SJVUAPCD air quality thresholds of significance and the project would not contribute substantially to an existing or projected air quality violation. Furthermore, by complying with the SJVUAPCD 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 that exceed quantitative thresholds for ozone precursors).

Furthermore, Tables 20 and 21 show that the project's daily construction emissions will be below the applicable thresholds. As a result, the project would not contribute substantially to an existing or projected air quality violation, and no further ambient air quality assessment is required.

Therefore, the project's long-term operational impact on regional air resources will be less than significant.

6.2.2 Toxic Air Contaminants – Operations

SJVUAPCD Guidelines indicates that a project may result in a significant impact if it exposes sensitive receptors to substantial pollutant concentrations, including those resulting in a cancer risk greater than or equal to 10 in a million and/or a Hazard Index (HI) (non-cancerous) greater than or equal to 1.

The project includes the development of residential land uses, which have not been identified by the SJVUAPCD as a potentially significant generator of TACs that could cause the exposure of sensitive receptors to substantial pollutant concentrations. Therefore, since the project is not considered a substantial source of stationary pollution, the proposed project may be presumed to cause a less than significant impact without the need for further evaluation.

Furthermore, the proposed project site is not located within the vicinity of any freeways, distribution centers, rail yards, ports, refineries, chrome platers, dry cleaners, or gasoline dispensing facilities. Based on the *NEC Birch Street and Los Angeles Street Residential Project Traffic Impact Study,* performed by RK engineering, the existing average daily traffic (ADT) along Los Angeles Street is 4,222, which is below the rural road threshold of 50,000 vehicles per day. The nearest major roadway or rail line is Highway 43 which is located more than 1,800 feet from the nearest proposed residential dwelling unit and outside the 500-foot radius of concern. Therefore, the project's cancer risk and hazard indices may be presumed to have a less than significant impact without the need for further evaluation.

Hence, the project's operational impact from TAC exposure and emissions will be less than significant.

6.2.3 Odors – Operations

Odors are typically categorized as a nuisance and are regulated under SJVUAPCD District Rule 4102. Rule 4102 requires that a person shall not discharge from any source whatsoever such quantities of air contaminants or other materials 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 person or the public or which cause or have a natural tendency to cause injury or damage to business or property.

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. **Hence, the project related odors are not expected to meet the criteria of being a nuisance and the impact is considered less than significant.**

6.2.4 Carbon Monoxide (CO) from Mobile Sources

The SJVUAPCD regulates localized CO emissions in order to minimize exposure of sensitive receptors that are near the project site. Typically, areas with high concentrations of CO, or CO "hotspots," are linked to roadways or intersections with heavy traffic and congestion. Therefore, the District has established a preliminary CO hotspot screening based on California Department of Transportation (CalTrans) protocol. The screening utilizes thresholds based on the level of service at streets and intersections near the project site. The SJVUAPCD Guidance for Assessing and Mitigating Air Quality Impacts outlines two specific criteria that would result in a project-specific CO hotspot modeling requirement:

1. A traffic study for the project indicates that the Level of Service (LOS) on one or more streets or at one or more intersections in the project vicinity will be reduced to LOS E or F; or

2. A traffic study indicates that the project will substantially worsen an already existing LOS F on one or more streets or at one or more intersections in the project vicinity.

RK conducted the *NEC Birch Street and Los Angeles Avenue Residential Project Traffic Impact Study* (Traffic Study). Based on the traffic study findings, the proposed project is not expected to reduce the LOS to E or F at any of the streets or intersections adjacent to the project site. Additionally, it will not substantially worsen an already existing LOS F at any streets or intersections near the project site. Therefore, the project will not require CO hotspot modeling, and **the project impact to air quality due to CO emissions will be less than significant.**

7.0 Greenhouse Gas Impact Analysis

Consistent with CEQA Guidelines, a significant impact related to greenhouse gas would occur if the proposed project were determined to:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing emissions of greenhouse gases.

7.1 Greenhouse Gas Emissions - Construction

Greenhouse gas emissions are estimated for on-site and off-site construction activity using CalEEMod.

Table 24 shows the annual construction greenhouse gas emissions in metric tons per year. As shown in the table below, the estimated total GHG emissions during construction will be approximately 572.67 $MTCO_2e$ per year, or 19.09 $MTCO_2e$ per year when amortized over 30 years. It should be noted that project related GHG emissions generated during construction of the project would be short-term in nature. Therefore, they do not constitute a lasting, ongoing source of GHG emissions.

Table 24
Annual Construction Greenhouse Gas Emissions

Year	Annual GHG Emissions (MT/year)[1]			
	CO_2	CH_4	N_2O	CO_2e
2024	546.81	0.02	0.02	553.91
2026	18.66	0.00	0.00	18.76
Total	**565.47**	**0.02**	**0.02**	**572.67**
Amortized over 30 years	18.85	0.00	0.00	19.09

[1] MT/year = metric tons per year

7.2 Greenhouse Gas Emissions - Operation

Greenhouse gas emissions are estimated for on-site and off-site operational activity using CalEEMod. Greenhouse gas emissions from mobile, energy, and area sources are shown in the table below. Additionally, GHG emissions associated with water, waste, and refrigerant generation and usage are estimated. CalEEMod report sheets are provided in Appendix A.

Table 25
Annual Operational Greenhouse Gas Emissions

Emission Source	GHG Emissions (MT/year)[1]			
	CO_2	CH_4	N_2O	CO_2e
Mobile	1,641.13	0.05	0.06	1,663.77
Energy	329.10	0.04	0.00	330.66
Area	105.46	0.17	0.00	109.65
Water	5.19	0.23	0.01	12.58
Waste	11.47	1.15	0.00	40.15
Refrigerant	--	--	--	0.20
30-year Construction Amortization	18.85	0.00	0.00	19.09
Total	**2,111.21**	**1.63**	**0.07**	**2,176.10**

[1] MT/year = metric tons per year.

As shown in Table 25, the estimated annual operational GHG emissions will be 2,176.02 $MTCO_2e$ per year, including operational emissions and amortized construction.

7.3 Greenhouse Gas Impacts

Per the SJVUAPCD *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA* document, a proposed project may utilize Best Performance Standards (BPS) to achieve a less than significant impact from GHG emissions. The BPS have been developed to enforce specific reduction strategies as part of the CEQA process for development projects. Projects that garner at least 29 points are presumed to be consistent with SJVUAPCD guidelines. Consistent with CEQA and SJVUAPCD guidelines, such projects would be determined to have a less than significant individual and cumulative impact for GHG emissions.

As shown in Table 26 below, the project will garner a total of 29 points by implementing various BPS Measures.

In addition to the quantified measures, the project will implement nine (9) Unquantified BPS Measures, for which the SJVUAPCD has not assigned specific point values. These measures include actions like installing electric stoves in residences and increasing land use density beyond nine units per acre. Based on the CAPCOA *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*, December 2021, installing only electric stoves could result in up to a 15% reduction in GHG emissions associated with electricity, while increasing land use density above nine units per acre could result in up to a 30% reduction in GHG emissions associated with VMT.

Therefore, this study assumes that the Quantified and Unquantified BPS Measures would collectively earn enough points to achieve a total of 29.0 points. Hence, by implementing the BPS detailed in Table 6 below, the proposed project would be consistent with SJVUAPCD guidelines, and the individual and cumulative GHG emissions impacts would be less than significant.

The implementation of BPS is considered to be a mitigation measure of the project.

Table 26
Project Greenhouse Gas Reduction Measures

Measure #	Measure Name	Estimated CO_2 Equivalent Point Reductions	Measure Description
Quantified BPS Measures			
3	Bike parking at multi-unit residential	0.625	Long-term bicycle parking is provided at apartment complexes or condominiums without garages. Project provides one long-term bicycle parking space for each unit without a garage. Long-term facilities shall consist of one of the following: a bicycle locker, a locked room with standard racks andaccess limited to bicyclists only, or a standard rack in a location that is staffed and/or monitored by video surveillance 24 hours per day.
5	Pedestrian network	1	The project provides a pedestrian access network that internally links all uses and connects to existing external streets and pedestrian facilities. Existing facilities are defined as those facilities that are physically constructed and ready for use prior to the first 20% of the projects occupancy permits being granted.
6	Pedestrian barriers minimized	1	Site design and building placement minimize barriers to pedestrian access and interconnectivity. Physical barriers such as walls, berms, landscaping, and slopes between residential and nonresidential uses that impede bicycle or pedestrian circulation are eliminated. Barriers to pedestrian access of neighboring facilities and sites are minimized. This measure is not meant to prevent the limited use of barriers to ensure public safety by prohibiting access to hazardous areas, etc…
9	Traffic calming	1	Project design includes pedestrian/bicycle safety and traffic calming measures in excess of jurisdiction requirements. Roadways are designed to reduce motor vehicle speeds and encourage pedestrian and bicycle trips by featuring traffic calming measures. Traffic calming measures include: bike lanes, center islands, closures (cul-de-sacs), diverters, education, forced turn lanes, roundabouts, speed humps, etc… Percent of Streets with Improvements
12	Parking reduction beyond code	6	Provide parking reduction less than code. Special review of parking required. Recommend a Shared Parking strategy. Trip reductions associated with parking reductions beyond code shall be computed in the same manner as described under measure 11, as the same methodology applies. The maximum achievable trip reduction is 12%. This measure can be readily implemented through a Shared Parking strategy, wherein parking is utilized jointly among different land uses, buildings, and facilities in an area that experience peak parking needs at different times of day and day of the week. For example, residential uses and/or restaurant/retail uses, which experience peak parking demand during the evening/night and on the weekends, arrange to share parking facilities with office and/or educational uses, which experience peak demand during business hours and during the week.
13	Pedestrian pathway through parking	0.5	Provide a parking lot design that includes clearly marked and shaded pedestrian pathways between transit facilities and building entrances. Pathway must connect to all transit facilities internal or adjacent to project site. Site plan should demonstrate how the pathways are clearly marked, shaded, and are placed between transit facilities and building entrances.
14c	Off street parking	0.1	For 0.1% reduction, the project is not among high-density or mixed uses, is not connected to pedestrian or bicycle access ways, or is among uses that do not also hide parking. This point value is reflective of the importance that other pedestrian and density measures be in place in order for this measure to be effective.
18	Residential density with no transit - 21-30 DU/acre	5	Project provides high-density residential development. Mitgation value is based on project density with no transit. Density is calculated by determining the number of units per acre ("du/acre") within the residential portion of the project's net lot area.
20a	Neighborhood electric vehicle access [1]	1.5	For 1.5% reduction, a neighborhood shall have internal NEV connections and connections to other existing NEV networks serving all other types of uses.
21j	Affordable housing component	4	Reductions apply if 100% of units are deed-restricted below the market housing rate.
23	Suburban mixed-use	3	Have at least three of the following on site and/or offsite within ¼ mile: Residential Development, Retail Development, Park, Open Space, or Office.
25	Energy Star roof	0.5	Install Energy Star labeled roof materials. Energy star qualified roof products reflect more of the sun's rays, decreasing the amount of heat transferred into a building.
26	Renewable Energy	1	Project provides onsite renewable energy system(s).
27	Exceed Title 24 [2]	1	Project Exceeds title 24 requirements by 20%
28	Solar orientation	0.5	Orient 75 or more percent of homes and/or buildings to face either north or south (within 30 degrees ofNorth or South). Building design includes roof overhangs that are sufficient to block the high summersun, but not the lower winter sun, from penetrating south facing windows. Trees, other landscapingfeatures and other buildings are sited in such a way as to maximize shade in the summer andmaximize solar access to walls and windows in the winter.
29	Non-roof surfaces	1	Provide shade (within 5 years) and/or use light-colored/high-albedo materials (reflectance of at least0.3) and/or open grid pavement for at least 30% of the site's non-roof impervious surfaces, includingparking lots, walkways, plazas, etc.; OR place a minimum of 50% of parking spaces underground or covered by structured parking; OR use an open-grid pavement system (less than 50% impervious) for a minimum of 50% of the parking lot area. Unshaded parking lot areas, driveways, fire lanes, and other paved areas have a minimum albedo of .3 or greater
31	Electric lawnmower [3]	1	Provide a complimentary electric lawnmower to each residential buyer
Unquantified BPS Measures			
8	Open space	1.275	Preserve and create open space and parks. Preserve existing trees, and plant replacement trees at a set ratio.
9	Natural gas stove		Project features only natural gas or electric stoves in residences.
11	Vehicle idling		Limit idling time for commercial vehicles, including delivery and construction vehicles.
16	Energy efficient appliances		Install energy efficient heating and cooling systems, appliances and equipment, and control systems.
18	Solar panels in parking areas		Install solar panels on carports and over parking areas.
20	Tree planting		Protect existing trees and encourage the planting of new trees. Adopt a tree protection and replacement ordinance, e.g., requiring that trees larger than a specified diameter that are removed to accommodate development must be replaced at a set ratio.
22	Community gardens		Project shall dedicate space for community gardens.
24	Land use density		The project should provide densities of nine units per acre or greater, where allowed by the General Plan and/or Zone Plan, along bus routes and at bus stops to encourage transit use, where feasible.
25	Zero emission infrastructure		Provide the necessary facilities and infrastructure to encourage the use of low or zero-emission vehicles (e.g., electric vehicle charging facilities and conveniently located alternative fueling stations).
Total Points Garnered from Quantified Measures			**30.0**
Required Points for BPS Compliance			29.0

[1] The project will not have full internal NEV connections, however this measure will be satisfied through on-site electric vehicle infrastructure.

[2] Based on old Title 24 standards. Updated Title 24 Standards will exceed by at least 20%.

[3] Landscape company will be required to use electric equipment.

Furthermore, the project will be required to comply with the mandatory requirements of the latest 2019 California Building Standards Code, including Title 24, Part 11, CALGreen, and Title 24, Part 6, Energy Code. The purpose of the building standards is to reduce negative impacts on the environment through improved planning and design, energy efficiency, water efficiency and conservation, and material and resource conservation. The California Building Standards were developed to help meet the requirements of the Global Warming Solutions Act (AB 32).

By complying with the California Building Standards Code requirements the project would not conflict with an applicable plan, policy, or regulation for the purpose of reducing the emissions of greenhouse gases, and the impact is considered less than significant.

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

Recommended Mitigation Measures

GHG-1. The project will garner a minimum of 29 points using the SJVUAPCD GHG Emission Reduction BPS Measures for Development Projects. Refer to Section 7.3 of this report for a detailed discussion of the BPS measures that will be implemented by the project.

Recommended Design Features

DF-9. 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:

a. Install low flow fixtures and toilets, water efficient irrigation systems, drought tolerant/native landscaping, and reduce the amount of turf.

b. Provide the necessary infrastructure to support electric vehicle charging.

c. Provide solar installations (or other sources of on-site renewable energy) per the prescribed Energy Design Ratings.

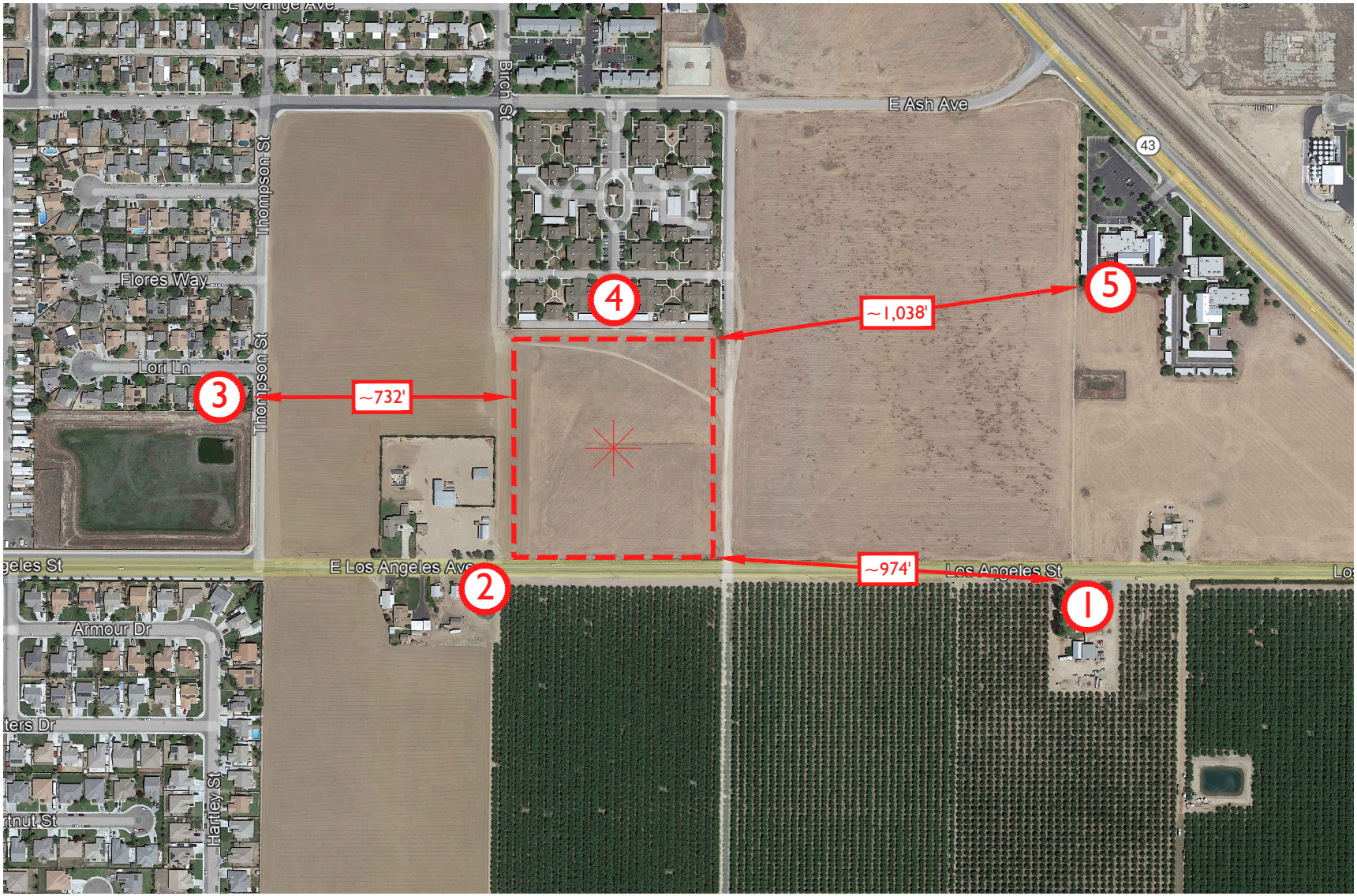
DF-10. Participate in the local waste management recycling and composting programs.

With the implementation of the recommended mitigation measures and project design features described in this report, the project will not conflict with an applicable plan, policy, or regulation for the purpose of reducing the emissions of greenhouse gases, and **the impact is considered less than significant.**

Exhibits

Exhibit A

Location Map



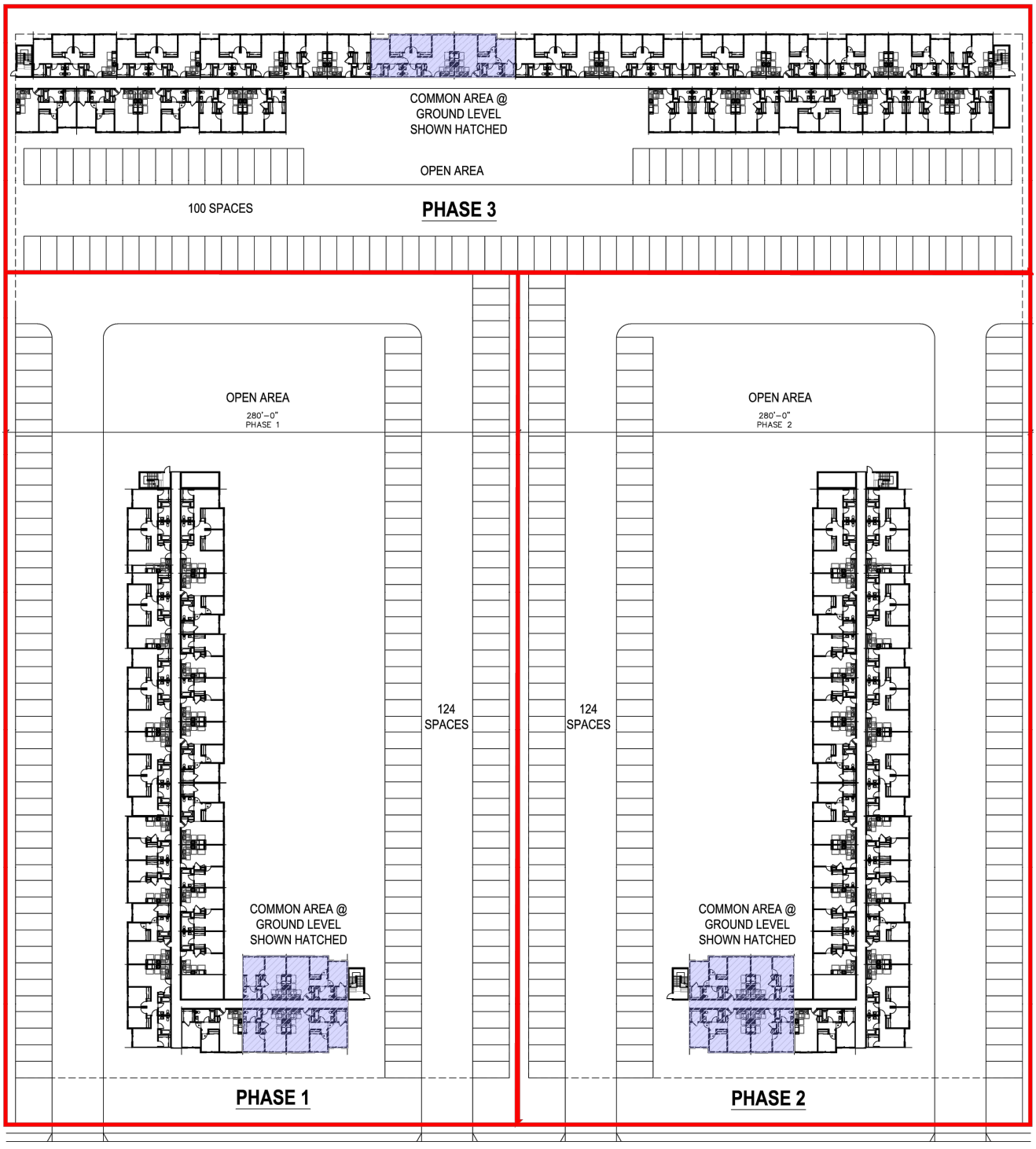
Legend:

- = Project Site Boundary
- = Project Site
- = Sensitive Receptor Location

N

Exhibit B

Site Plan



N

Appendices

Appendix A

CalEEMod Emissions Reports
(Annual, Summer & Winter)

NEC Birch Street and Los Angeles Street Residential Project Custom Report

Table of Contents

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	NEC Birch Street and Los Angeles Street Residential Project
Construction Start Date	1/1/2026
Operational Year	2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70
Precipitation (days)	16.2
Location	35.49369190074722, -119.2707751176763
County	Kern-San Joaquin
City	Shafter
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2848
EDFZ	5
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Southern California Gas
App Version	2022.1.1.18

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

Apartments Low Rise	50.0	Dwelling Unit	2.76	53,000	85,775	0.00	161	—
Apartments Mid Rise	124	Dwelling Unit	1.96	119,040	0.00	0.00	399	—
Parking Lot	348	Space	3.13	0.00	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	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.	1.91	1.63	11.0	21.9	0.03	0.39	1.70	2.08	0.36	0.40	0.76	—	4,649	4,649	0.12	0.16	7.01	4,707
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.82	55.9	29.2	29.6	0.05	1.24	7.88	9.12	1.14	3.99	5.13	—	5,674	5,674	0.22	0.44	0.18	5,808
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.39	3.13	8.78	14.3	0.02	0.32	1.47	1.79	0.29	0.45	0.74	—	3,303	3,303	0.10	0.13	2.08	3,346
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.25	0.57	1.60	2.60	< 0.005	0.06	0.27	0.33	0.05	0.08	0.14	—	547	547	0.02	0.02	0.34	554

2.2. Construction Emissions by Year, Unmitigated

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

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	1.91	1.63	11.0	21.9	0.03	0.39	1.70	2.08	0.36	0.40	0.76	—	4,649	4,649	0.12	0.16	7.01	4,707
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	3.82	3.21	29.2	29.6	0.05	1.24	7.88	9.12	1.14	3.99	5.13	—	5,674	5,674	0.22	0.44	0.18	5,808
2027	0.93	55.9	7.01	10.6	0.01	0.30	0.31	0.48	0.27	0.07	0.32	—	1,681	1,681	0.06	0.02	0.03	1,689
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	1.39	1.18	8.78	14.3	0.02	0.32	1.47	1.79	0.29	0.45	0.74	—	3,303	3,303	0.10	0.13	2.08	3,346
2027	0.06	3.13	0.42	0.69	< 0.005	0.02	0.03	0.04	0.02	0.01	0.02	—	113	113	< 0.005	< 0.005	0.04	113
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.25	0.22	1.60	2.60	< 0.005	0.06	0.27	0.33	0.05	0.08	0.14	—	547	547	0.02	0.02	0.34	554
2027	0.01	0.57	0.08	0.13	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	18.7	18.7	< 0.005	< 0.005	0.01	18.8

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.	13.8	12.9	7.02	93.4	0.25	5.89	9.03	14.9	5.68	2.29	7.96	1,028	14,534	15,563	13.3	0.41	37.8	16,056
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	12.6	11.7	7.55	73.4	0.24	5.88	9.03	14.9	5.67	2.29	7.96	1,028	13,459	14,488	13.3	0.45	2.18	14,956

Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	6.15	8.70	5.69	48.9	0.14	1.45	8.94	10.4	1.40	2.26	3.66	295	12,343	12,638	9.85	0.43	17.0	13,028
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.12	1.59	1.04	8.92	0.02	0.26	1.63	1.90	0.26	0.41	0.67	48.9	2,043	2,092	1.63	0.07	2.82	2,157

2.5. Operations Emissions by Sector, Unmitigated

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

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	3.87	3.52	3.71	43.1	0.10	0.07	9.03	9.10	0.07	2.29	2.35	—	10,670	10,670	0.30	0.36	36.6	10,823
Area	9.84	9.28	2.18	49.8	0.14	5.73	—	5.73	5.52	—	5.52	946	1,858	2,804	4.46	< 0.005	—	2,916
Energy	0.13	0.07	1.14	0.48	0.01	0.09	—	0.09	0.09	—	0.09	—	1,988	1,988	0.22	0.01	—	1,997
Water	—	—	—	—	—	—	—	—	—	—	—	13.5	17.8	31.4	1.39	0.03	—	76.0
Waste	—	—	—	—	—	—	—	—	—	—	—	69.3	0.00	69.3	6.93	0.00	—	242
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.23	1.23
Total	13.8	12.9	7.02	93.4	0.25	5.89	9.03	14.9	5.68	2.29	7.96	1,028	14,534	15,563	13.3	0.41	37.8	16,056
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	3.54	3.20	4.33	33.0	0.09	0.07	9.03	9.10	0.07	2.29	2.35	—	9,622	9,622	0.33	0.40	0.95	9,749
Area	8.91	8.41	2.08	39.9	0.14	5.72	—	5.72	5.51	—	5.51	946	1,832	2,777	4.46	< 0.005	—	2,890
Energy	0.13	0.07	1.14	0.48	0.01	0.09	—	0.09	0.09	—	0.09	—	1,988	1,988	0.22	0.01	—	1,997
Water	—	—	—	—	—	—	—	—	—	—	—	13.5	17.8	31.4	1.39	0.03	—	76.0
Waste	—	—	—	—	—	—	—	—	—	—	—	69.3	0.00	69.3	6.93	0.00	—	242
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.23	1.23

Total	12.6	11.7	7.55	73.4	0.24	5.88	9.03	14.9	5.67	2.29	7.96	1,028	13,459	14,488	13.3	0.45	2.18	14,956
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	3.56	3.22	4.04	34.6	0.10	0.07	8.94	9.01	0.07	2.26	2.33	—	9,913	9,913	0.32	0.38	15.8	10,049
Area	2.46	5.42	0.52	13.8	0.03	1.29	—	1.29	1.24	—	1.24	212	425	637	1.00	< 0.005	—	662
Energy	0.13	0.07	1.14	0.48	0.01	0.09	—	0.09	0.09	—	0.09	—	1,988	1,988	0.22	0.01	—	1,997
Water	—	—	—	—	—	—	—	—	—	—	—	13.5	17.8	31.4	1.39	0.03	—	76.0
Waste	—	—	—	—	—	—	—	—	—	—	—	69.3	0.00	69.3	6.93	0.00	—	242
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.23	1.23
Total	6.15	8.70	5.69	48.9	0.14	1.45	8.94	10.4	1.40	2.26	3.66	295	12,343	12,638	9.85	0.43	17.0	13,028
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.65	0.59	0.74	6.31	0.02	0.01	1.63	1.64	0.01	0.41	0.43	—	1,641	1,641	0.05	0.06	2.62	1,664
Area	0.45	0.99	0.09	2.52	0.01	0.24	—	0.24	0.23	—	0.23	35.2	70.3	105	0.17	< 0.005	—	110
Energy	0.02	0.01	0.21	0.09	< 0.005	0.02	—	0.02	0.02	—	0.02	—	329	329	0.04	< 0.005	—	331
Water	—	—	—	—	—	—	—	—	—	—	—	2.24	2.95	5.19	0.23	0.01	—	12.6
Waste	—	—	—	—	—	—	—	—	—	—	—	11.5	0.00	11.5	1.15	0.00	—	40.1
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.20	0.20
Total	1.12	1.59	1.04	8.92	0.02	0.26	1.63	1.90	0.26	0.41	0.67	48.9	2,043	2,092	1.63	0.07	2.82	2,157

3. Construction Emissions Details

3.1. Site Preparation (2026) - Unmitigated

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

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

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.74	3.14	29.2	28.8	0.05	1.24	—	1.24	1.14	—	1.14	—	5,298	5,298	0.21	0.04	—	5,316
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	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.09	0.80	0.79	< 0.005	0.03	—	0.03	0.03	—	0.03	—	145	145	0.01	< 0.005	—	146
Dust From Material Movement	—	—	—	—	—	—	0.21	0.21	—	0.11	0.11	—	—	—	—	—	—	—
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	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.15	0.14	< 0.005	0.01	—	0.01	0.01	—	0.01	—	24.0	24.0	< 0.005	< 0.005	—	24.1
Dust From Material Movement	—	—	—	—	—	—	0.04	0.04	—	0.02	0.02	—	—	—	—	—	—	—
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	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.08	0.83	0.00	0.00	0.21	0.21	0.00	0.05	0.05	—	203	203	< 0.005	0.01	0.02	—
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	—
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	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.77	5.77	< 0.005	< 0.005	0.01	—
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	—
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	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.95	0.95	< 0.005	< 0.005	< 0.005	—
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	—
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	—

3.3. Grading (2026) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.96	1.65	15.0	17.4	0.03	0.65	—	0.65	0.59	—	0.59	—	2,960	2,960	0.12	0.02	—	2,970

Dust From Material Movement	—	—	—	—	—	—	2.77	2.77	—	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	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.82	0.96	< 0.005	0.04	—	0.04	0.03	—	0.03	—	162	162	0.01	< 0.005	—	163
Dust From Material Movement	—	—	—	—	—	—	0.15	0.15	—	0.07	0.07	—	—	—	—	—	—	—
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	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.15	0.17	< 0.005	0.01	—	0.01	0.01	—	0.01	—	26.8	26.8	< 0.005	< 0.005	—	26.9
Dust From Material Movement	—	—	—	—	—	—	0.03	0.03	—	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	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.07	0.71	0.00	0.00	0.18	0.18	0.00	0.04	0.04	—	174	174	< 0.005	0.01	0.02	—
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	—
Hauling	0.09	0.04	3.16	0.66	0.02	0.05	0.70	0.74	0.05	0.19	0.24	—	2,540	2,540	0.02	0.41	0.16	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.89	9.89	< 0.005	< 0.005	0.02	—
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	—
Hauling	< 0.005	< 0.005	0.17	0.04	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	139	139	< 0.005	0.02	0.14	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.64	1.64	< 0.005	< 0.005	< 0.005	—
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	—
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	23.0	23.0	< 0.005	< 0.005	0.02	—

3.5. Building Construction (2026) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.81	0.67	6.21	8.17	0.01	0.24	—	0.24	0.22	—	0.22	—	1,511	1,511	0.06	0.01	—	1,516
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	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	1.13	1.49	< 0.005	0.04	—	0.04	0.04	—	0.04	—	250	250	0.01	< 0.005	—	251
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	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.60	0.54	0.47	8.69	0.00	0.00	1.53	1.53	0.00	0.36	0.36	—	1,654	1,654	0.02	0.06	5.45	—
Vendor	0.03	0.02	0.67	0.21	< 0.005	0.01	0.17	0.17	0.01	0.05	0.05	—	598	598	0.01	0.09	1.55	—
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	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.54	0.48	0.58	5.94	0.00	0.00	1.53	1.53	0.00	0.36	0.36	—	1,451	1,451	0.03	0.06	0.14	—
Vendor	0.02	0.02	0.71	0.22	< 0.005	0.01	0.17	0.17	0.01	0.05	0.05	—	599	599	0.01	0.09	0.04	—
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	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.35	0.31	0.33	4.09	0.00	0.00	0.95	0.95	0.00	0.22	0.22	—	950	950	0.02	0.04	1.49	—
Vendor	0.02	0.01	0.44	0.14	< 0.005	0.01	0.10	0.11	0.01	0.03	0.03	—	377	377	< 0.005	0.05	0.42	—
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	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.06	0.75	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	157	157	< 0.005	0.01	0.25	—
Vendor	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	62.4	62.4	< 0.005	0.01	0.07	—
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	—

3.7. Paving (2026) - Unmitigated

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

Location	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	0.91	0.76	7.12	9.94	0.01	0.32	—	0.32	0.29	—	0.29	—	1,511	1,511	0.06	0.01	—	1,516
Paving	—	0.41	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.96	2.96	< 0.005	< 0.005	—	2.97
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.49	0.49	< 0.005	< 0.005	—	0.49
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.07	0.71	0.00	0.00	0.18	0.18	0.00	0.04	0.04	—	174	174	< 0.005	0.01	0.02	—
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	—
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	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.35	0.35	< 0.005	< 0.005	< 0.005	—
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	—
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	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.06	0.06	< 0.005	< 0.005	< 0.005	—
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	—
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	—

3.9. Paving (2027) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	0.74	6.94	9.95	0.01	0.30	—	0.30	0.27	—	0.27	—	1,511	1,511	0.06	0.01	—	1,516
Paving	—	0.41	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.37	0.53	< 0.005	0.02	—	0.02	0.01	—	0.01	—	79.8	79.8	< 0.005	< 0.005	—	80.1
Paving	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.2	13.2	< 0.005	< 0.005	—	13.3
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.06	0.65	0.00	0.00	0.18	0.18	0.00	0.04	0.04	—	170	170	< 0.005	0.01	0.02	—
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	—
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	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.34	9.34	< 0.005	< 0.005	0.01	—
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	—
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	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.55	1.55	< 0.005	< 0.005	< 0.005	—

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	—
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	—

3.11. Architectural Coating (2027) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.11	0.83	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	55.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.32	7.32	< 0.005	< 0.005	—	7.34
Architectural Coatings	—	3.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.21	1.21	< 0.005	< 0.005	—	1.22

Architect Coatings	—	0.56	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.10	1.09	0.00	0.00	0.31	0.31	0.00	0.07	0.07	—	284	284	< 0.005	0.01	0.03	—
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	—
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	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.07	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	16.2	16.2	< 0.005	< 0.005	0.02	—
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	—
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	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.68	2.68	< 0.005	< 0.005	< 0.005	—
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	—
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	—

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Apartments Mid Rise	3.87	3.52	3.71	43.1	0.10	0.07	9.03	9.10	0.07	2.29	2.35	—	10,670	10,670	0.30	0.36	36.6	10,823
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	3.87	3.52	3.71	43.1	0.10	0.07	9.03	9.10	0.07	2.29	2.35	—	10,670	10,670	0.30	0.36	36.6	10,823
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Apartments Mid Rise	3.54	3.20	4.33	33.0	0.09	0.07	9.03	9.10	0.07	2.29	2.35	—	9,622	9,622	0.33	0.40	0.95	9,749
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	3.54	3.20	4.33	33.0	0.09	0.07	9.03	9.10	0.07	2.29	2.35	—	9,622	9,622	0.33	0.40	0.95	9,749
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Apartments Mid Rise	0.65	0.59	0.74	6.31	0.02	0.01	1.63	1.64	0.01	0.41	0.43	—	1,641	1,641	0.05	0.06	2.62	1,664
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Total	0.65	0.59	0.74	6.31	0.02	0.01	1.63	1.64	0.01	0.41	0.43	—	1,641	1,641	0.05	0.06	2.62	1,664

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	137	137	0.02	< 0.005	—	139
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	341	341	0.06	0.01	—	344
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	66.8	66.8	0.01	< 0.005	—	67.5
Total	—	—	—	—	—	—	—	—	—	—	—	—	545	545	0.09	0.01	—	550
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	137	137	0.02	< 0.005	—	139
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	341	341	0.06	0.01	—	344
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	66.8	66.8	0.01	< 0.005	—	67.5
Total	—	—	—	—	—	—	—	—	—	—	—	—	545	545	0.09	0.01	—	550
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	22.7	22.7	< 0.005	< 0.005	—	23.0
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	56.4	56.4	0.01	< 0.005	—	57.0
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	11.1	11.1	< 0.005	< 0.005	—	11.2
Total	—	—	—	—	—	—	—	—	—	—	—	—	90.2	90.2	0.01	< 0.005	—	91.1

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	0.04	0.02	0.35	0.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	443	443	0.04	< 0.005	—	444
Apartments Mid Rise	0.09	0.05	0.79	0.34	0.01	0.06	—	0.06	0.06	—	0.06	—	1,000	1,000	0.09	< 0.005	—	1,003
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	0.13	0.07	1.14	0.48	0.01	0.09	—	0.09	0.09	—	0.09	—	1,443	1,443	0.13	< 0.005	—	1,447
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	0.04	0.02	0.35	0.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	443	443	0.04	< 0.005	—	444
Apartments Mid Rise	0.09	0.05	0.79	0.34	0.01	0.06	—	0.06	0.06	—	0.06	—	1,000	1,000	0.09	< 0.005	—	1,003

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	0.13	0.07	1.14	0.48	0.01	0.09	—	0.09	0.09	—	0.09	—	1,443	1,443	0.13	< 0.005	—	1,447
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	0.01	< 0.005	0.06	0.03	< 0.005	0.01	—	0.01	0.01	—	0.01	—	73.4	73.4	0.01	< 0.005	—	73.6
Apartments Mid Rise	0.02	0.01	0.14	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	166	166	0.01	< 0.005	—	166
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.02	0.01	0.21	0.09	< 0.005	0.02	—	0.02	0.02	—	0.02	—	239	239	0.02	< 0.005	—	240

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	8.91	4.41	2.08	39.9	0.14	5.72	—	5.72	5.51	—	5.51	946	1,832	2,777	4.46	< 0.005	—	2,890
Consumer Products	—	3.69	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.92	0.88	0.10	9.87	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	26.4	26.4	< 0.005	< 0.005	—	26.5

Total	9.84	9.28	2.18	49.8	0.14	5.73	—	5.73	5.52	—	5.52	946	1,858	2,804	4.46	< 0.005	—	2,916
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	8.91	4.41	2.08	39.9	0.14	5.72	—	5.72	5.51	—	5.51	946	1,832	2,777	4.46	< 0.005	—	2,890
Consumer Products	—	3.69	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	8.91	8.41	2.08	39.9	0.14	5.72	—	5.72	5.51	—	5.51	946	1,832	2,777	4.46	< 0.005	—	2,890
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.37	0.18	0.09	1.64	0.01	0.23	—	0.23	0.23	—	0.23	35.2	68.1	103	0.17	< 0.005	—	107
Consumer Products	—	0.67	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.08	0.08	0.01	0.89	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.15	2.15	< 0.005	< 0.005	—	2.16
Total	0.45	0.99	0.09	2.52	0.01	0.24	—	0.24	0.23	—	0.23	35.2	70.3	105	0.17	< 0.005	—	110

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	3.88	6.78	10.7	0.40	0.01	—	23.5
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	9.63	11.1	20.7	0.99	0.02	—	52.5
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	13.5	17.8	31.4	1.39	0.03	—	76.0
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	3.88	6.78	10.7	0.40	0.01	—	23.5
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	9.63	11.1	20.7	0.99	0.02	—	52.5
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	13.5	17.8	31.4	1.39	0.03	—	76.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	0.64	1.12	1.76	0.07	< 0.005	—	3.89
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	1.60	1.83	3.43	0.16	< 0.005	—	8.69
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	2.24	2.95	5.19	0.23	0.01	—	12.6

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	19.9	0.00	19.9	1.99	0.00	—	69.7
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	49.4	0.00	49.4	4.94	0.00	—	173
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	69.3	0.00	69.3	6.93	0.00	—	242
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	19.9	0.00	19.9	1.99	0.00	—	69.7
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	49.4	0.00	49.4	4.94	0.00	—	173
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	69.3	0.00	69.3	6.93	0.00	—	242
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	3.30	0.00	3.30	0.33	0.00	—	11.5

Apartment Mid Rise	—	—	—	—	—	—	—	—	—	—	—	8.18	0.00	8.18	0.82	0.00	—	28.6
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	11.5	0.00	11.5	1.15	0.00	—	40.1

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.38	0.38
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.85	0.85
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.23	1.23
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.38	0.38
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.85	0.85
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.23	1.23
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.06	0.06
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.14	0.14
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.20	0.20

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

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

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

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

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

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

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

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

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

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

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

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

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

Sequest	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	1/1/2026	1/14/2026	5.00	10.0	—
Grading	Grading	1/15/2026	2/11/2026	5.00	20.0	—
Building Construction	Building Construction	2/12/2026	12/30/2026	5.00	230	—
Paving	Paving	12/31/2026	1/27/2027	5.00	20.0	—
Architectural Coating	Architectural Coating	1/28/2027	2/24/2027	5.00	20.0	—

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/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40

Grading	Tractors/Loaders/Backh	Diesel	Average	3.00	8.00	84.0	0.37
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	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	17.3	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.6	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	15.0	17.3	LDA,LDT1,LDT2
Grading	Vendor	—	10.6	HHDT,MHDT
Grading	Hauling	37.5	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	125	17.3	LDA,LDT1,LDT2

Building Construction	Vendor	18.6	10.6	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	17.3	LDA,LDT1,LDT2
Paving	Vendor	—	10.6	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	25.1	17.3	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.6	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
Apply dust suppressants to unpaved roads	84%	84%
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	348,381	116,127	0.00	0.00	8,186

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	15.0	0.00	—
Grading	6,000	0.00	20.0	0.00	—
Paving	0.00	0.00	0.00	0.00	3.13

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
Apartments Low Rise	—	0%
Apartments Mid Rise	—	0%
Parking Lot	3.13	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2026	0.00	204	0.03	< 0.005
2027	0.00	204	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
Apartments Low Rise	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Apartments Mid Rise	836	836	836	305,140	12,832	12,832	12,832	4,683,573
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)
Apartments Low Rise	—
Wood Fireplaces	0
Gas Fireplaces	25
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	25
Conventional Wood Stoves	0
Catalytic Wood Stoves	3
Non-Catalytic Wood Stoves	3
Pellet Wood Stoves	0
Apartments Mid Rise	—
Wood Fireplaces	0
Gas Fireplaces	62
Propane Fireplaces	0

Electric Fireplaces	0
No Fireplaces	62
Conventional Wood Stoves	0
Catalytic Wood Stoves	6
Non-Catalytic Wood Stoves	6
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)
348381	116,127	0.00	0.00	8,186

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

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)
Apartments Low Rise	245,745	204	0.0330	0.0040	1,382,474
Apartments Mid Rise	609,931	204	0.0330	0.0040	3,119,433
Parking Lot	119,513	204	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)
Apartments Low Rise	2,027,393	1,709,842
Apartments Mid Rise	5,027,933	0.00
Parking Lot	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Apartments Low Rise	37.0	—
Apartments Mid Rise	91.6	—
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
Apartments Low Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Low Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Mid Rise	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

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

5.16.2. Process Boilers

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

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

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

8. User Changes to Default Data

Screen	Justification
Land Use	Proposed project consists of 50 two-story and 124 three-story affordable apartment dwelling units, 348 on-site parking spaces, and open space area on a total site of approximately 7.85 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 836 ADT, based on the NEC Birch Street and Los Angeles Avenue Residential Project Traffic Impact Study Scoping Agreement, dated July 21, 2023.
Operations: Fleet Mix	Fleet mix is adjusted to reflect a total of 2% heavy trucks (GVWR > 10,000 lbs).